

### **Greece: Selected Issues**

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GREECE

**Selected Issues**

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Approved by the European I Department

May 1, 2003

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## I. INTRODUCTION

1. The staff report for the 2003 Article IV consultation with Greece focused on two major issues: on the widening of macroeconomic imbalances; and on policies to lay the foundation for strong economic growth over the medium term, including steps to strengthen efficiency and transparency. The following chapters provide additional analysis to the staff report's discussion on these two topics. Concerning macroeconomic imbalances, Chapter II investigates the factors behind the large increase in the external current account deficit in recent years. Concerning policies to improve efficiency and transparency, Chapter III reviews recent efforts in a critical area, that is, the tax reform adopted in late 2002.

2. Chapter II analyzes the major factors that may have contributed to the marked widening of the external current account imbalance since the mid-1990s, with the deficit reaching one of the highest levels (in relation to GDP) among advanced economies. The factors reviewed include developments in relative cost and other competitiveness indicators, business cycle asynchronization, and idiosyncratic supply shocks and immigration. Furthermore, potential implications of euro-area entry are discussed, in particular the impact of declining interest rates in the context of monetary union.

3. The results of Chapter II suggest that the widening of the current account deficit was partly driven by monetary-union related developments and temporary factors—but it also indicates that large deficits are likely to persist and would entail considerable risks. Among the temporary factors, the current account deficit is expected to narrow over time as Greece's cyclical position, currently relatively advanced, becomes more aligned with those in partner countries. Model simulations indicate that monetary union could also have contributed to some widening of the current account deficit—in principle a reflection of fundamental factors that would not warrant specific policy concerns. However, the deterioration in competitiveness indicators, losses in market shares, and uncertainties about the export payoff of the current investment boom all raise concerns about the persistence of large current account deficits over the medium term, adding to already relatively high external debt levels in Greece. Together with risks of further euro appreciation, the likelihood of decreased EU transfers over the medium term, and increased competition from new EU entrants, these concerns need to be accounted for in formulating domestic policies.

4. Chapter III reviews the recently adopted tax reform. Prior to the reform, Greece's tax system had become exceedingly complex, difficult to administer and comply with, and had developed many features that misallocated resources and hindered horizontal and vertical equity. The tax burden was sharply divided between wage earners and pensioners, who had little scope to avoid tax obligations withheld at source, and the self-employed, who enjoyed ample opportunities. The overall taxation of labor income was broadly in line with other advanced economies (reflecting relatively low income taxes but high social security contribution rates), while that on capital income was quite low. Attempts to limit tax avoidance, while somewhat successful, had engendered much dissatisfaction, including charges of excessive discretion and arbitrary execution of tax administration.

5. In response to these shortcomings, the authorities adopted an “initial” package of reforms in late 2002 aimed at improving the system’s neutrality and simplicity, reducing administrative costs, and promoting employment and entrepreneurship. This included measures to simplify tax recordkeeping, increase the use of electronic technologies in tax administration, streamline VAT administration, reduce and reform personal income, gift and inheritance taxes, and eliminate a number of relatively minor, yet costly to administer, taxes and duties. These steps should improve resource allocation, increase horizontal and vertical equity, and reduce administrative and compliance costs. However, the measures are not expected to significantly affect the effective rate of taxation of labor or capital, notwithstanding some overall tax relief provided by the reform. The chapter concludes with a discussion of additional reforms that could be considered.

## II. THE SUSTAINABILITY OF THE GREEK EXTERNAL CURRENT ACCOUNT DEFICIT<sup>1</sup>

### A. Introduction

1. In the run-up to monetary union, Greece's external current account has moved from balance in 1994 to one of the largest deficits among advanced economies—and assessments differ widely concerning the underlying factors and possible policy implications. Blanchard and Giavazzi (2002), for example, see the widening of the deficit as the response to changing financial and goods market conditions in the context of monetary union, and argue for “benign neglect” as the appropriate policy response. Decressin and Disyatat (2000), however, have suggested that monetary union may not result in major additional reallocations of net capital flows (and thus large shifts in countries' medium-run current accounts); hence, sizable current account changes should be assessed carefully and may warrant policy adjustments.

2. Against this background, the chapter reviews key “fundamental” factors that may have influenced current account developments in recent years. The factors include developments in relative cost and other competitiveness indicators, business cycle asynchronization, and idiosyncratic supply shocks and immigration. Furthermore, potential implications of euro-area entry are discussed, in particular the impact of declining interest rates in the context of monetary union.

3. The results of this chapter suggest that the widening of the current account deficit is partly driven by monetary-union related developments and temporary factors—but it also indicates that large deficits are likely to persist and would entail considerable risks. Among the temporary factors, the current account deficit is expected to narrow over time as Greece's cyclical position, currently relatively advanced, becomes more aligned with those in partner countries. Model simulations indicate that monetary union could also have contributed to some widening of the current account deficit—in principle a reflection of fundamental factors that would not warrant specific policy concerns. However, the deterioration in competitiveness indicators, losses in market shares, and uncertainties about the export payoff of the current investment boom all raise concerns about the persistence of large current account deficits over the medium term, adding to already relatively high external debt levels in Greece. Together with risks of further euro appreciation, the likelihood of decreased EU transfers over the medium term, and increased competition from new EU entrants, these concerns need to be accounted for in setting domestic policies, as discussed in the staff report.

4. The chapter begins in Section B with a brief summary of economic developments in Greece during the run-up to euro-area membership, with particular reference to current

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<sup>1</sup> Prepared by Andreas Billmeier.

account movements. Section C discusses key determinants of the current account and their trends in recent years, and Section D concludes.

## **B. Background**

5. From a position of balance in 1994, the external current account swung into a deficit of 6.8 percent of GDP by 2000, and remained above 6 percent of GDP through 2002.<sup>2</sup> Greece has typically recorded current account deficits, and the deterioration from balance in 1994 came in two steps (see top-right panel of Figure 1). The initial decline during 1994–96 was due to a reduced surplus of the service balance and a weakening goods balance, whereas the further decline during 1998–2000 was brought about mainly by a surge in the goods deficit, heightened by a lower transfer surplus (see Table 1). Over the medium term, a further reduction of transfers seems likely, following the expiration of the present EU Community Support Framework in 2006, after the accession of new EU member countries. Moreover, sizable current account deficits will continue to add to the large negative net foreign asset position (above 40 percent of GDP at end-2001), bolstering interest payments to nonresidents and worsening the income account.

6. The period of widening current account deficits coincided with strong domestic growth as well as inflation and interest rate convergence in the run-up to monetary union. Since 1996, Greece's annual GDP growth exceeded the EU average every year, at times by a considerable margin; and the estimated output gap has been positive since 1998 (see top-left panel in Figure 1). The general government deficit narrowed from 10 percent of GDP in 1994 to just over 1 percent of GDP in 2002. Together with inflation declining from double digits toward the euro-area average, the nominal interest rate fell rapidly. The short-term interest rate spread against the deutsche mark of 13½ percentage points in 1994 had vanished by the time Greece joined the euro area in 2001. With inflation and interest rates falling in tandem for most of the second half of the 1990s, the ex post real interest rate remained initially broadly stable until 1998. During 1999–2002, however, the rapid decline in short-term rates and some widening of the inflation differential led to a sharp fall in ex post real interest rates by almost 6 percentage points.

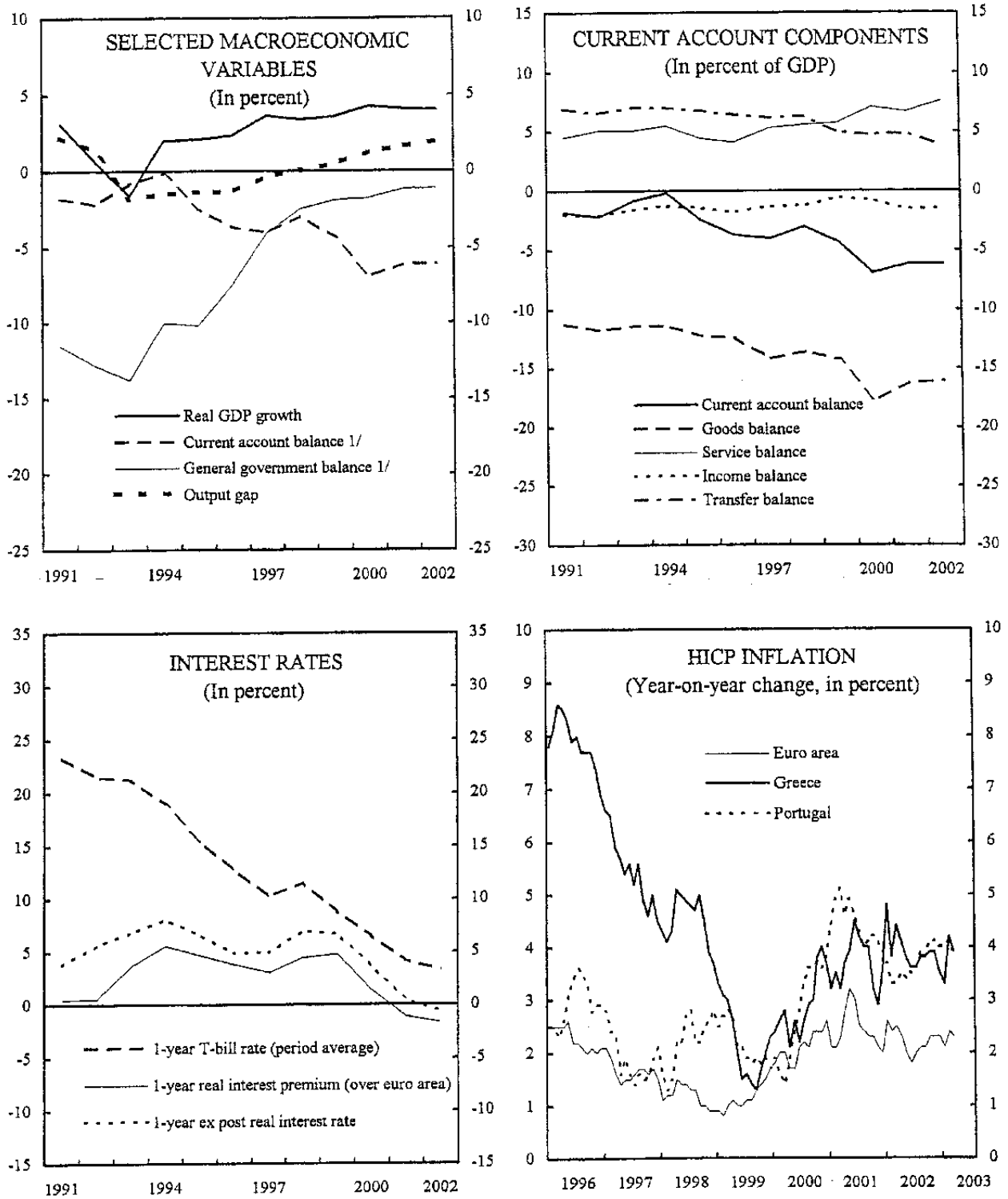
## **C. Determinants of the Greek Current Account Deficit**

7. This section discusses the contributions of several key determinants to recent current account developments in Greece. The focus is first on cyclical, supply-side and demographic effects, and on developments in various competitiveness indicators. Additional insights are offered by analyzing the current account deficit—that is, the balance between saving and

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<sup>2</sup> Based on settlements data stemming from the Bank of Greece, which includes capital transfers. Balance of payments data are subject to considerable statistical weaknesses, as noted in Appendix II of the staff report.

Figure 1. Greece: Selected Macroeconomic Trends, 1991-2002



Sources: ECB; IMF, WEO database; and Fund staff calculations.

1/ In percent of GDP.



Table 1. Greece: Balance of Payments, 1997–2002  
(In percent of GDP)

	1997	1998	1999	2000	2001	2002 Est.
Current account 1/	-4.0	-3.0	-4.3	-6.9	-6.2	-6.1
Trade balance	-14.2	-13.6	-14.3	-17.8	-16.3	-16.1
Exports	5.3	5.5	6.8	9.0	9.1	7.4
Imports	-19.5	-19.1	-21.0	-26.8	-25.3	-23.5
Services	5.3	5.6	5.7	7.0	6.7	7.6
Receipts	8.3	9.2	13.1	17.1	16.6	15.0
Travel	4.2	5.1	7.0	8.2	7.8	7.3
Transportation	1.5	1.8	4.1	7.0	7.0	6.0
Other services	2.5	2.3	2.0	1.8	1.8	1.6
Payments	-3.0	-3.6	-7.3	-10.0	-9.9	-7.4
Travel	-1.1	-1.4	-3.2	-4.0	-3.6	-1.8
Transportation	-0.3	-0.4	-1.9	-3.6	-4.1	-3.6
Other services	-1.6	-1.8	-2.3	-2.3	-2.2	-2.0
Income	-1.3	-1.3	-0.6	-0.8	-1.5	-1.5
Receipts	1.0	1.3	2.0	2.5	1.6	1.2
Compensation of employees	0.2	0.3	0.5	0.5	0.5	0.4
Investment income	0.8	0.9	1.5	2.0	1.1	0.8
Payments	-2.3	-2.5	-2.6	-3.2	-3.1	-2.6
Compensation of employees	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2
Investment income	-2.0	-2.2	-2.4	-3.0	-2.9	-2.5
Transfers	6.2	6.3	4.9	4.7	4.9	3.8
Receipts	6.2	6.7	5.8	5.5	5.9	5.5
Official	3.8	4.0	3.6	3.2	3.6	3.9
Other sectors	2.4	2.7	2.1	2.3	2.3	1.6
Payments	0.0	-0.4	-0.8	-0.8	-1.0	-1.7
Official	0.0	0.0	-0.2	-0.2	-0.4	-1.2
Other sectors	0.0	-0.4	-0.6	-0.6	-0.6	-0.5
Financial account	5.0	3.1	3.9	7.2	5.3 2/	7.3 2/
Direct investment	1.3	0.3	0.0	-0.9	0.8 2/	-0.5 2/
Portfolio investment	1.3	9.9	5.1	7.4	7.2 2/	7.8 2/
Other investment	-2.5	-3.1	-0.6	-3.9	-7.5	1.4
Reserve assets	4.8	-4.0	-0.6	4.7	4.7	-1.4
Errors and omissions	1.0	0.1	-0.4	0.3	-0.9	1.2
Memorandum item:						
Current account (in millions of euros) 1/	-4,266	-3,286	-4,800	-8,372	-8,169	-8,635

Sources: Bank of Greece; IMF, *International Financial Statistics*, and Fund staff projections.

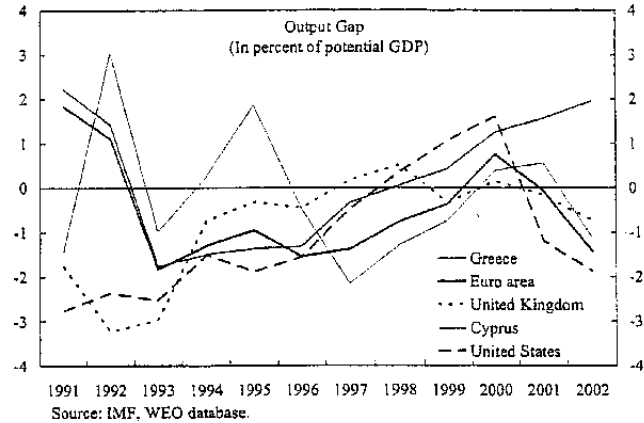
1/ Includes capital transfers.

2/ Affected in offsetting amounts by the release of commercial bank foreign exchange redeposits with the Bank of Greece resulting from the harmonization of reserve requirements upon entry into the euro area.

investment—separately from the perspective of rising investment and/or falling savings. The section concludes with two model simulations that attempt to capture some effects of Greece’s euro-area membership.

**Greece’s relative position in the business cycle**

8. One source of Greece’s external imbalance is its relative position in the economic cycle vis-à-vis its main trading partners. Notwithstanding the slowdown of economic activity in most advanced economies, the Greek economy continued to grow (for the third year) at an annual rate of around 4 percent of GDP in 2002. Moreover, for the seventh straight year, growth was higher than the EU average, and output is estimated to exceed potential by about 2 percent—while major trading partners generally experienced negative estimated output gaps.



9. If both Greece and its trading partners closed their output gaps, a boost to Greek exports as well as a slowdown in Greek imports would strengthen the external current account. The range of estimates (between ½ and 1½ percent of GDP in the text table) reflects considerable uncertainty about the income elasticity of exports and imports: while recent results in the literature

Scenarios	I	II	III
<b>Income elasticities</b>			
Import	1.00	0.60	1.50
Export	1.00	1.90	2.00
Change in exports/GDP	0.20	0.21	0.41
Change in imports/GDP	-0.70	-0.41	-1.03
Change in current account position	0.89	0.62	1.44

Sources: WEO database; and Fund staff calculations.

using gravity models of trade point to estimates of significantly less than unity, other studies (mostly using cointegration techniques) have found income elasticities significantly above unity,<sup>3</sup> more in line with the earlier literature, as reviewed by Goldstein and Khan (1985). In the text table, scenario I can be viewed as a base case. Scenario II estimates are more in line

<sup>3</sup> See, for example, Chionis and Liargovas (2002) for a gravity model for the Greek-Balkan trade, where the income elasticities of imports and exports were estimated to be 0.62 and 0.44, respectively. Arghyrou (2000) offers a similar estimate for the import elasticity, but substantially higher estimates for the export demands by OECD countries. Hooper and others (1998) provide estimates for the G-7 countries that lie between 0.9 (Japan) and 2.2 (United Kingdom). The National Bank of Greece (2003) recently reported sectoral (SITC-1) income elasticities ranging between 0.6 (beverages and tobacco) and 1.9 (chemicals; machinery; and other industrial goods).

with the gravity literature, while scenario III is consistent with earlier, higher elasticity estimates.<sup>4</sup>

### Supply side effects and the current account

10. Country-specific productivity shocks can have important effects on the external current account. The role of productivity shocks on the current account has been highlighted, among others, by Glick and Rogoff (1995),<sup>5</sup> who distinguish between country-specific and global shocks to total factor productivity (TFP). For G7 countries, both positive shocks were found to have a significant positive effect on investment. The current account responds negatively and generally significantly to country-specific shocks, while there is little or no response to global shocks, as these do not alter G-7 countries' relative saving-investment position. In order to distinguish country-specific from global productivity shocks, the authors identify deviations from a GNP-weighted average of the single-country measures as the country-specific shock.

11. Applying the Glick and Rogoff (1995) methodology, the sharp acceleration of total factor productivity growth in Greece during the second half of the 1990s could be indicative of a positive domestic supply shock, contributing to a deterioration of the current account. The growth rate of total factor productivity in Greece increased markedly in the second half of the 1990s, exceeding TFP growth in its main trading partners since 1996 (see text chart).<sup>6</sup>

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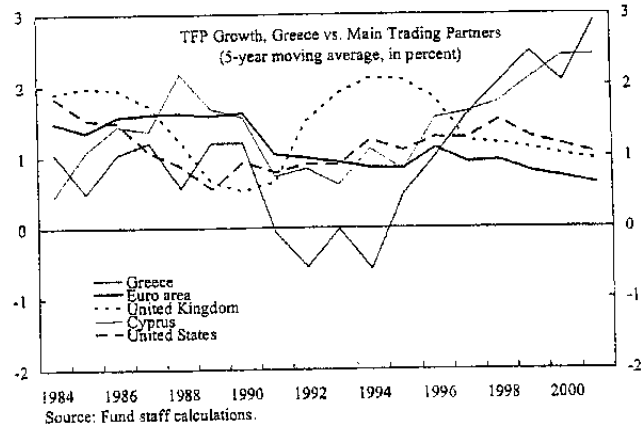
<sup>4</sup> Due to data limitations, the calculations consider only the output gaps for the euro area, Cyprus, the United Kingdom, and the United States, which together account for more than 60 percent of total Greek exports. Other major trading partners, in particular Balkan countries, are implicitly assumed to operate at potential.

<sup>5</sup> Glick and Rogoff (1995) focus on the empirical puzzle that country-specific shocks have a larger effect on investment than on the current account. This is contrary to what the classic intertemporal approach—as documented in Sachs (1981), and Frenkel and Razin (1987)—predicts: with adjustment costs to capital, a positive productivity shock should lead to higher current and permanent income. Due to the time it takes for the capital stock to adjust, however, permanent income rises by more than current income, implying lower domestic saving and therefore a more accentuated effect of the productivity shock on the current account, as compared to the investment-led effect only. To reconcile this implication with the empirical evidence, Glick and Rogoff make assumptions on the properties of the productivity shocks: in their model, very slow mean reversion of the country-specific productivity shocks (roughly in line with their observed unit-root behavior) theoretically accounts for the larger response of investment as compared to the current account, since the latter is more sensitive to the degree of persistence of the shocks.

<sup>6</sup> The text chart presents a five-year centered moving average of the yearly TFP growth. The smoothing is, however, asymmetric at the end points: for example, 1984 is an average of

(continued...)

The parameter estimates reported in Glick and Rogoff (1995) indicate that a 1 percent country-specific TFP shock would account for a worsening of the current account of roughly 0.2 percentage points of GDP. If the full change in the TFP differential vis-à-vis the euro area were interpreted as a country-specific shock, these parameter estimates suggest that the current account could have deteriorated by about ½ percent of GDP in Greece during 1995–2002.



### Demographics and immigration

12. Demographic developments can also be an important driving force of a country's international investment position. For example, a relatively young population profile (i.e., a low ratio of old-age dependency to working age population) could be expected to result, other things equal, in a relatively strong current account position. However, demographics—due to the rather low-frequency variation in the data—have typically little explanatory power in shorter-term movements of the current account, except where demographics change rapidly in the context of sizable immigration flows.<sup>7</sup>

13. Greece has experienced several periods of large immigration inflows (see text chart). Since 1977, more than 153,000 “Greek Pontians” (i.e., ethnic Greeks residing in Georgia, Kazakhstan, and other central Asian countries) have returned to Greece. This inflow was particularly pronounced in the first half of the 1990s. With large inflows also from other regions, triggered in particular by the war on the Balkans, a recent OECD (2003) report estimates the number of foreigners between 800,000 and 1 million.<sup>8</sup> In all, the cumulative

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1984–86, 1985 of 1984–87, 1986 of 1984–1988, etc. Total factor productivity growth is constructed as a residual using the (Cobb-Douglas) production function approach and controlling for changes in trend employment and the capital stock:  $\ln(Y) - \alpha \ln(L) - \beta \ln(K)$ , where the labor share is set to be equal to 0.65 for all countries (and the capital share, hence 0.35). This method is applied for Greece, the United Kingdom, and Cyprus, while estimates for the United States and the euro area are based on readily available OECD data.

<sup>7</sup> An example was the large immigration inflow into Israel in the 1990s, which contributed initially to a weakening external position (see Knight and Scacciavillani, 1998).

<sup>8</sup> Estimates of the effective number of foreign national immigrants over the past decade vary widely. The National Statistical Service of Greece lists in its 2001 census an increase of legally residing foreigners by 630 thousand to 797 thousands since the last census in 1991.

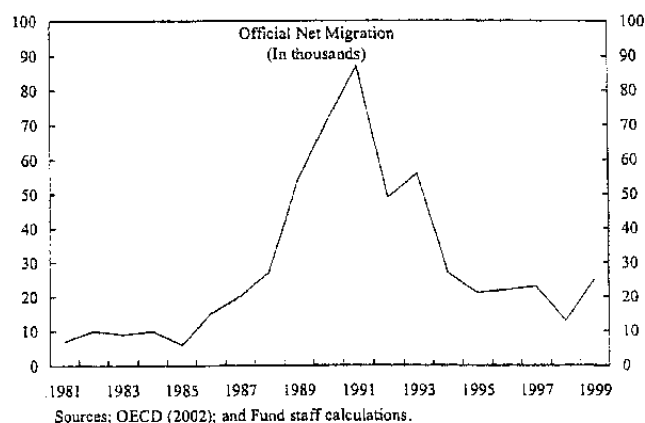
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number of (legal and illegal) immigrants since the late 1980s may have amounted to up to 10 percent of the Greek population.

14. It is difficult, however, to derive firm estimates (even in qualitative terms) of the impact of the immigration inflows on the current account in Greece.

Notably, much of the inflow occurred prior to the mid-1990s, during a period when the current account improved in Greece.

Nevertheless, it is possible that the low endowment of just-arrived immigrants contributed to some decline in average savings rate or rise in investment in the second half of the 1990s—although the effect is unlikely to have been large (as also illustrated by the estimated impact of guest workers in some countries, for example in Germany, where these workers had often relatively high saving rates).



### The competitive position of the Greek economy

15. In the first part of this subsection, various indicators of the real effective exchange rate (REER) and of export performance indicators are reviewed in order to identify possible changes in Greece's competitive position vis-à-vis its trade partners. In the last part, the driving forces of the REER itself are investigated in a framework based on purchasing power parity theory.

#### *Measures of the effective exchange rate*

16. Concerning the developments of real effective exchange indicators during 1992–2002, three broad periods can be identified (see Figure 2, top-left panel).<sup>9</sup>

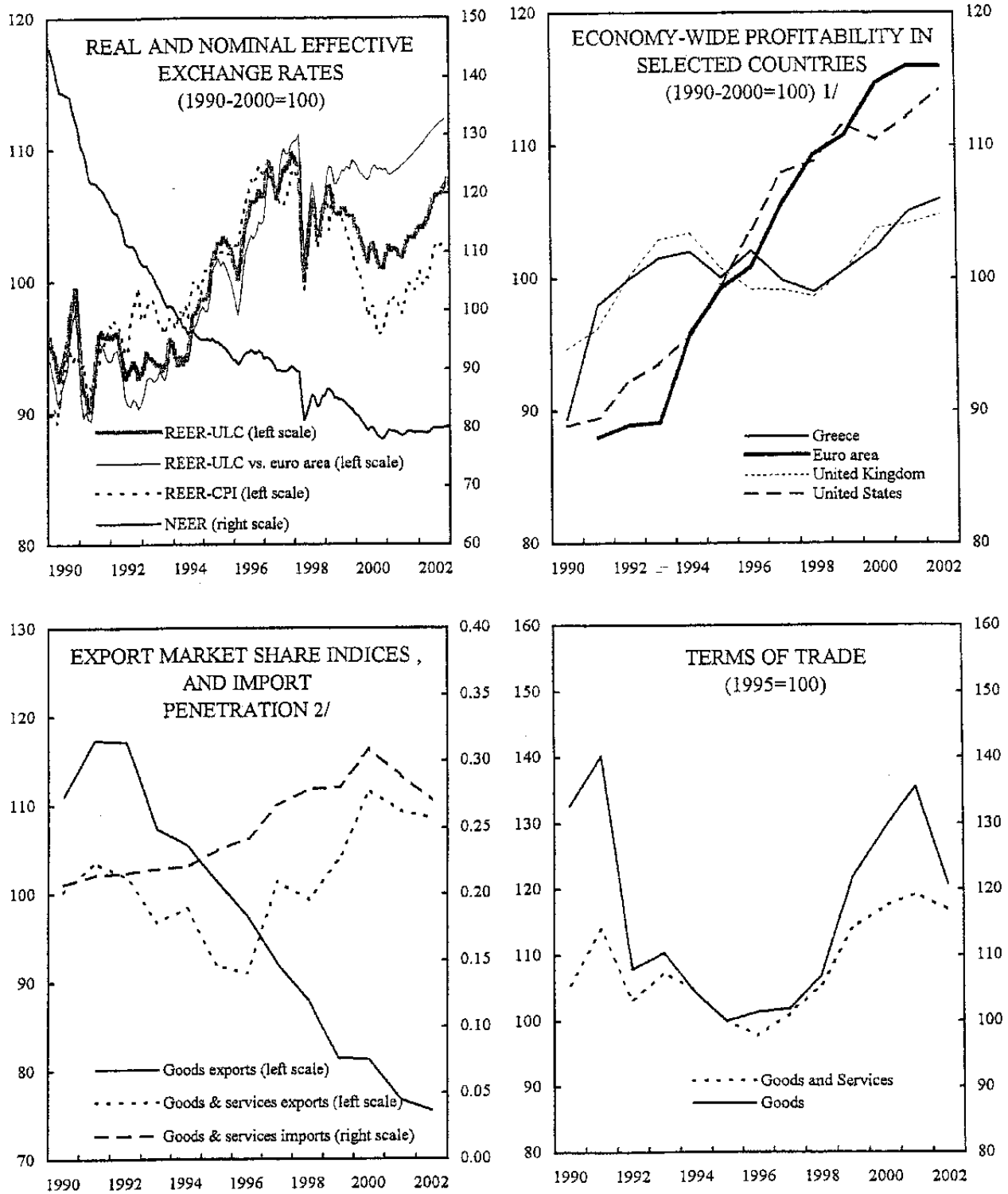
- A 6-year appreciation period of all major indices ended with the sharp nominal devaluation of the drachma upon entry into the ERM in March 1998. However, the nominal exchange rate rebounded quickly, recovering roughly two-thirds of its initial devaluation.

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Furthermore, the gap between de facto and de jure population has widened between 1991 and 2001 by 623,000 persons. In a recent report, the OECD (2003) notes that two recent regularization operations, in 1998 and 2001, attracted 371,000 and 351,000 applications, respectively, mostly from the Balkan region.

<sup>9</sup> Weights are based on the external trade structure of Greece in 1997–99.

Figure 2. Greece: External Indicators, 1990-2002



Sources: WEO database; and Fund staff calculations.

1/ Ratio of GDP deflator to unit labor costs; for euro area 1991-2000=100.

2/ For export market shares, 1990-2000=100; import penetration relative to final domestic demand (constant prices).

- After the nominal exchange rate rebound, the REER on a CPI basis began to depreciate quite rapidly, driven mostly by the weakening of the euro against other major world currencies, including the U.S. dollar, but also to some extent by reductions of indirect taxes and the effects of these measures on consumer price inflation. Contrary to the CPI measure, the depreciation between 1999 and mid-2000 was less pronounced on a ULC basis, as wage developments in Greece did not match the decline in inflation during this period. Comparing this measure on a world-wide scale to the same measure for the euro area only demonstrates the important role of the euro depreciation: all of the competitiveness gains achieved in 1999 and 2000 on a CPI and ULC basis were relative to non-euro member countries, while ULC were broadly stable vis-à-vis euro-area countries.
- Since mid-2000, all three competitiveness indicators moved together again and recorded a real appreciation. This reflects in part developments of the euro exchange rate; moreover, the ULC-based index appreciated markedly in this period vis-à-vis euro-area countries.<sup>10</sup>

#### *Profitability indicators, export market shares, and the terms of trade*

17. Profitability indicators have increased gradually since 1998. The deterioration of the ULC-based REER measures reported above conveys only a partial picture since labor costs are only one element of the profit calculation. Remuneration of factors of production other than labor as well as shifts in the external terms of trade also affect relative profitability. The ratio of the value-added deflator to unit labor costs can serve as a proxy for profitability developments.<sup>11</sup> This measure, which includes the nontraded sectors, is depicted in the top-right panel of Figure 2, and has risen gradually since 1998 in Greece. Comparisons with other countries indicate a broadly similar behavior in Greece as in the United Kingdom in recent years, notwithstanding considerably different exchange rate movements in the two countries. By contrast, the indicators suggest that profitability increased considerably faster in the euro area and the United States than in Greece over the past decade.

18. Developments of export market shares may also provide some indication of a country's competitive position. In Greece, these developments are dominated by the service (rather than the goods) sector (see bottom-left panel of Figure 2). While goods exporters have registered a continuous decrease in market shares for a decade, this behavior is mirrored in the service sector only until the mid-1990s (and again in 2001–02). In the second half of the

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<sup>10</sup> The lack of official wage data since 1998 and of sectoral data severely hamper the usefulness of ULC measures in Greece.

<sup>11</sup> See Lipschitz and McDonald (1991) on this, as well as Marsh and Tockarick (1994) for related issues.

1990s, the gain in market shares for services (consisting mainly of tourism and transportation) more than outweighed the loss in the goods sector. Since 2000, however, the total export market share index has started to weaken again. Concerning foreign import penetration into the Greek market, the share of imports to final domestic demand has increased steadily during 1990–2000. The decline during the past two years—and indeed the fall in nominal imports in 2002—is puzzling, however, in the face of strong domestic demand growth, even when taking into account that growth is particularly pronounced in the nontradable sector (including for construction).

19. Terms of trade have fluctuated considerably during the 1990s (see the bottom-right panel of Figure 2). However, its movements do not appear to have been a major factor in the widening of the current account deficit since the mid-1990s. Indeed, the terms of trade improved considerably during this period (until 2000), and these price effects per se would have strengthened the current account balance.

20. Taken together, the evidence points to an erosion of competitiveness in particular in the goods sector, but with a considerably stronger performance in the export-oriented service sector. Profitability indicators have improved, at least economy wide, over the past decade, albeit to a smaller extent than in many other euro-area countries.

#### *Purchasing power parity: the real effective exchange rate and its underlying trend*

21. Purchasing power parity considerations may provide additional insights into underlying real exchange rate trends. Complementing the Fund's macroeconomic balance approach,<sup>12</sup> the IMF's Research department is extending earlier work based on the relative purchasing power parity (PPP) framework. In the new approach, the path of the medium-term multilateral equilibrium exchange rate is assumed to depend on trends of relative productivity between the traded and nontraded goods, the stock of net foreign assets, and the terms of trade:

- Relative productivity growth in the traded and nontraded goods sectors (TNT): if productivity growth is concentrated in the traded goods sector, this will tend to cause relative prices to rise in the nontraded goods sector, assuming that wage increases are broadly similar across sectors (the Balassa-Samuelson effect).<sup>13</sup> Hence, a country with higher relative productivity growth in the traded sector—as could be expected for a country like Greece, if its living standards catch up to euro-area levels—will experience over time rising relative prices for nontradables, stronger overall inflation compared to its trading partners, and thus an appreciating CPI-based real exchange

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<sup>12</sup> See Isard and others (2001), as well as Isard and Faruqee (1998).

<sup>13</sup> See Swagel (1999) for evidence on the Balassa-Samuelson effect in Greece and other euro-area countries.



rate. In the empirical application, the relative productivity variable is approximated by the ratio of the consumer price index (CPI) to the wholesale price index (WPI) in the home country, relative to a weighted measure for trading partners. The former price index is assumed to cover to a larger extent nontraded goods compared with the WPI.

- The net foreign asset position (NFA): a decline in the NFA position requires a more favorable trade balance position over time in order to service the rise in external debt. The improvement in net exports, in turn, calls for a real depreciation; and vice versa. Since official data on the NFA position for Greece is only available from the International Investment Position for 1998–2001, the short official series was spliced with the series constructed by Lane and Milesi-Ferretti (2001) and estimated for 2002. In the empirical application below, the stock of NFA is measured relative to goods and nonfactor service exports, since the degree of openness of the economy has an important impact on the link between trade balance and real exchange rate.
- The terms of trade (TOT): the estimation uses the ratio of export and import unit values of goods and nonfactor services, and the TOT measure is normalized to the size of trade in the economy.

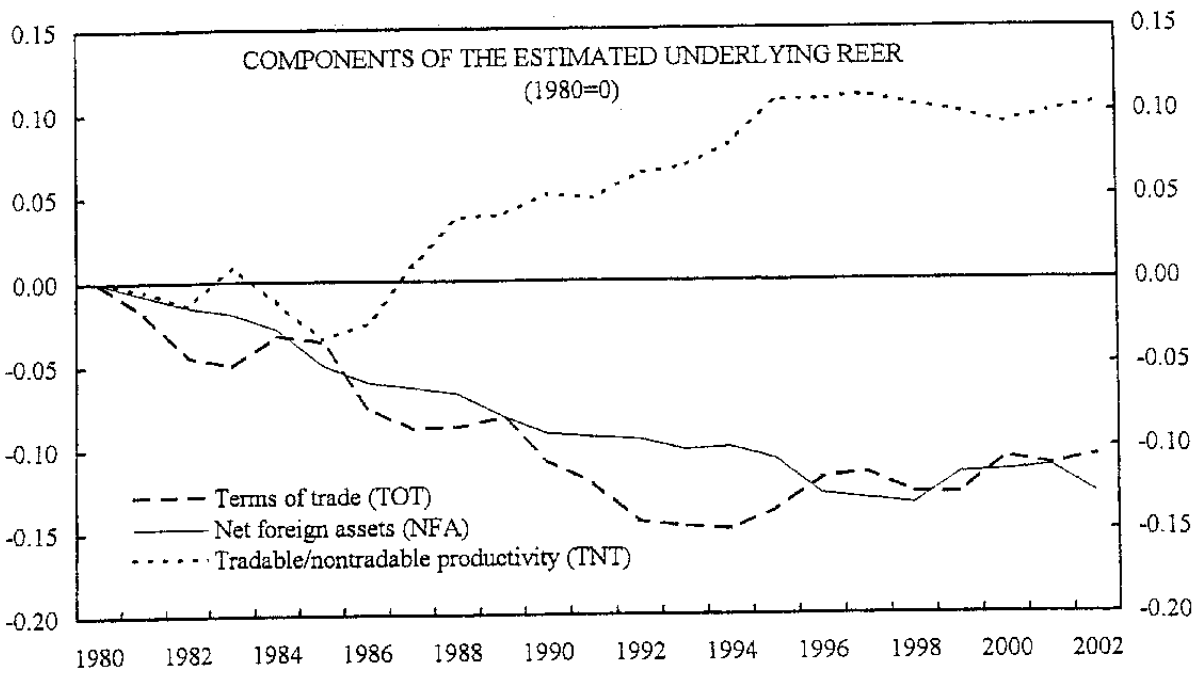
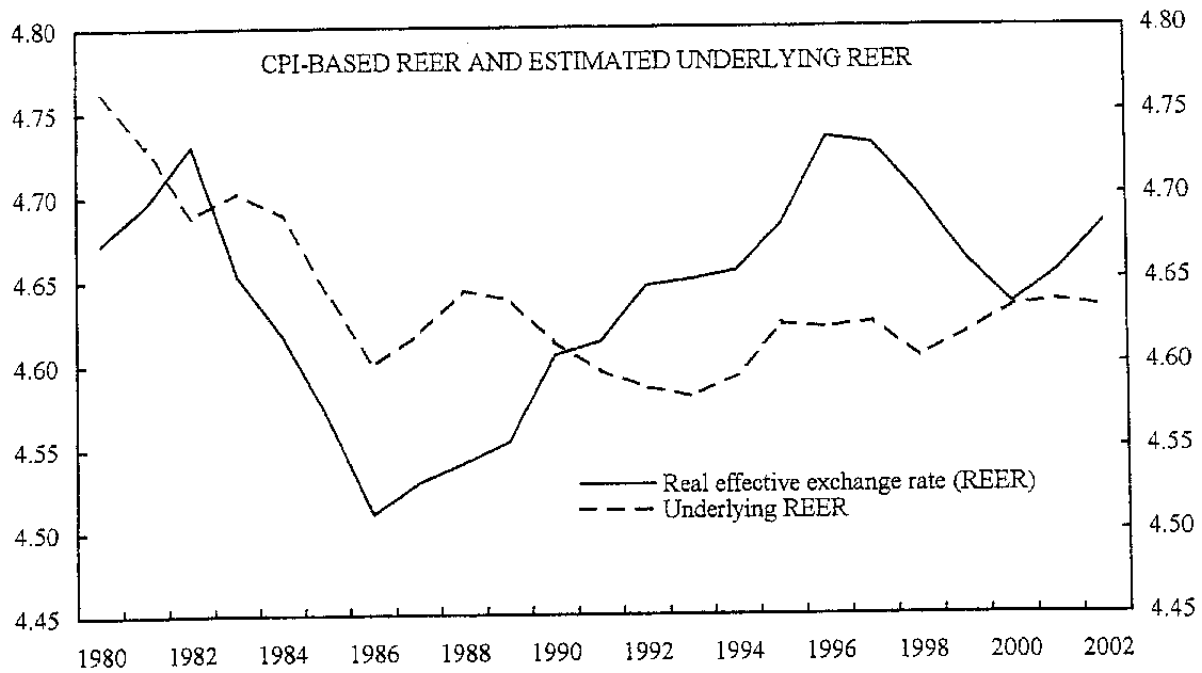
22. The results of the PPP approach point to a relatively weak competitive position of the Greek economy during much of the 1990s, and again in 2002 (Figure 3). Applying the estimated long-run coefficients from a panel regression<sup>14</sup> to the calculation of Greece's underlying REER indicates that the 1980s were characterized by a persistent undervaluation of Greece's REER compared to its long run trend, while the opposite held true in the 1990s. This switch was mostly due to the strong upward trend of the REER between 1986 and 1997. A significant depreciation of the REER since 1997 brought the exchange rate back in line with its underlying trend in 2000. This adjustment was partly due to the nominal depreciation of the drachma upon entering the ERM in March 1998, the decline in inflation in the run-up to monetary union, and the depreciation of the euro. Beginning in 2001, however, the gap between observed and estimated underlying exchange rate opened up again, in particular in 2002. As a result, and subject to considerable margins of uncertainty surrounding these estimates, the results suggest that the REER was overvalued by about 5 percent relative to its underlying determinants in 2002.

23. The variability in the underlying real effective exchange rate can be decomposed into its three driving forces (see the lower panel of Figure 3). Over time, the three components

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<sup>14</sup> The panel regression of the real exchange rate on the described regressors involved 11 currencies: Australia, Canada, Denmark, euro area, Japan, New Zealand, Norway, Sweden, Switzerland, the United Kingdom, the United States. Endogeneity of the regressors was accounted for by a dynamic OLS estimator (see Stock and Watson, 1988); the sample period is 1980–2001 (annual data).

Figure 3. Greece: PPP-Based Real Effective Exchange Rate (REER) and Underlying Trend, 1980-2002

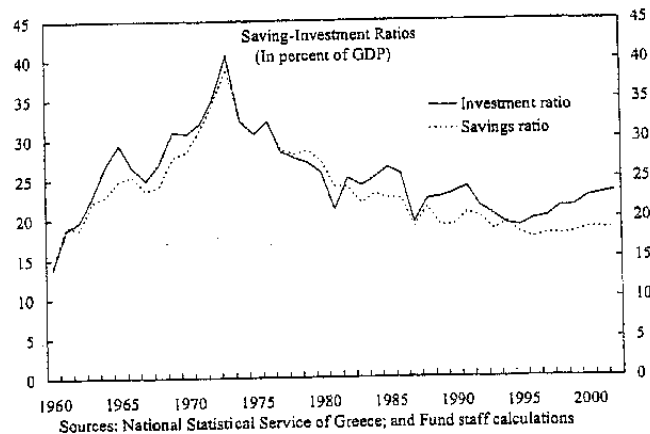


Sources: IMF, *International Financial Statistics*; and Fund staff estimates.

have had varying effects on the trend. During the first half of the 1980s, the deterioration of Greece's relative NFA position and of its relative terms of trade resulted in a considerable depreciation of the underlying real effective exchange rate. While these two variables (TOT and NFA) continued to weaken in the second half of the 1980s and early 1990s, their effect on the underlying REER was balanced in this period by an increase in the measure of relative productivity for the traded goods sector. All three components have remained relatively stable since 1996 as has, consequently, also the estimate for the underlying real effective exchange rate.

### Saving and investment

24. After a steady decline of saving and investment ratios until the mid 1990s, saving has remained stable at historically low levels, while investment has rebounded slowly back to its long-run average. From a saving-investment perspective, a current account deficit implies higher investment than domestic saving. While a deterioration of the current account due to a decrease in saving (and higher household consumption) can cast doubts on the ability to repay the debt in the future, this may be less of a concern if the current account deficit is driven by high investment, in particular in the traded goods sector. In Greece, the widening of the current account deficit is mostly due to a rising trend in investment since 1994, while domestic savings as a ratio of GDP remained remarkably stable since 1995 (see text chart).<sup>15</sup>

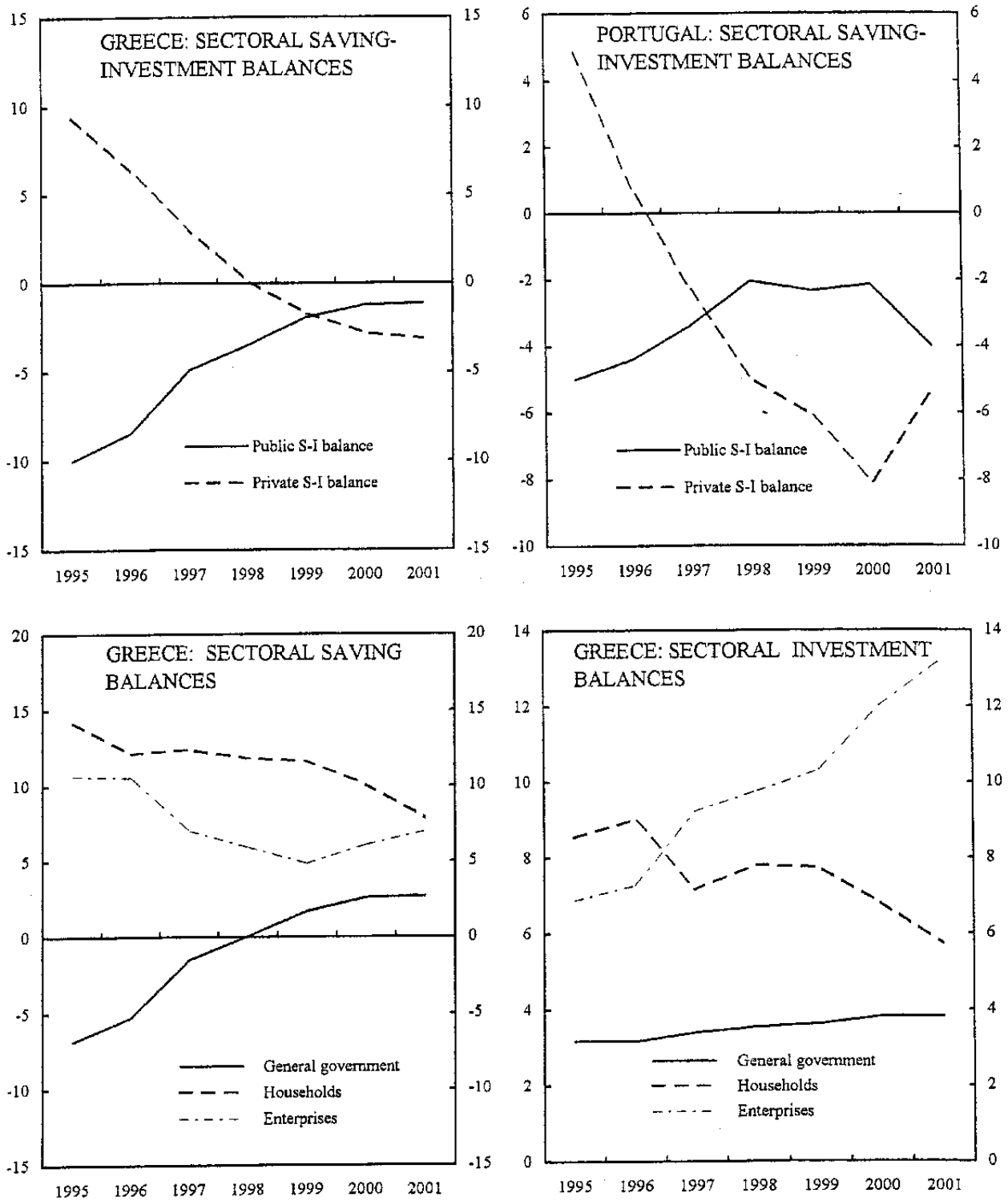


25. In considering the future export potential generated by the rise in the investment ratio, some caution seems warranted, however. In particular, the rise in domestic investment is partly driven by strong construction demand, including more recently construction related to the 2004 Olympics, with uncertain payoffs in terms of future tradable goods activity.

26. In terms of public versus private sector balances, the rise in the current account deficit since the mid-1990s has reflected a rapidly deteriorating private sector saving-investment balance. The public balance improved significantly, to close to balance in 2001 (see the top-left panel in Figure 4). The effective saving effort of the public sector is overstated, however,

<sup>15</sup> The data source for domestic saving, investment and the GDP series are the national income accounts, which are on an accrual basis (ESA 95). It is therefore not directly comparable to the balance of payments data by the Bank of Greece, and the saving-investment gap does not match the current account deficit as published by the latter.

Figure 4. Sectoral Saving and Investment Balances, 1995-2001  
(In percent of GDP)



Sources: National Statistical Service of Greece; Ministry of Economy and Finance; and Fund staff calculations.

to the extent that it reflects the disinflation process. Since interest payments during high inflation periods reflect importantly the erosion of the real value of the principal, high inflation periods tend to overstate interest payments and understate public saving (if the government is a net debtor, as in Greece). This partly explains the stronger improvement in the public sector saving-investment balance during 1995–2000 in Greece than in Portugal, the only other country running a comparable current account deficit in the euro area. Compared with Portugal, the private saving-investment balance showed a similar pattern during this period, with the balance deteriorating by about 13 percent of GDP.

27. A more detailed look at the savings rates indicates that both household and enterprise savings declined considerably since the mid-1990s. The sectoral decomposition for saving (see text table and the lower panels in Figure 4) shows that the relatively stable overall saving rate since 1995 is the result of two opposite developments:

the large rise in public saving, and a similarly strong decline in private saving, somewhat more accentuated in the household than in the enterprise sector (some of the determinants of the lower saving rate are discussed in the next section).<sup>16</sup>

28. On the investment side, the rise in the investment ratio reflected higher business investment, benefiting from the decline in real interest rates. The rise in the aggregate investment ratio since 1995 can be attributed almost entirely to higher private sector investment. Within the private sector, household investment in fact declined over the period, while business investment almost doubled in the six-year period since 1995. This surge in investment reflected a number of factors, including the decline in real interest rates in the run-up to monetary union. Furthermore, some private investment may have been crowded out by the strong borrowing demands of the public sector in the past, and structural and regulatory reforms as well as privatization in recent years may also have contributed to the rise in business investment.

Greece: Saving-Investment Balance by Sector, 1995–2001  
(In percent of GDP)

	1995	1996	1997	1998	1999	2000	2001
Total domestic saving	18.0	17.4	17.9	17.8	18.1	18.6	18.5
General government	-6.8	-5.2	-1.5	0.1	1.7	2.6	2.7
Other domestic sectors	24.8	22.7	19.4	17.8	16.4	16.0	15.8
Households	14.2	12.1	12.4	11.8	11.6	10.1	7.9
Enterprises	10.6	10.5	7.0	6.0	4.9	6.1	7.0
Total investment	18.9	19.8	20.1	21.3	21.4	22.5	22.9
General government	3.2	3.2	3.4	3.6	3.6	3.8	3.8
Other domestic sectors	15.4	16.3	16.4	17.6	18.1	18.8	18.9
Households	8.6	9.0	7.2	7.8	7.7	6.8	5.7
Enterprises	6.9	7.3	9.2	9.8	10.3	12.0	13.2
Balance	-0.9	-2.4	-2.2	-3.5	-3.3	-3.9	-4.4

Sources: NSSG; National Income Accounts; and Fund staff calculations.

<sup>16</sup> Note that the balance in the table gives the current account position according to the national income accounts definition, which differs significantly from the settlements-based position.

### The benefits of euro-area membership for Greece: some simulation results

29. Financial integration in the context of monetary union could, via a decreasing interest rate spread, both lower domestic saving and raise investment, and thus raise external financing needs. Blanchard and Giavazzi (2002), for example, have argued that financial and goods market integration in the wake of monetary union should be seen as the prime driving force behind the large current account deficits in Greece and Portugal, and that these deficits pose no particular risks or policy concerns. With Greece and Portugal the poorest members of the euro area in terms of per capita GDP, closer financial linkages can reinvigorate the process of economic catch-up with the other member countries. Concerning goods markets, potential channels include increased goods market integration and international price comparability, and the extension of distribution networks—channels that could result in goods becoming closer substitutes. Moreover, the complete elimination of the exchange rate risk and the free movement of capital are likely to foster cross-border investment. Therefore, current account deficits would be accentuated for two reasons: countries with higher rates of return to capital should experience an investment boom, while the process of catching up with other euro area members likely creates prospects of higher future income growth, triggering a decline in saving. The integration of goods markets can be thought of as an increase in the elasticity of demand for domestic goods, since goods become closer substitutes.<sup>17</sup> Concerning financial markets, increased integration could reduce domestic interest rate spreads. This would also tend to lower saving and raise investment rates.

30. These effects were simulated in a simple comparative statics exercise of the Blanchard-Giavazzi (2002) model.<sup>18</sup> The results suggest that a 1 percentage point reduction in the real interest rate would weaken the current account balance by about ½ percent of GDP (see text table). It is difficult, however, to estimate the precise decline in the relevant ex ante real interest rate in Greece in the context of monetary union. For 1-year T-bills, the real

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<sup>17</sup> Blanchard and Giavazzi (2002) present a simple model to capture these effects and derive the following current account equation:

$$ca_t = \frac{1}{2} \left[ 1 - \frac{1}{1+x} \left( \frac{1+g}{1+g^f} \right)^{1-1/\sigma} \right],$$

where  $ca_t$  is the current account to GDP ratio, the parameter  $x$  is a wedge between the world real interest rate and the real rate at which a country can borrow,  $g$  and  $g^f$  denote the domestic and foreign output growth rates, and  $\sigma$  is the elasticity of substitution between goods.

<sup>18</sup> With domestic and foreign growth rates quite similar over the past 10 years (the averages used in the calibration exercise), the effect of goods market integration on the current account (i.e., variations in the parameter  $\sigma$  of the equation in the previous footnote) do not result in significant current account movements.

interest rate spread between Greece and the euro area declined by about 5½ percentage points during 1996–2002 (see Figure 1, bottom-left panels). However, this is likely to overstate interest rate declines in this period: first, interest rates in the mid-1990s incorporated also expected exchange rate devaluation and risk premia, so that ex ante real interest rates were likely somewhat lower than ex post rates; and, second, a considerable portion of private sector lending in Greece (about one-third in the late 1990s) was denominated in foreign currencies and thus did not benefit from the drachma-denominated interest rate convergence. The latter effect alone would suggest, within the context of the Blanchard-Giavazzi model, that interest rate convergence in the context of monetary union would have widened the current account deficit by at most 1¾ percentage points of GDP.

Financial Integration—A Parametrization Exercise 1/

Change in real interest rate spread	-1.0	-3.0	-6.0
Change in current account position	-0.5	-1.5	-2.8

1/ The values in the table represent the change in the current account position (in percent of GDP) for a given change in the interest rate spread (in percentage points). See text for details.

31. To further assess the impact of interest rate convergence on the current account, the text table below presents results based on the Oxford Economic Forecasting (OEF) model. The simulation evaluates the effect if financial integration “had not happened”, that is, if real interest spreads vis-à-vis

Germany had remained at their 1996 level (rather than converge in the context of monetary union). Accordingly, the second line in the text table indicates the deviation

The Effect of Interest Rate Convergence on the External Current account 1/

	2000	2001	2002
1. Actual current account (relative to GDP)	-6.9	-6.2	-6.1
2. Estimated interest rate convergence effect in the current account 1/	0.4	1.2	1.5
3. Current account at unchanged interest rate differential (1–2)	-6.5	-5.0	-4.6

1/ The simulation (based on the Oxford Economic Forecasting model) assume that real rate differentials vis-à-vis Germany had remained at their 1996 level.

from the baseline of the estimated interest rate effect. The results suggest that the current account deficit was higher by about 1½ percent of GDP in 2002 due to the interest rate convergence effect. However, for the reasons listed in the previous paragraph, this estimate is likely to present an upper bound, as the economically relevant real interest rate decline was likely smaller than assumed in these simulations (which were based on the convergence in 1-year real T-bill rates).

32. The two simulations exercises above provide some insight into the question to what extent the increased current account deficit was driven by the real interest rate decline. Both simulations suggest that real interest rate convergence could result in some widening of the external current account deficit—albeit probably not to the extent observed in actual current account developments in Greece.<sup>19</sup>

<sup>19</sup> See Kieler (2001) for a similar result, using the IMF’s MULTIMOD.

#### **D. Concluding Remarks**

33. This chapter reviewed several factors that may have contributed to the widening of the current account deficit in Greece to one of the highest levels (in relation to GDP) among industrial countries. It discussed developments in competitiveness, supply and demand-side factors (including a relatively advanced cyclical position of the Greek economy), the rise in investment and immigration, and some model-based simulations of the effects of lower interest rates in the context of entry into monetary union.

34. The results—which need to be interpreted with caution—indicate that some widening of the current account deficit should have been expected in the context of euro-area entry, but that the observed rise in the deficit (and its possible persistence) went beyond euro-entry-related effects, indicating potential adjustment needs. Caution in interpreting the results is warranted on several fronts: the results presented in this chapter are not unambiguous (with competitiveness indicators typically indicating some deterioration in Greece’s relative position, while the simulation results are able to explain at least part of the increase in the current account deficit with developments in fundamental factors); statistical weaknesses hamper assessments in important areas; and model-based estimates are subject to considerable margins of error. The staff report discusses possible policy implications of the findings in this chapter.



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### III. TAX REFORM IN GREECE—CLEANING THE AUGEAN STABLES<sup>1</sup>

1. Prior to 2002, the Greek tax system had not undergone a fundamental review and reform in many decades. Over time, it had become exceedingly complex, difficult to administer and comply with, and had developed many features that misallocated resources and hindered horizontal and vertical equity.
2. Recognizing these shortcomings, the authorities enacted measures in late 2002 aimed at improving the system's neutrality and simplicity, reducing administrative costs, and promoting employment and entrepreneurship. This included measures to simplify tax recordkeeping, increase the use of electronic technologies in tax administration, streamline VAT administration, reform personal income, gift and inheritance taxes, and eliminate a number of relatively minor, yet costly to administer, taxes and duties.
3. The reforms adopted should help to simplify the tax system and improve equity, but a number of important issues remain to be addressed. These include limiting or eliminating many remaining exemptions and deductions in corporate taxation, reducing further labor income taxation (through reform of the pension system), introducing a modern property tax system, eliminating remaining minor "nuisance" taxes, and reforming the local tax system.
4. However, future tax reform efforts would need to be undertaken within the context of macroeconomic exigencies. Greece's general government debt ratio, in excess of 100 percent of GDP, poses a substantial obstacle to reducing its tax burden in the medium term. In addition, pension expenditures, at 12½ percent of GDP already among the highest in the EU, are set to almost double by 2050, by far and away the largest projected increase among advanced economies.<sup>2</sup> Thus, any efforts at reducing the overall tax burden, as has been attempted in recent years in other EU economies, would be constrained by the need to impose at least commensurate reductions in expenditures to ensure fiscal sustainability.
5. This chapter is organized as follows. Section A compares the size and structure of Greece's prereform tax yield to those in other advanced economies, and examines its average effective tax ratios. Section B reviews some of its prereform statutory features, and compares it with the reforms. Section C examines areas in which further reforms could be considered, and Section D concludes.

#### A. Macroeconomic Aspects of the Prereform Greek Tax System

6. In order to fully understand the tax system's current structure, it is useful to examine briefly Greek fiscal developments in recent decades. While small overall surpluses in the 1960s were replaced by small deficits in the 1970s, the general government debt ratio remained quite low (Figure 1). In the 1980s, however, primary expenditures rose rapidly,

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<sup>1</sup> Prepared by Mark Lutz.

<sup>2</sup> See Lutz (2002).

especially from increased social transfers and public employment, while revenues lagged, with resulting deficits in excess of 10 percent of GDP and the debt-to-GDP ratio increasing rapidly. Attempts at fiscal consolidation began in the early 1990s, but were achieved entirely through a further rise in the revenue ratio, while primary expenditures have remained broadly constant as a share of GDP since the mid-1980s. At present, the general government has a small deficit (1.2 percent of GDP in 2002), although the debt ratio, in excess of 100 percent of GDP, has yet to substantially decline.

7. As part of the recent fiscal consolidation, Greece's tax revenue yield has increased quite markedly. Although it was previously below European and OECD averages, its recent rapid rise places it on par with these averages, and above those of other EU economies with similar or even higher levels of per capita incomes (Figure 2). This has been the result of increased personal income tax revenues, reflecting both fiscal drag, as tax schedules were not adjusted fully for inflation and wage growth, new taxes on interest income and stock exchange transactions, and improved tax administration, which also affected social security contributions and the VAT (Figure 3).

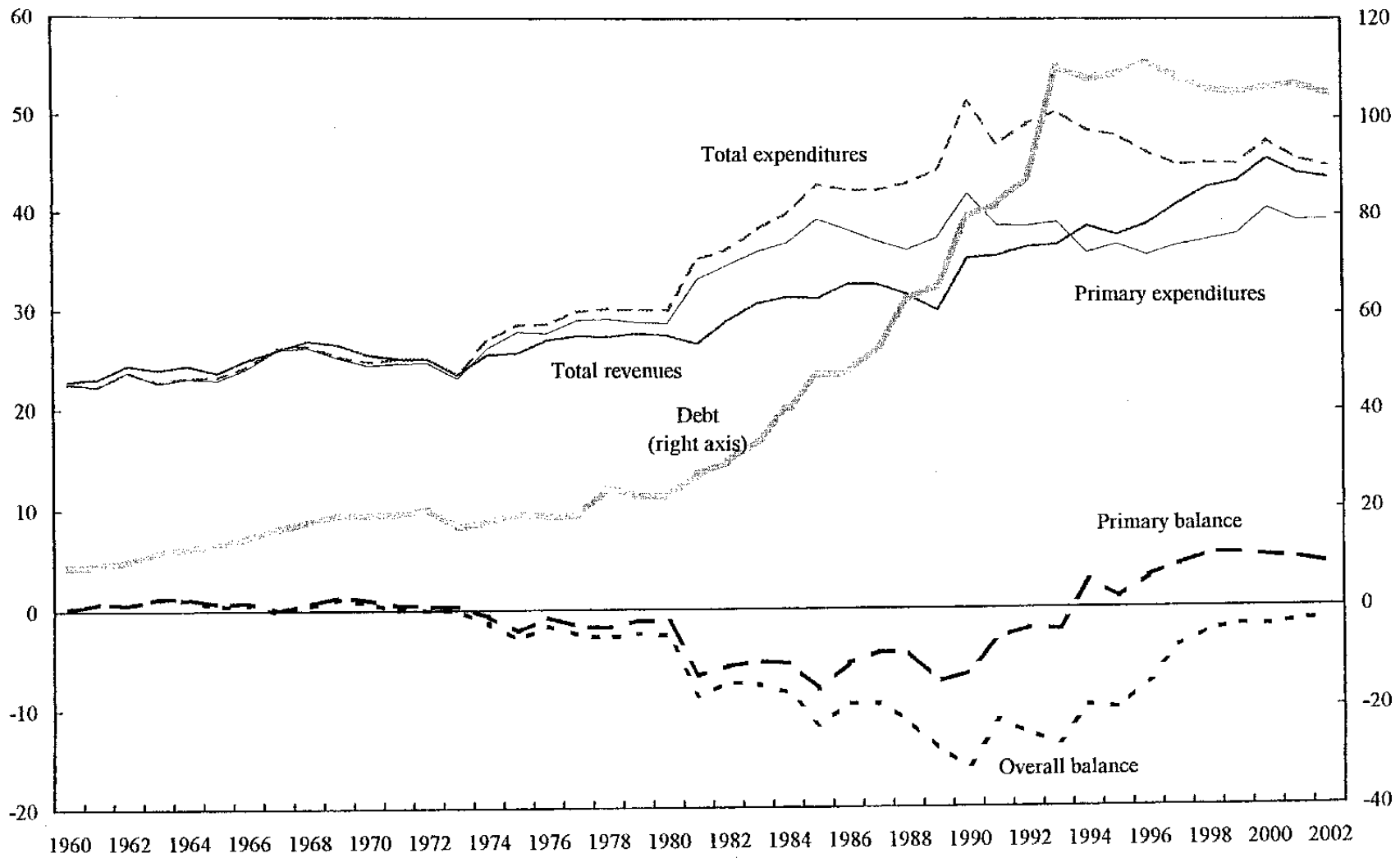
8. The composition of Greek tax revenues differs in some important respects from averages in other major advanced economies (Figure 4). In general, Greek revenues are more heavily dependent on consumption-based taxes and social security contributions, and less so on direct taxation, especially personal income taxes. This reflects a combination of factors, including the relative size of corresponding tax bases, the structure of the tax code, including the interaction of tax schedules with deductions, exemptions, allowances and credits, and the level of tax compliance (an issue of particular importance in the Greek context).

9. One factor affecting the differences in the magnitude and composition of Greece's taxes reflects relative differences in the size of its tax bases compared to those in other countries. One notable difference results from the continued high relative share of the self-employed in Greece. Dependent employment accounted for only 58.8 percent of the employed in Greece in 2002, compared to 83.6 percent in the euro area (France was the next lowest, at 70.7 percent, and Sweden had the highest rate was at 94.2 percent). This reflects the still sizable role played by small farmers, as well as by self-employed shopkeepers and small hoteliers. As a result of this economic structure, the share of wages in GDP is the smallest in Greece among OECD economies for which data are available (Figure 5).<sup>3</sup> In contrast, Greece has the highest share of net operating surplus to GDP, about double the EU and OECD averages. This component includes the value added of the self-employed, which conceptually contains both a return to labor and capital, and thus overstates capital's (and understates labor's) true income share in the economy. As regards the third major tax base, Greece's consumption share is the second highest in the OECD, although its difference from the averages is not as extreme compared to those for income shares.

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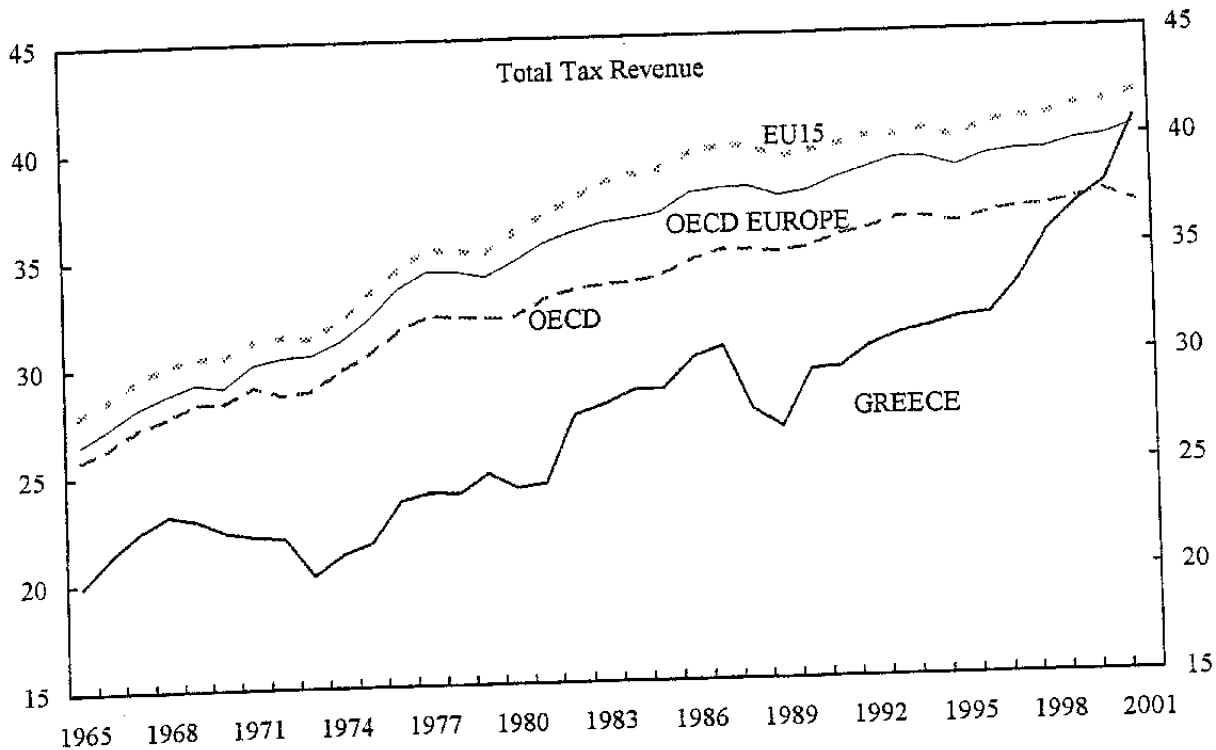
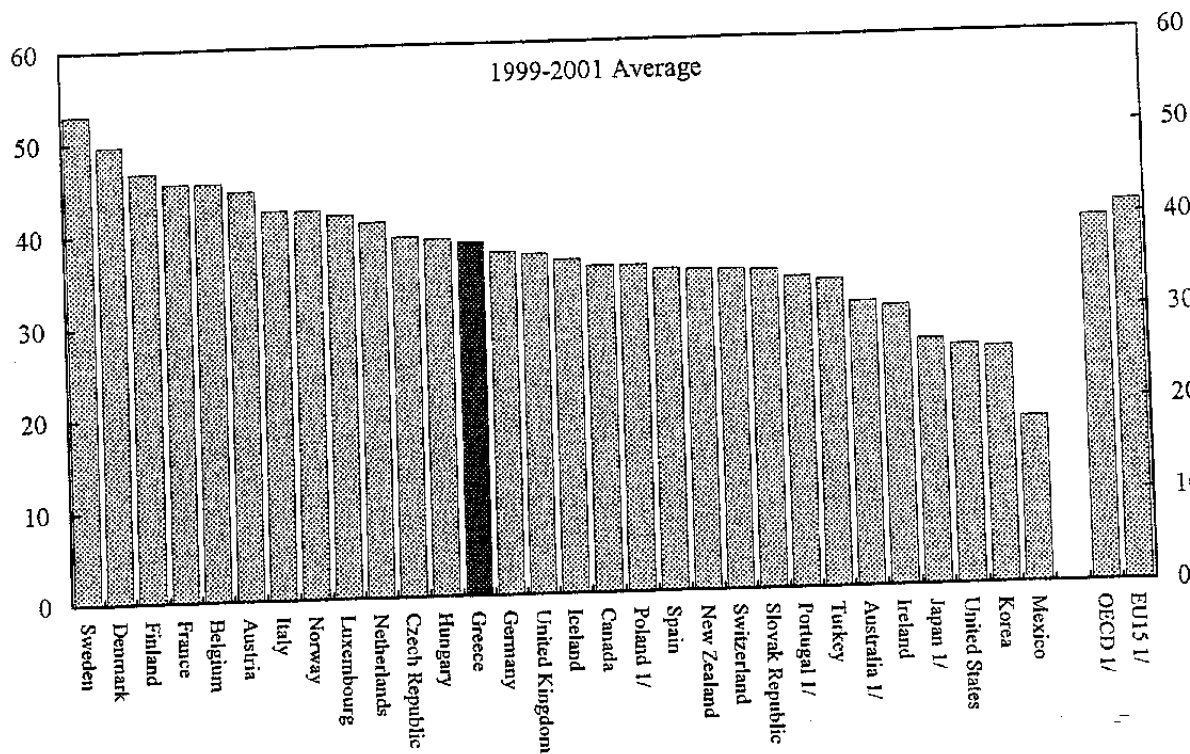
<sup>3</sup> OECD (2002).

Figure 1. Greece: General Government Developments, 1960-2002  
(Percent of GDP)



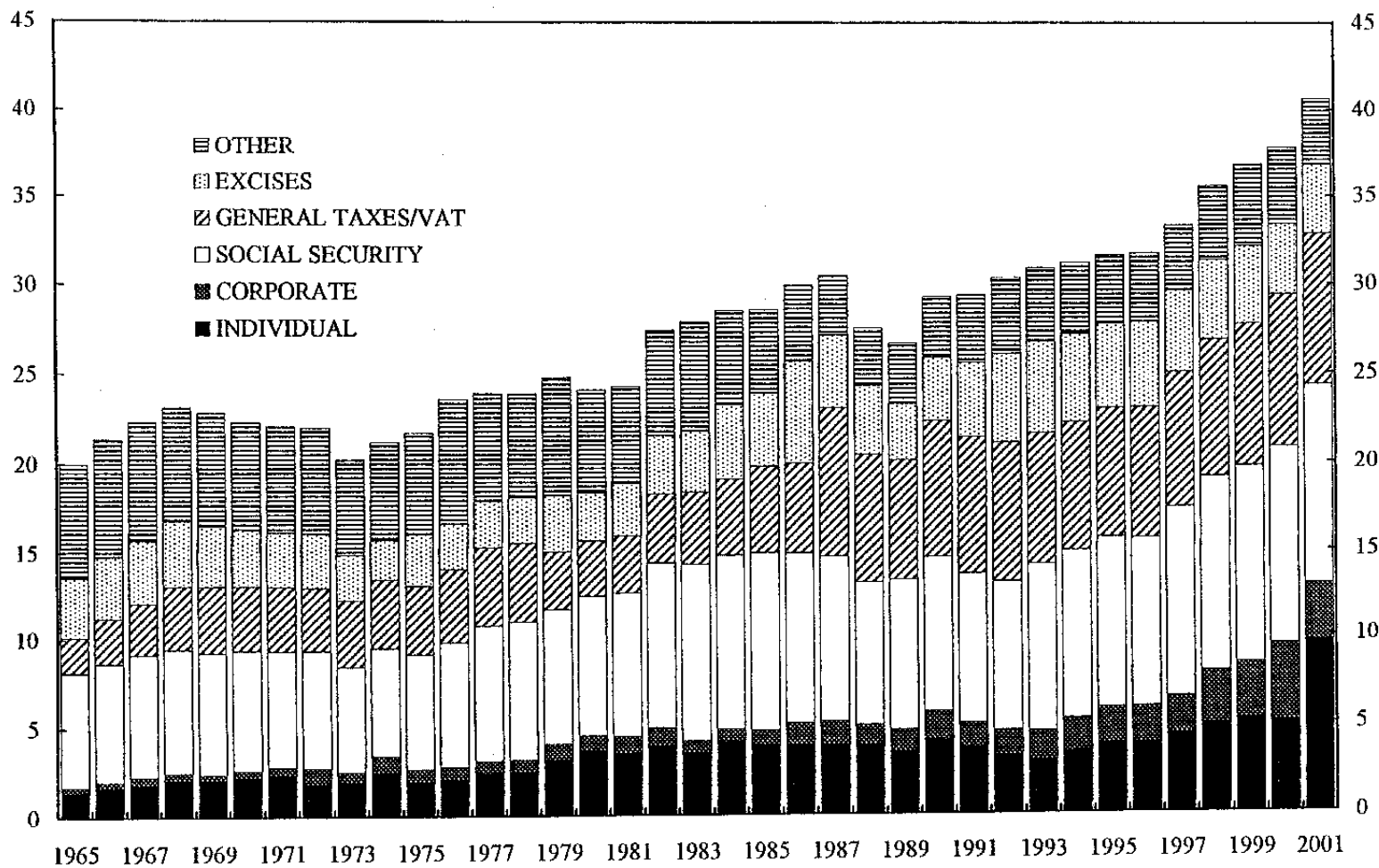
Sources: Ministry of Economy and Finance; OECD; and Fund staff calculations.

Figure 2. Greece: Tax Revenue--International Comparisons  
(In percent of GDP)



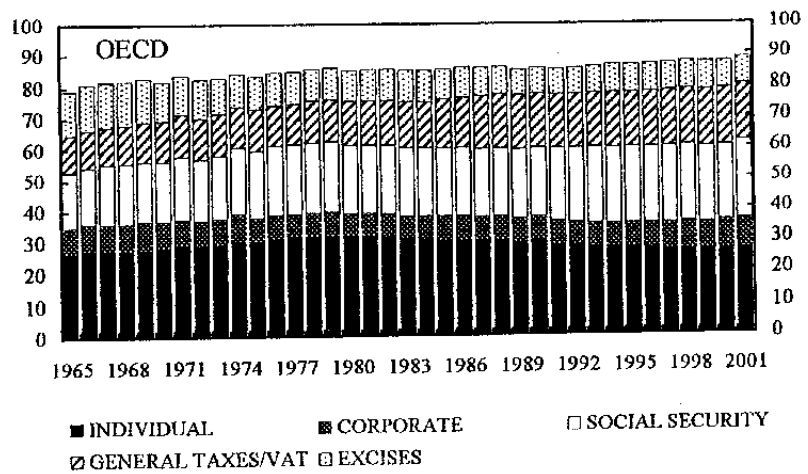
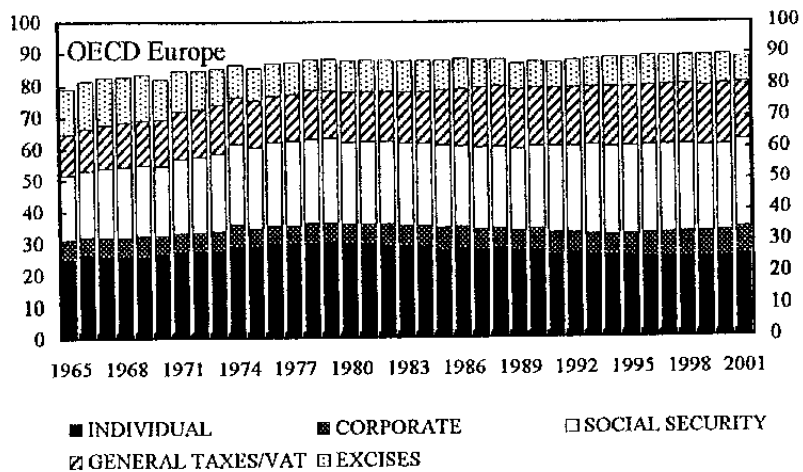
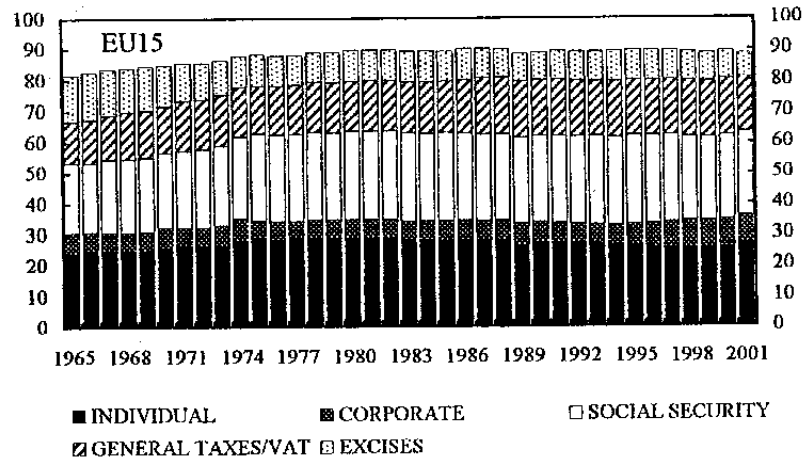
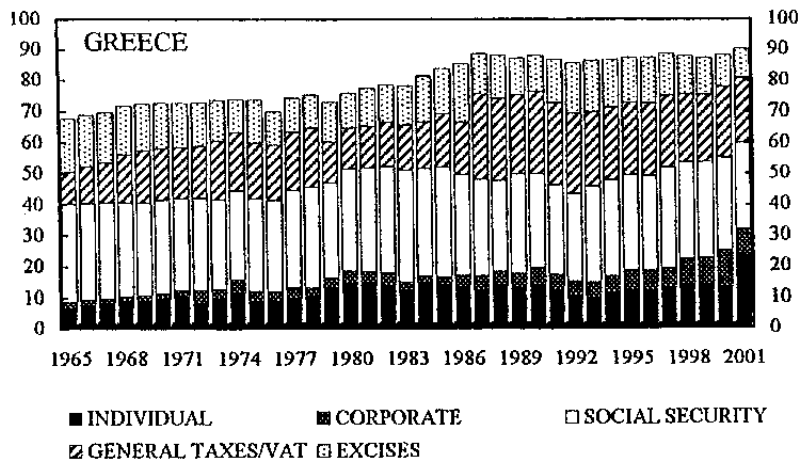
Source: OECD Revenue Statistics.  
1/ 1998-2000.

Figure 3. Greece: Tax Revenues, 1965-2001  
(Share of GDP)



Source: OECD Revenue Statistics.

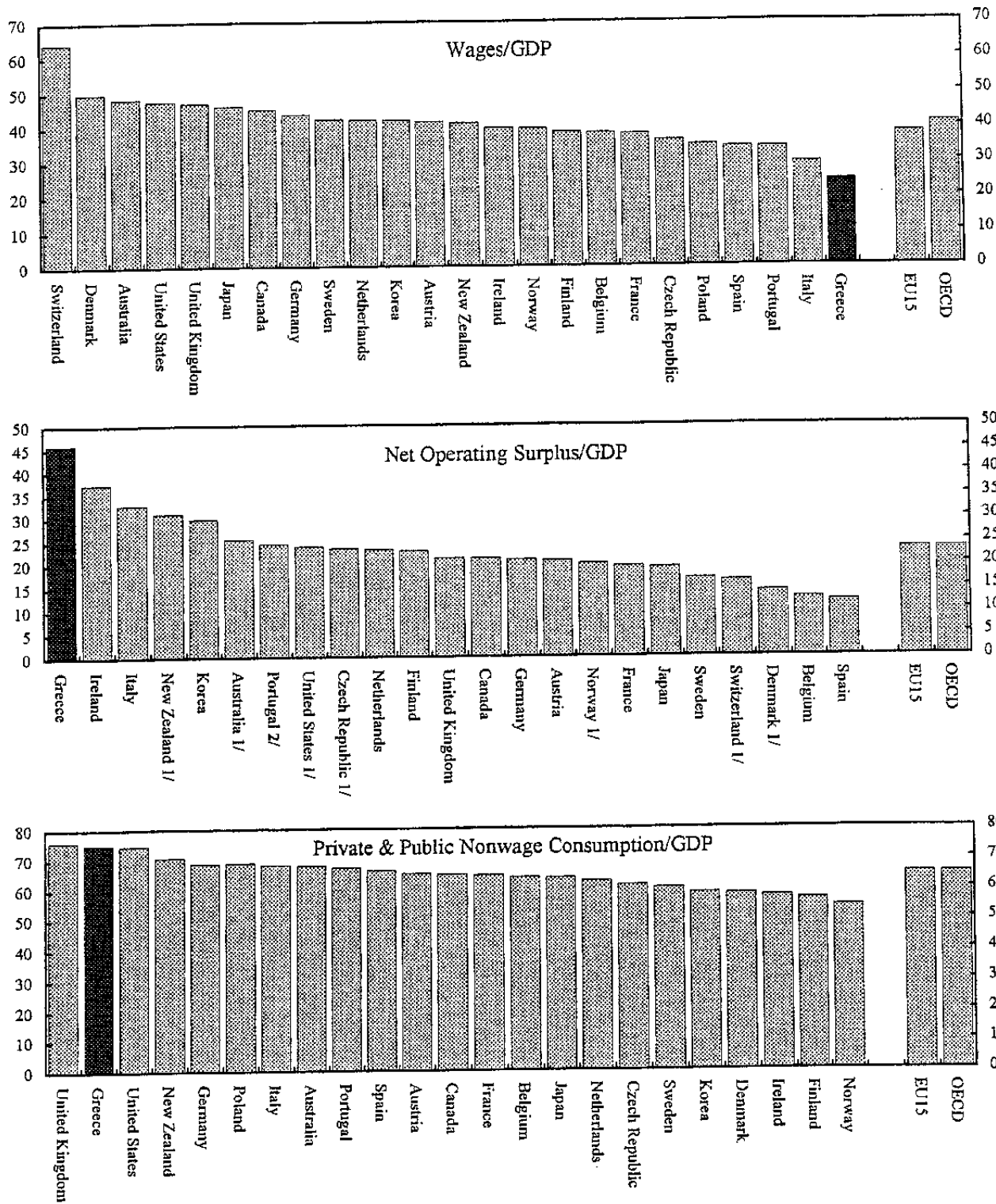
Figure 4. Greece: Tax Composition--International Comparisons, 1965-2001  
(Share of Total Tax Revenues)



Source: OECD Revenue Statistics.



Figure 5-Greece: Relative Tax Bases--International Comparisons  
(1996-2000 Averages)



Sources: Carey and Robesona (2002); OECD (2001); and Fund staff calculations.  
1/ 1996-1999.  
2/ 1996-1998.

10. A second factor affecting Greece's tax yield are the various rates of taxation. However, determining the "effective" tax rates goes beyond a simple comparison of statutory rates, and requires examining the influence that various deductions, allowances, exemptions and tax credits have in determining actual tax liabilities. Two broad approaches to examining this have been adopted. The first is to calculate effective marginal tax rates based on the tax code, and requires substantial detailed data. Examples of this approach include the OECD's *Taxing Wages* project for labor taxation, and King and Fullerton (1984), and Devereux and Griffith (1998) for capital taxation. This requires constructing many cases under various combinations to obtain representative aggregate estimates.

11. This chapter instead uses average effective tax rates (AETRs) to assess effective tax rates in Greece. This second approach was initially proposed by Mendoza, Razin, and Tesar (1994), and has become increasingly popular as a proxy for effective marginal tax rates primarily because of its simplicity. It uses internationally comparable national aggregate revenue data and proxies tax bases with internationally comparable national accounts data. Data sources and methodology underlying the AETR calculating are discussed in the Appendix. Thus, it reflects actual revenue generated from potentially vastly different tax systems, effectively accounting for a multitude of details regarding various deductions, statutory tax rates, allowances and credits.

12. The AETR approach, nevertheless, has a number of drawbacks as a proxy for effective marginal tax rates, which are thought to have a more important influence on economic decisions.<sup>4</sup> Among the more important implicit assumptions, which may not hold, are: (i) that the taxes are borne by those paying them (i.e., not shifted to others); (ii) that the calculated (backward-looking) *average* tax rates are good proxies for expected future *marginal* tax rates; (iii) that national accounts-based tax bases are good proxies for actual bases (e.g., capital gains are included in many tax receipts, but not in national accounts tax bases, thereby overstating tax rates); (iv) and that loss carry forwards are not significant. Nevertheless, they remain a good "first brush" measure of economies' relative tax reliance. Subsequent work has suggested further refinements (see the references in footnote 3), but in most cases the variations in tax rates over time within a country, and relative country rankings over the most recent period using alternate tax estimates, tend to be highly correlated.

13. The AETR analysis suggests that prior to the tax reform Greece's labor and consumption tax rates were comparable with average EU rates, but that capital taxation was

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<sup>4</sup> These shortcomings, and attempts to overcome them, are dealt with more comprehensively in Carey and Tchilinguirian (2000), OECD (2000), and Carey and Rabesona (2002, 2003).

much lower (Figure 6).<sup>5</sup> However, the contribution of personal income taxation to total labor taxation was lower than in any other country except Korea, while the social security component exceeded that in any other country.<sup>6</sup> Excises in Greece contributed slightly more than average toward total consumption taxation, with a somewhat smaller contribution from the VAT. Other, more sophisticated estimates of AETRs are found to suggest broadly comparable levels, patterns, and relative tax rates across countries.<sup>7</sup>

14. As with Greece's overall tax yield, its AETRs have risen steadily over the past decade (Figure 7). In fact, the AETR on labor now exceeds that for the EU, while that for capital, despite increasing significantly, still lags the EU average by over 15 percentage points. The pattern changes somewhat if an attempt is made to split the self-employed's incomes and tax payments between capital and labor (rather than to allocate all of them both to capital), with the labor tax ratio falling by about 9 percentage points (as the effective tax on self-employed labor is much lower than that on dependant employment) and the capital tax ratio rising by about 4 percentage points. This revised capital tax ratio remains well below international averages and well below the AETR for labor (while the two ratios are roughly comparable based on OECD averages). Greece's AETR on consumption has been broadly comparable to the EU average since 1987 (the year it introduced the VAT).

### **B. Major Features of the 2003 Tax Reform**

15. This section outlines the major features of the 2003 reform, contrasting them briefly with the prereform system.<sup>8</sup> In addition to the discussion of specific tax reforms, a few

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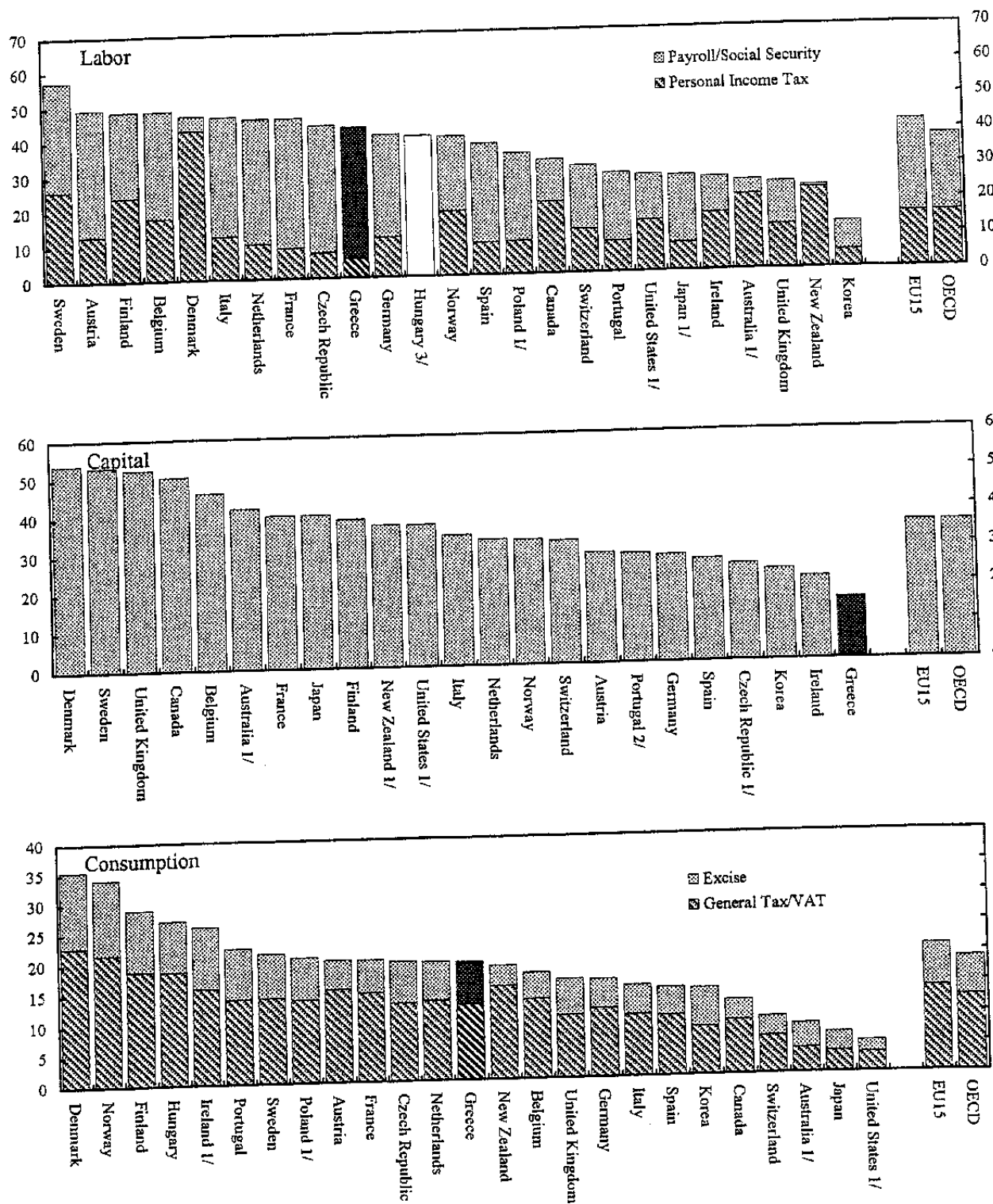
<sup>5</sup> The AETR tax rates using the Mendoza et al methodology are taken from Carey and Rabesona (2002), while the separate contributions of personal income tax and social security levies to Greece's labor AETR, and of the VAT and excises to the consumption AETR, were calculated by the author.

<sup>6</sup> And the latter exceeds EU and OECD averages by more than one standard deviation.

<sup>7</sup> Alternative measures of AETRs, incorporating increasingly realistic, albeit somewhat more complicated, allocations of aggregate tax revenue and national income components, have been suggested by Carey and Rabesona (2002, 2003), Carey and Tchilinguirian (2000), and OECD (2000). Carey and Rabesona (2002) report that the correlation coefficients between their baseline and the Mendoza and others' AETR estimates are for the vast majority of countries, including Greece, 0.8 or greater. Moreover, the Spearman rank correlation coefficient estimates of the tax rates based on Mendoza 1996–2000 averages and Carey and Rabesona's (2002) baseline rates were 0.94 for both labor and consumption, and 0.89 for capital. This further suggests that Greece's tax ratio position relative to OECD partners is robust to alternate tax measures.

<sup>8</sup> Reviews of the prereform system are relatively brief, as good discussions are contained in OECD (2001) and Tax Reform Committee (2002).

Figure 6. Greece: Average Effective Tax Ratios--International Comparisons (1996-2000 Averages)



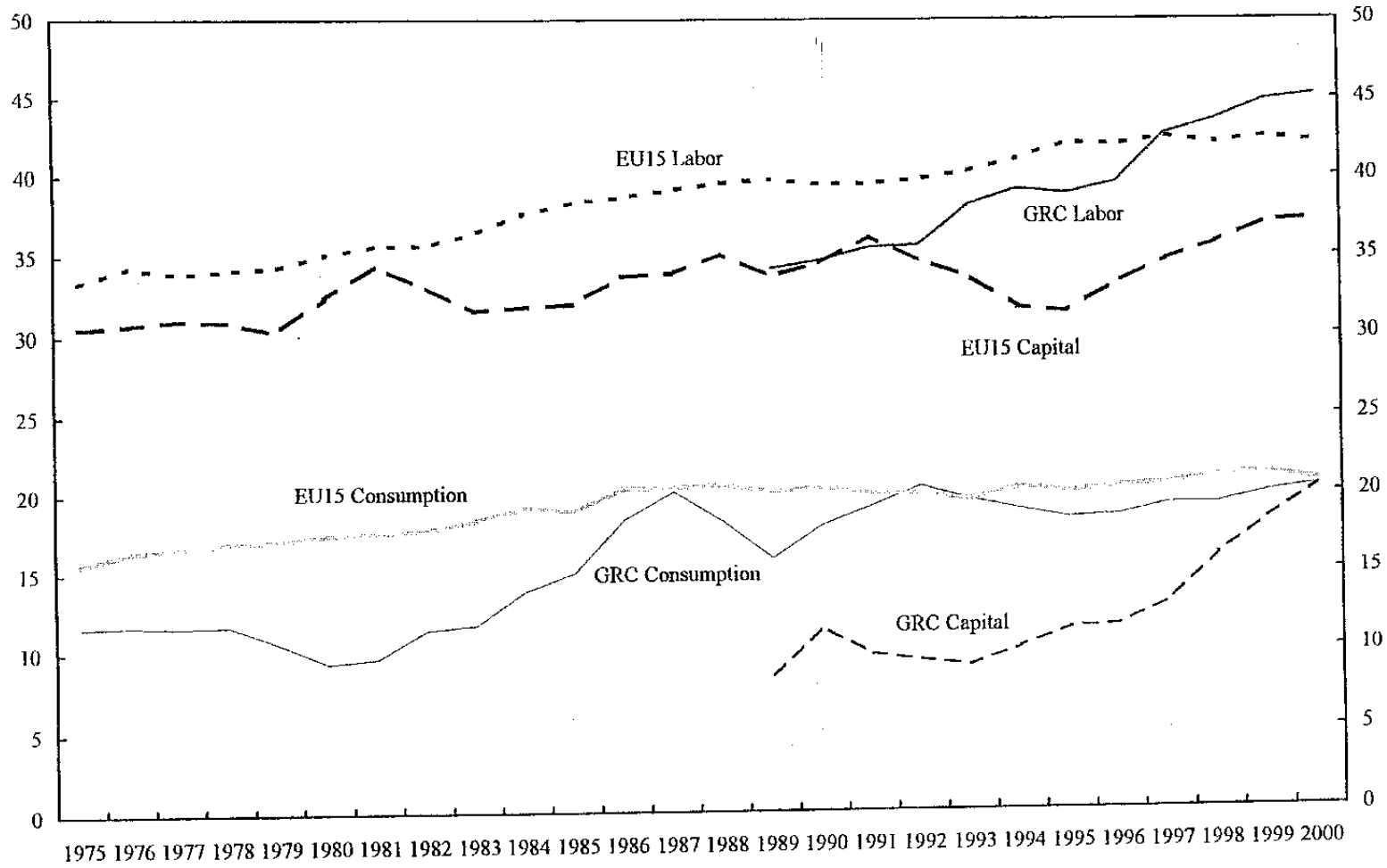
Sources: Carey and Robersona (2002); and staff calculations.

1/ 1996-1999.

2/ 1996-1998.

3/ Split between personal income tax and payroll tax/social security contributions not available.

Figure 7. Greece: Average Effective Tax Rates, 1975-2000



Source: Carey and Rabesona (2002).

introductory comments are useful. There was widespread dissatisfaction with the Greek tax system, amid perceptions of inequities, with a resulting widespread reluctance to comply. The economy remains sharply divided between wage earners and pensioners, who have little scope to avoid tax obligations withheld at source, and the self-employed, who enjoy ample opportunities. In response, tax administration efforts had increased significantly in the last decade, including greater reliance on presumptive measures (“objective criteria” in the Greek parlance) in determining self-employed tax liabilities. While this has succeeded in improving compliance (although tax evasion is acknowledged to remain a significant problem), it also engendered increasing resentment, and given an inevitable degree of arbitrariness in applying these “objective” criteria, claims of abuse by the tax authorities and public corruption.

16. Due to the influence of various special interests, as well as the policies of successive governments, the Greek tax system became exceedingly complex, increasing administrative costs and hindering compliance. Targeted exemptions, allowances or other benefits for specific activities, occupations, or politically influential (at some time) social groups littered the legal code, which combined with the absence of single consolidated tax code, increased complexity, and complicated compliance as well as equity objectives. In addition “third-party” taxes, imposed again to benefit favored groups, accreted, with high administrative costs, and doubtful economic and efficiency and equity implications.<sup>9</sup> Continuous revisions to the tax code increased uncertainty, and frequent tax amnesties had also eroded perceptions of fairness of the tax system and compliance.

17. In response to the perceived shortcomings, the authorities initiated a reform process. A committee was established, assigned to review the tax system, and prepare reform proposals. Upon receipt of its report in April 2002 (Tax Reform Committee, 2002), and following a dialogue with social partners, the government adopted two laws, covering simplifications of bookkeeping requirements and VAT compliance (Law 3052/September 24, 2002), and reforms to the personal income, capital income, and property transaction and inheritance and gift taxes (Law 3091/December 24, 2003). The major provisions of these laws are described in Box 1. The authorities estimate that the reforms would result in a revenue loss to the budget of €900 million (equivalent to 0.6 percent of GDP) in 2003, and an additional €540 million (0.3 percent of GDP) in 2004. Although no official estimates are available for the separate reform components, the authorities estimate that personal income tax reforms are expected to cost €760 million, while measures relating to corporations and liberal professions is expected to cost €690 million. The adopted

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<sup>9</sup> It was not clear how many third-party taxes existed, as many did not appear in the state budget, but were collected directly by the benefited party. The Tax Reform Committee (2002) estimated that there were roughly 300 of these taxes (and the revenues of those that were included in the budget were equivalent to 0.6 percent of GDP). The entire system of third-party taxation clearly reduced budgetary transparency, often had regressive consequences for income distribution (with some taxes going to well-paid professions), and distorted resource allocation.

## Box 1. Tax Reform Measures<sup>1</sup>

### Personal income taxation

- Simplify the system by abolishing a large number of existing reductions, exemptions, allowances and special treatment of incomes, and substantially reducing the number of taxpayers that have to file tax returns;
- Reduce the number of tax brackets from 6 to 5 (and to 4 in 2004), while reducing the top marginal tax rate to 40 percent (from 42.5 percent), and substantially increasing the size of the zero-bracket;
- Increase the tax exemption for children;
- Transform remaining expense reductions into tax credits, and capping them;
- Abolish most "objective criteria", except for those pertaining to high incomes, and those with inadequate bookkeeping;
- Harmonize at 15 percent the interest income tax rate;

### Corporate income taxation

- Align the corporate tax rate on companies not listed on the Athens Stock Exchange with listed companies at 35 percent;
- Increase deductions for group life insurance premia;
- Allow for the option of choosing among two depreciation schedules for expensing investment;

### Property taxation

- Reduce the property transfer tax rate from 9–11 percent to 7–9 percent;
- Impose a 3 percent tax on offshore companies' domestic real estate holdings;
- Increase the zero-bracket amount, and reduce the inheritance and gift tax rate in general (especially for transfers between parents and children and for first residences);
- Reduce and transform to a single rate the inheritance and gift tax rate for listed and most nonlisted companies;

### Other taxes

- Abolish many stamp duties;

### Tax administration

- Reduce and simplify tax record keeping requirements, especially for small- and medium-sized firms;
- Lengthen from two to three months the VAT tax filing period for small businesses, thereby easing administration and compliance costs;
- Increase reliance on electronic submissions and control;
- Codify the tax laws into one single consolidated text.

<sup>1</sup>As contained in Laws 3052/24 September 2002, and Law 3091/24 December 2002.

measures, while themselves significant steps toward improving the tax system's simplicity and neutrality, and reducing administrative and compliance costs, were characterized by the authorities in the 2003 budget as "initial" reforms.

### **Personal income taxes**

18. Personal income taxes are paid by employees, pensioners, and the self-employed, based on a progressive schedule, net of social security contributions, and of deductible expenses. The schedule in 2002 contained six brackets, ranging from 0 to 42½ percent. The statutory tax rates suggested relatively steep progressivity (OECD, 2001). In addition, the schedule had not been fully adjusted for the effect of inflation and real wage growth for revenue reasons, resulting in fiscal drag. However, a wide range of income exemptions and allowances were often effected through the deduction of certain expenses. This provided benefits at the marginal tax rate, which especially benefited those with higher incomes, and thereby strongly blunted any redistributive effects of the tax schedule, as well as imposing large revenue losses to the budget and complicating tax administration and compliance costs.<sup>10</sup>

19. Reforms to the personal income tax system should improve horizontal and vertical equity and reduce sizably administrative costs. Increasing the size of the zero-bracket amount (by 19 percent for wage earners and pensioners, and by 13.5 percent for others) and tax deductions for children is expected to reduce significantly the number of individuals required to submit income tax filings, thereby lowering administration and compliance costs (Table 1).<sup>11</sup> The elimination of many income deductions, and the capping of those remaining and their replacement with tax credits should also simplify tax administration and improve vertical equity. Harmonizing interest income taxation (at 15 percent) should reduce tax-induced capital misallocation. Abolishing most "objective criteria" for self-employed income assessments, if accompanied by necessary improvements in bookkeeping requirements (which entails risks to fiscal revenues but is essential in shifting to a modern tax system), should improve the horizontal equity and transparency of the tax system.

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<sup>10</sup> The Tax Reform Committee (2002) reported that total deductions amounted to 10.5 percent of total declared income, costing the budget about 0.6 percent of GDP. They also provided evidence of their regressive nature from studies of the incidence of tax deductions and exemptions. It is interesting to note that this existed in the context of Greece having a measure of income inequality that is the second highest in the EU (Eurostat, 2003).

<sup>11</sup> The tax credit for children was transformed into increases in the tax exempt amount in the first bracket of the tax scales. The effective tax relief for one child was increased from €90 to €150, for two children from €210 to €300, and for three children from €615 to €3,510. In total, Oxford Analytica (2002) estimates that up to 3 million of the 4.7 million individuals who paid personal income tax in 2001 would be zero-rated, and one million of them will not have to file a return but simply a declaration stating their zero-rated status.



Table 1. Greece: Personal and Corporate Income Tax Rates, 1999–2003

	Personal Income Tax				Corporate Income Tax	
	Wage Earners and Pensioners		Nonwage Earners and Professionals		Listed	Nonlisted
	Total Income	Tax rate	Total Income	Tax rate	Tax rate	Tax rate
	In euros	In percent	In euros	In percent	In percent	
1999					35	40
	5,576	0	4,696	0		
	7,954	5	7,954	5		
	12,723	15	12,723	15		
	22,246	30	22,246	30		
	47,646	40	47,646	40		
	over	45	over	45		
2000					35	40
	6,749	0	5,869	0		
	7,954	5	7,954	5		
	12,723	15	12,723	15		
	22,246	30	22,246	30		
	47,646	40	47,646	40		
	over	45	over	45		
2001					35	40
	7,043	0	6,163	0		
	8,363	5	8,363	5		
	13,363	15	13,363	15		
	23,363	30	23,363	30		
	50,033	40	50,033	40		
	over	42.5	over	42.5		
2002					35	37.5
	8,400	0	7,400	0		
			8,400	5		
	13,400	15	13,400	15		
	23,400	30	23,400	30		
	over	40	over	40		
2003					35	35
	10,000	0	8,400	0		
	13,400	15	13,400	15		
	23,400	30	23,400	30		
	over	40	over	40		

Source: Data provided by the Ministry of Economy and Finance.

### **Social security contributions**

20. In contrast to relatively modest, by international comparisons, personal income taxes, Greek social security contributions are among the highest in the OECD. However, this varies widely between dependent employees, who can not easily evade taxation, and the self-employed, who, as with personal taxation, have widespread opportunities and incentives to do so. Contribution rates also vary widely by sector, with some completely exempt (e.g., farmers), while others are replaced or supplemented by third-party taxes. The overall effect of this structure is to provide an incentive to be self-employed and to discourage secondary earners to enter the labor market.<sup>12</sup>

21. Following the failure of recent efforts to address the unsustainability of the pension system, reductions in social security contribution rates are unlikely. Earlier “modest” reform proposals were forcefully rejected by social partners, and the government, aside from undertaking some minor adjustments (including lengthening somewhat the pension base period), and unification of replacement rates for all pensioners (itself a retrograde step, as it increased benefits for some workers and thereby worsened the financial position of an already unsustainable system), has no intention to revisit pension reforms in the near future, and therefore to allow for a reduction in contribution rates.<sup>13</sup>

### **Capital income taxation**

22. Effective capital income tax rates vary widely, depending on the taxpayers’ legal form and way in which it is financed, invested, and distributed. Some forms of capital income are included in the personal income tax (e.g., rents) and others (capital gains, interest and dividends) are subject to separate fixed scheduler rates (varying from 0 to 15 percent, including, before the reform, differing rates for different sources of interest income). The statutory corporate income tax rate (at 35 percent for companies listed on the stock exchange and 37½ percent for nonlisted companies) was somewhat higher than statutory international averages (see Tax Reform Committee, 2002). However, the effective rate of corporate income taxation was fairly low, reflecting a wide range of tax incentives.<sup>14</sup> The marginal effective tax wedges in manufacturing displayed relatively less distortions across physical

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<sup>12</sup> OECD (2001). Regarding labor market rigidities, see Lutz (2001).

<sup>13</sup> The unsustainability of the Greek pension system is discussed in Lutz (2002) and in the staff report.

<sup>14</sup> Unlike personal income tax expenditures, those for many corporate tax activities are hard to quantify, as they may be included in enterprises’ books (e.g., donations), but are not included in their tax filings. Nevertheless, the government has estimated in the 2003 draft budget that those that they were able to quantify resulted in a revenue loss to the government equivalent to 0.8 percent of GDP in 2001 (Republic of Greece, 2002).

assets, but were strongly biased in favor of debt financing. In addition, differences in the tax rate on incorporated firms and partnerships, together with lower social security contributions by the self employed, provide a bias in favor of unincorporated businesses (OECD, 2001).

23. Individual interest income tax rates were unified at 15 percent, reducing the previous preferential treatment for government debt. There were no major changes to corporate taxation aside from unifying the rate for unlisted companies at 35 percent. Companies are now allowed greater deductions for group life insurance plans for their workers, and the taxation of severance payments to redundant workers was reduced to facilitate separations. Companies can also now choose between two rates of depreciation for expensing fixed asset acquisition costs. However, the wide variations in effective capital taxation depending on legal form, source of financing, and form of distribution remains.

### **Indirect taxes**

24. Greece levies VAT and excises on consumption goods in a system largely harmonized with practices in other EU countries. Greece's standard rate, at 18 percent, is broadly comparable with the EU average, and its reduced rate categories (14 percent for "necessities," such as fresh food, pharmaceuticals, energy and some services, and 4 percent for "cultural goods," such as publications and theater tickets) are not appreciably different in scope than in other EU economies reduced rates (13, 6, and 3 percent respectively) apply in some islands. Improved tax compliance has increased the VAT's tax yield substantially in recent years.<sup>15</sup> Minimum excise tax rates have been harmonized with EU legislation, but petroleum excises in Greece remain well below EU averages, while levies on oil for industrial uses is double the average (which boosts users' production costs). A number of other specific taxes (on automobiles, stamp taxes on various transactions, and turnover taxes) also exist, and are generally costly to administer, while generating relatively low revenues.

25. While no major reforms were made to the VAT and excise systems, revenue requirements restricted the desired elimination of stamp duties and other specific taxes. Only 30–40 percent of the total stamp duties were abolished, eliminating only about one quarter of their revenue yield, but the authorities plan for their further limitations in the future.

### **Property taxes**

26. The contribution of property taxes to the total tax yield in Greece is similar to that in other countries, but its composition is much different, relying almost exclusively on transfer taxes. In contrast, property ownership taxes supply half of all property tax revenues in the

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<sup>15</sup> The effective VAT rate, calculated as the revenue divided by consumption net of VAT revenues, has risen steadily in recent years, from 10.8 percent in 1995 to 13.6 percent in 2001, above the EU average, (at 10.5 percent) while the effective rate expressed in percent of the statutory rate has risen from 60 percent to 75.6 percent over the same period, higher than the EU average (54.1 percent, OECD, 2001).

EU. However, the lack of comprehensive land register precludes its imposition in Greece (as well as the extension of the VAT to new housing construction). Instead, revenues were generated by taxes of 9–11 percent on property transactions, which provided strong incentives to understate property values and inhibited labor mobility. Taxes on inheritances and gifts were steeply progressive (up to 25 percent for the value of estates in excess of about €212,000, and up to 60 percent above the same amount among nonrelated individuals) also leading to tax avoidance measures (including the creation of offshore companies).

27. Measures to reduce the taxation of property transfers and impose taxes on offshore holdings of domestic real estate should improve capital allocation and reduce tax avoidance. Initial steps in this area (reducing the transfer tax to 7–9 percent, reducing the inheritance and gifts tax on first residences, drastically cutting—to 0.6–1.2 percent—the same tax for listed and nonlisted companies, and imposing a 3 percent tax on offshore companies Greek real estate holdings) are useful to limit previous impediments to resource reallocation and improve tax compliance.

### **Local government taxes**

28. Local government taxes are all but absent, contributing less than one percent of general government revenues. Instead, local governments rely on shared tax revenues collected by the central government and on central transfers. As a result, there is little local accountability to use centrally provided resources efficiently, or ability to tailor the provision of government services to reflect local preferences. The 2003 reforms did not include any provisions relating to local taxation.

### **Tax reform and AETRs**

29. As a major focus on the tax reform was to simplify the system and lower administrative costs, it is not anticipated that there would be significant effects on average effective tax rates. Increasing the zero-bracket for personal income taxes, and reducing other marginal rates should reduce the labor tax ratio, but this would be partly offset by reductions in deductions and allowances, and the contribution of personal income taxes to the labor tax ratio was already very limited. Improving tax compliance among the self employed should increase somewhat capital's tax ratio (and labor's as well if social security contributions are also increased).

### **Tax administration**

30. Despite a significant improvement in tax administration in recent years, tax compliance remained problematic, the costs of administering many small “nuisance” taxes was quite high, and the recent strengthening of the powers of the tax authorities had led to increased perceptions of arbitrariness. Government policies since the mid-1990s focused on improving the efficiency of administering the tax system, with beneficial results for the tax yield. A school for training tax administrators was created, as was a tax police force. Electronic systems were created that could detect stop-payments and, when fully implemented, would allow for cross-checking. Nevertheless, the large degree of self-

assessment of tax liabilities by the self-employed, as well as the numerous, small-yielding “nuisance” taxes (including stamp duties and third-party taxes) burdened tax administration. As discussed above, attempts to limit tax avoidance by the self-employed through the use of “objective criteria” (based on physical characteristics of the business or the owner’s living standards) in tax auditing, while largely successful in improving tax compliance and generating revenues, engendered much dissatisfaction.

31. Adopting many of the tax reform measures discussed above should streamline tax administration. In addition, simplification of tax record requirements for small- and medium-sized businesses should improve tax compliance and reduce administrative costs. This should apply in particular to the VAT, where the tax period was raised from two to three months for some 800,000 small businesses. Similarly, implementing electronic methods for tax filings and administration should increase administrative efficiency and eventually, with the advent of cross-checking, further limit tax evasion. Finally, plans to codify the reformed tax system into a single, consolidated text should improve transparency.

### **C. Areas for Future Reforms**

32. While the measures adopted in the recent reforms should improve resource allocation, increase horizontal and vertical equity, and reduce administrative and compliance costs, the reforms could usefully be supplemented by additional steps. The need for future reforms is well recognized by the government, and the reforms could include the following:

- further reduce distortions in the effective rate of capital income taxation by limiting the wide range of corporate income tax incentives (including for employment creation and mergers);
- create a comprehensive land registry (as is intended by 2005), to allow for the introduction of a modern value-based property tax, and for the extension of the VAT to newly built structures. This would also allow for a further reduction in property transfer taxes, thereby potentially improving labor mobility;
- reform the pension system to allow eventually for a reduction in the comparatively high rates of social insurance contributions, which likely inhibit employment creation by far more than the personal income tax burden;
- eliminate remaining “nuisance” taxes (stamp duties, third-party taxation, etc.), which often boost production costs and worsen competitiveness, and, more importantly, are costly to administer and in some cases have undesirable equity implications;
- reform intergovernmental tax competencies to increase local government flexibility and accountability, including through shifting the bulk of the newly introduced property tax revenues to localities (and allowing for local rate determination).

#### **D. Conclusion**

33. The Greek authorities have initiated a substantial tax reform effort, which addresses a number of significant shortcomings in the tax system, and should improve resource allocation and equity in the Greek economy. This includes shedding light on the need to change a system that was overly complex, ever-evolving (and thus uncertain) and contained many horizontally and vertically inequitable features. Reforms focused on broadening personal income tax bases through the transformation of many deductions into limited tax credits should improve vertical equity, while the replacement of “objective criteria” with improved bookkeeping requirements should over time improve tax compliance and horizontal equity. Lower property transfer tax rates, and increased exemptions, should improve capital allocation and labor mobility, but substantial progress in this area awaits the introduction of a modern property tax. Tax administration and compliance costs should be reduced by the simplification of VAT recordkeeping, increasing reliance on electronic means, and the elimination of a number of stamp duties.

34. Nevertheless, the authorities themselves consider the efforts to date as “initial,” and intend to extend reform efforts further. The creation of a single consolidated tax code should increase transparency and reduce complexity and compliance costs. Consideration could also be given to reducing corporate tax incentives, eliminating remaining “nuisance” taxes, reforming intergovernmental taxation, and reforming the pension system to allow for a reduction in social security contribution rates.

### CALCULATION OF THE AVERAGE EFFECTIVE TAX RATIOS (AETRS)<sup>16</sup>

35. In order to calculate the AETRs on capital,  $\tau_k$ , and on labor,  $\tau_l$ , it is necessary to calculate the AETR on total household income,  $\tau_h$ . This is then used to allocate total household personal income tax revenues to labor and capital, assuming the same average household tax rate applies to both. The household AETR is calculated as follows:

$$\tau_h = 1100 / (\text{OSPUE} + \text{PEI} + W) \quad (1)$$

This states that the average effective household tax rate is the ratio of personal income taxes paid (OECD Revenue Statistics code 1100) to the sum of operating surpluses of private unincorporated enterprises (OSPUE), property income (PEI) and wages (W).

36. The effective tax rate on labor,  $\tau_l$ , can then be calculated as follows:

$$\tau_l = (\tau_h * W + 2000 + 3000) / (W + 2200) \quad (2)$$

where the taxes include personal income taxes paid on wages (at the average household rate), total social security contributions (2000) and payroll and workforce taxes (3000). The denominator contains employers' gross labor costs, including wages as well as employer-paid social insurance contributions (2200).

37. The effective tax rate on capital,  $\tau_k$ , is calculated as follows:

$$\tau_k = [\tau_h * (\text{OEPUE} + \text{PEI}) + 1200 + 4100 + 4400] / \text{OS} \quad (3)$$

The first term in the numerator accounts for personal income taxes allocated to capital (note that this assigns all income from unincorporated enterprises to capital). The second, third and fourth terms include direct corporate income taxes (1200), recurrent taxes on immovable property (4100) and taxes on financial and capital transactions (4400), respectively. The denominator is the economy's total (net of depreciation) operating surplus.

38. Finally, the effective tax rate on consumption,  $\tau_c$ , is calculated as follows

$$\tau_c = (5110 + 5121) / (\text{CP} + \text{CG} - \text{CGW} - 5110 - 5121) \quad (4)$$

where the numerator includes both general taxes on goods and services (5110), as well as specific excises (5121). The denominator includes the both private and government nonwage purchases of goods and services, net of taxes paid on these items, to reflect the tradition of expressing the tax rate as a share of the base price of the items excluding taxes.

<sup>16</sup> These equations are contained in Mendoza, Razin, and Tesar (1994). The terms used in them are listed in the table on the following page.

**VARIABLE NAMES AND SYMBOLS USED**

**OECD Revenue Statistics**

1100 = Taxes on income, profits, and capital gains of individuals

1200 = Taxes on income, profits, and capital gains of corporations

2000 = Total social security contributions

2200 = Employers' social security contributions

3000 = Payroll and workforce taxes

4100 = Recurrent taxes on immovable property

4400 = Taxes on financial and capital transactions

5110 = General taxes on goods and services

5121 = Excises

**National Accounts**

CP = Private final consumption expenditures

CG = Government final consumption expenditures

CGW = Compensation of employees paid by producers of government services

OS = Total (net) operating surplus of the economy

OSPUE = (Net) Operating surplus of private unincorporated enterprises

PEI = Households' property and entrepreneurial income

W = Wages and salaries



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