Former Yugoslav Republic of Macedonia: Selected Issues

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INTERNATIONAL MONETARY FUND

FORMER YUGOSLAV REPUBLIC OF MACEDONIA

Selected Issues

Prepared by Chuling Chen, Pablo López-Murphy,
Bert van Selm (all EUR), and Peter Dohlman (SPR)

Approved by Mark Griffiths

November 11, 2008

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I. POTENTIAL GROWTH ANALYSIS[1]

A. Introduction

1.   **Recent growth performance has been strong.** Real GDP growth accelerated to 5 percent in 2007 and 6 percent in the first half of 2008, from its historical average of around 3 percent. This short note tries to address three questions: (1) what factors are driving the recent economic growth; (2) what are the growth prospects for the medium term; and (3) how can the growth potential be improved.

B. Sources of Growth

2.   **Despite its recent improvement, FYR Macedonia's growth performance has been worse than that of its regional peers.** Following declining output in the initial years of independence, growth picked up in the second half of the 1990s, but the 2001 security crisis led to a sharp drop in GDP. Real GDP growth averaged 3 percent from 1995 to 2000, and 3.2 percent from 2002 to 2006. The average growth performance in the last five years is the lowest in the region.
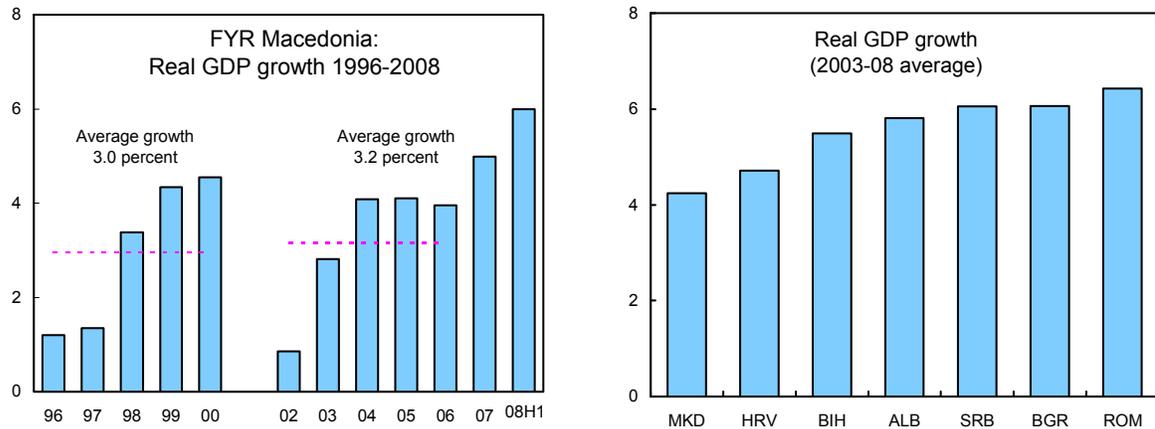
Sources: NBRM; WEO; and IMF staff estimates.

3.   **Recent economic growth has been led by domestic demand.** Real domestic demand is projected to grow by 8.6 percent in 2008, with output growth projected at 5.5 percent. Increased investment, partly financed by FDI, is the main driver boosting domestic demand, as seen in the fast growing import of investment and intermediate goods. Simultaneously, the current account deficit has widened substantially since 2007 and has become a major concern for macroeconomic stability.

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[1] Prepared by Chuling Chen (EUR).

Sources: World Economic Outlook, and IMF staff estimates.
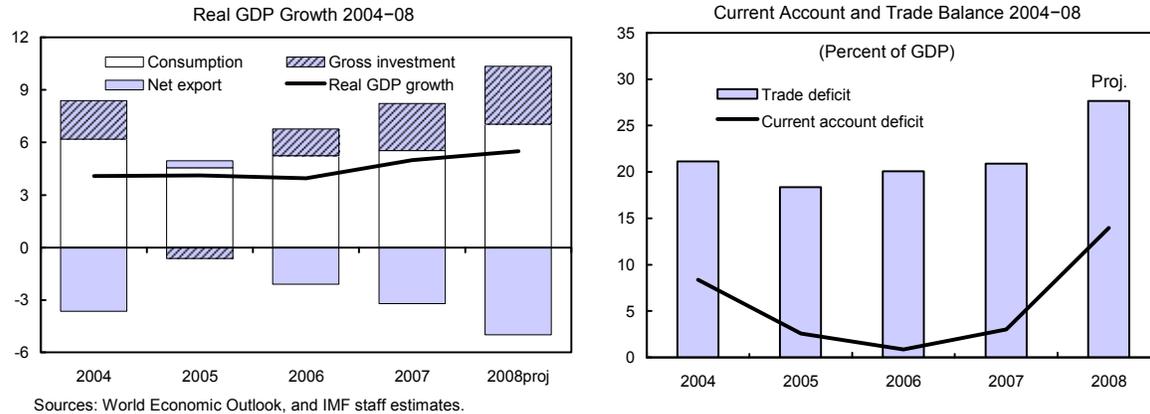
4.   **A growth accounting exercise helps to illustrate the sources of real GDP growth.**
This exercise decomposes output growth into contributions from capital and labor, and a
residual called total factor productivity (TFP). A production function is used to describe the
relationship between inputs and outputs. One commonly used production function is the
Cobb-Douglas type:

$$Y_t = A_t L_t^{\alpha} K_t^{1-\alpha}$$

where A is TFP, L is labor, and K is capital. α represents the share of labor in total output,
and assuming constant return to scale, $1-\alpha$ the share of capital. The real growth can then be
decomposed in terms of the growth of the factors:

$$\frac{\dot{Y}}{Y} = \frac{\dot{A}}{A} + \alpha \frac{\dot{L}}{L} + (1-\alpha)\frac{\dot{K}}{K}$$

5.   **Growth has been driven mainly by total factor productivity.** TFP accounted for
almost two-thirds of output growth for the periods 1996–2000 and 2001–08, while the
contributions from labor and capital have been low, explaining around one-third of the
growth rate. The contribution from labor growth is particularly small at less than 10 percent,
which is not surprising given the history of high unemployment. The large contribution from
TFP is common during the initial period of post-communist transition, where TFP growth is
a result of elimination of inefficiencies of the former economic regime. In the medium term,
however, TFP growth is expected to decline and growth will be driven by labor and capital
accumulation.

Growth Decomposition

	1996 to 2000	2001 to 2008 1/	2006 to 2008 1/
Real GDP Growth	3.4	3.7	5.2
Contributions 2/			
Capital	0.9	1.2	1.9
Labor	0.2	0.3	2.3
TFP	2.2	2.2	0.9

Sources: World Economic Outlook, and IMF staff estimates.

1/ Projections for 2008
2/ Assuming capital share to be 0.4, and depreciation to be 8 percent.

6.   **Capital formation and employment have become more significant determinants of the recent growth rate, but their contributions still lag behind their regional peers.** During the first few years after the 2001 security crisis, TFP remained the main contributor to growth. Growth in recent years has mostly come from the accumulation in labor and capital. However, compared to its regional peers, Macedonia still has the lowest share of investment in GDP, while its unemployment rate is one of the highest.
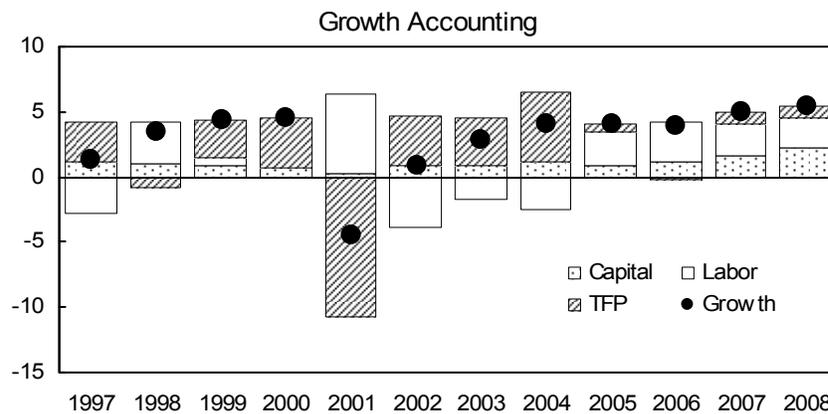
Growth Accounting

Sources: World Economic Outlook, and IMF staff estimates.

Investment to GDP Ratio

Unemployment Rate
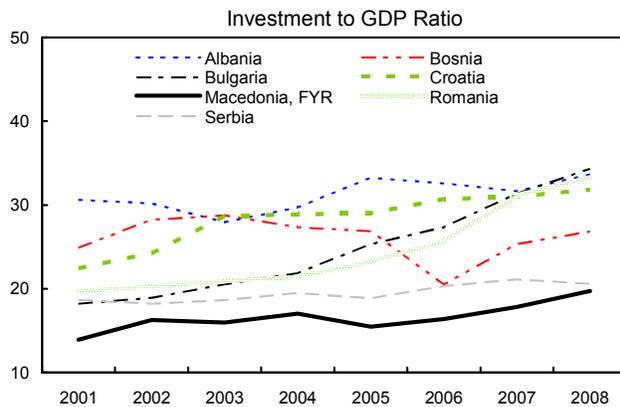
Sources: WEO; and IMF staff estimates.
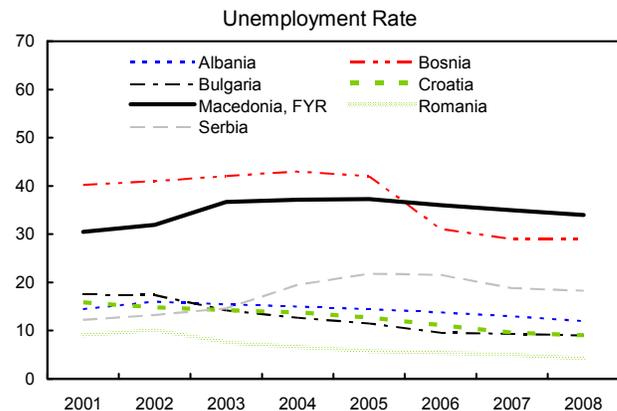
C.   Estimating Potential Output Growth

7.   **Potential output is the maximum output that an economy can sustain within its natural, technological and institutional constraints, without generating higher inflation**. Actual output can temporarily remain above potential when aggregate demand exceeds aggregate supply, usually leading to inflationary pressures. Likewise, when actual output is below potential, inflation will normally decelerate. Thus, estimates of potential output provide a gauge for inflationary pressures and an indicator for long-term sustainable growth. Potential output is also important for estimating cyclically-neutral budget balances or assessing external stability, and thus provides guidance in setting macroeconomic policies.

8.   **Potential output is unobservable and difficult to estimate.** The estimation is subject to a high degree of uncertainty, in particular in transition economies experiencing structural transformations. These limitations should be kept in mind when interpreting the results discussed below.

9.   **Various methodologies are used to estimate potential growth.** They belong to two broad categories: statistical approaches and structural approaches. Statistical approaches usually focus on the time series properties of growth, and rely on historical data. Examples of this group include the Hodrick-Prescott (HP) filter and bandpass filters such as Baxter-King and Christiano-Fitzgerald. The structural approaches are built on economic theories, and estimate potential output by capturing the dynamics between various factors that determine growth. Examples of this group include the production function approach, and growth regression approaches. There are also approaches that mix the two. Due to the uncertainty of estimation, both categories of approaches are used in this analysis.

10.   **Estimates prepared using statistical approaches imply a potential growth rate slightly higher than 4 percent**. A univariate HP filter and a full sample asymmetric Christiano-Fitzgerald bandpass filter produce similar results. To minimize the end-point biases, WEO medium term projections for growth from 2008 to 2013 are included in the sample. Both methods show a small positive output gap in 2008, indicating possible excess aggregate demand and inflationary pressures.

11.   **Estimates prepared using structural approaches imply a potential growth rate of 4.6 percent**. Both the production function approach and a Blanchard-Quah type structured vector autoregressive (structural VAR) model were used to estimate potential output. The production function approach is based on the functional relationship between output and capital and labor input used in the growth accounting exercise above, and includes medium term projections of growth, investment and employment in the sample for estimation. An HP filter is applied to labor and TFP, but the capital stock is assumed to be stable over time. This approach also leads to a positive output gap of around 1 percent in 2008. In the structural VAR model, real GDP growth and unemployment are used, and potential growth is assumed to depend only on supply side shocks. The results are similar to that of the production

approach—potential output growth at around 4.6 percent, with a small positive output gap of 0.3 percent in 2008.

Potential Output Growth and Output Gap

	1996-2001	2001−2008	Potential Growth	Output gap in 2008
Real GDP growth	1.8	3.7	…	…
Statistical estimation				
Hodrick-Prescott filter (HP)	2.3	3.4	4.4	0.8
Christiano-Fitzgerald filter (CF)	1.9	3.4	4.1	0.4
Structural estimation				
Production Function (PF)	2.2	3.3	4.6	1.2
Structural VAR (BQ)	2.2	3.8	4.6	0.3
Average	2.1	3.5	4.4	0.7

Sources: WEO, and IMF staff estimates.

Potential Output Growth and Output Gap
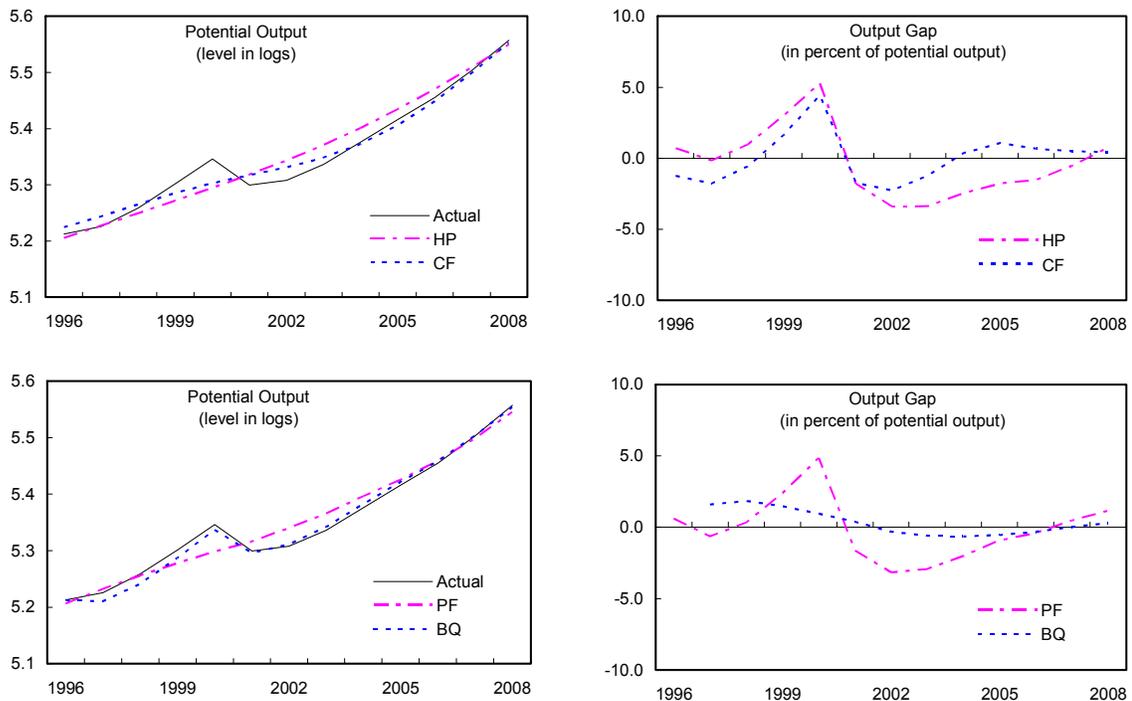
Sources: WEO; and IMF staff estimates.

12.   **Sound macroeconomic and structural policies can improve potential output**. The analysis presented above is based on current macroeconomic and structural policies. In particular, the government's plans for a more expansionary fiscal policy could worsen macroeconomic vulnerabilities and crowd out private sector investment, which is crucial for

long term sustainable growth. More prudent policies would help safeguard growth prospects and improve potential growth. If the government could postpone planned spending increases and let automatic stabilizers work, external vulnerabilities could be reduced, interest rates would fall, and private investment could benefit. Under this alternative scenario, potential output could be higher. However, as indicated by a study in IMF(2006), the most important determinant of potential growth will likely be intensified structural reform.

Comparison of Two Scenarios
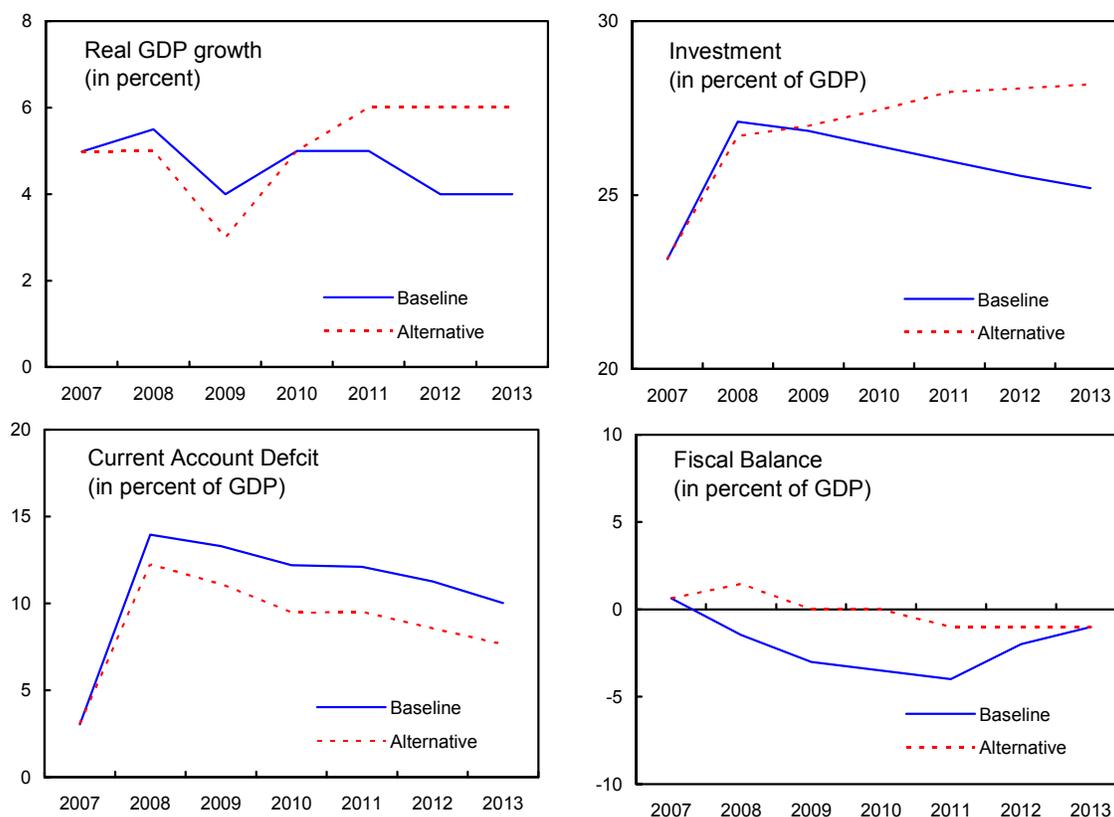
Sources: WEO; and IMF staff estimates.

Comparison of Potential Output Growth Estimates

	Potential Growth		Output Gap in 2008	
	Baseline	Alternative	Baseline	Alternative
Statistical estimation				
Hodrick-Prescott filter (HP)	4.4	4.7	0.8	0.4
Christiano-Fitzgerald filter (CF)	4.1	4.8	0.4	1.0
Structural estimation				
Production Function (PF)	4.6	5.2	1.2	1.0
Structural VAR (BQ)	4.6	5.7	0.3	0.0
Average	4.4	5.1	0.7	0.6

Sources: WEO, and IMF staff estimates.

D. Conclusion

13.   **While Macedonia's growth performance has recently improved, potential growth can be raised further with sound macroeconomic policies and structural reform.** Growth performance continues to lag behind that of its regional peers. More prudent fiscal policies, combined with deeper structural reforms, could help reduce macroeconomic vulnerabilities and safeguard growth prospects. Estimates presented above indicate that such policies could lift potential output growth above 5 percent, by bringing about faster capital accumulation and higher labor utilization.

II. THE CASE FOR FISCAL PRUDENCE[2]

A. Introduction

1.   **Macedonia has built a strong record of macroeconomic stability during 2003−07**.
The average fiscal balance was in surplus, and the highest deficit, in 2006, was only
0.5 percent of GDP. The primary fiscal balance was positive each year averaging 1.1 percent
of GDP. This substantial fiscal effort accounted for roughly one-third of the reduction of
public debt during this period. Not surprisingly, average inflation was only 1.3 percent, the
lowest in the region.

Macedonia: Fiscal Balance, 2003-07
(Percent of GDP)

Source: WEO.

Average Inflation, 2003-07
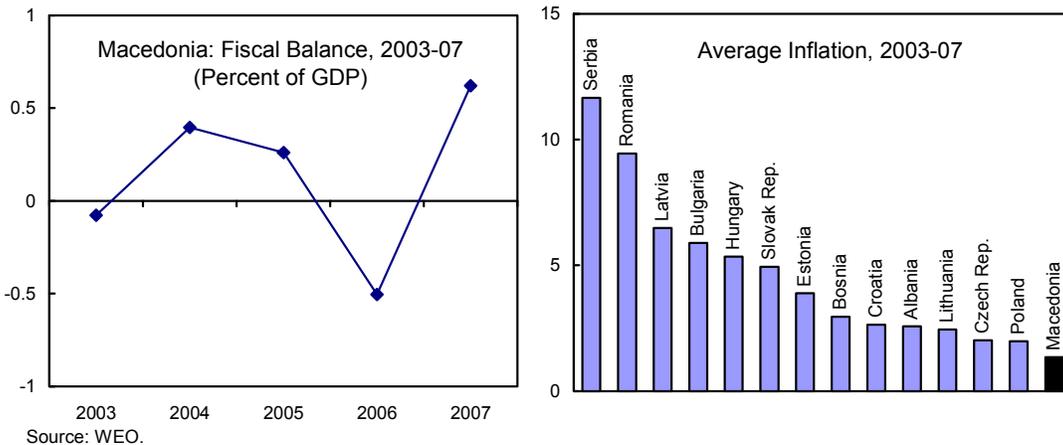
2.   **However, growth performance was less encouraging**. The average real growth rate
during 2003−07 was only 4 percent, clearly below that of its peers in South Eastern Europe.
This weak performance is explained by low investment and low productivity growth.

Convergence in SEE and NMS, 2003-07

Average Real GDP growth, 2003-07

Log PPP per Capita, 2002

Source: WEO.

Average Fixed Investment, 2003-07
(Percent of GDP)

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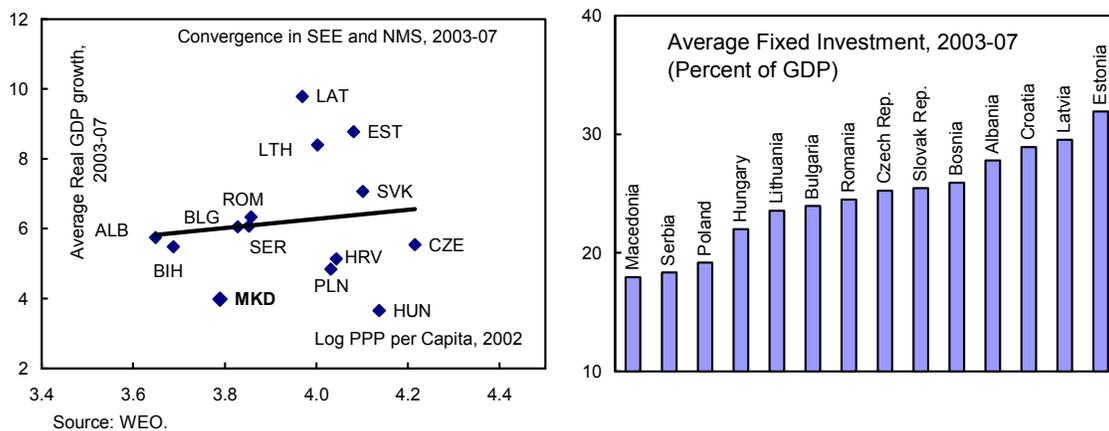
[2] Prepared by Pablo López-Murphy (EUR).

3.   **The government that took office in July 2008 designed a medium-term fiscal strategy that breaks with the tradition of fiscal austerity**. After realizing a fiscal surplus of 0.6 percent of GDP in 2007, the government set a deficit target of 1.5 percent for 2008, 3 percent for 2009, 3.5 percent for 2010, and 4 percent for 2011. The authorities intend to rely heavily on grants and concessional financing from bilateral and multilateral sources, and also on sovereign borrowing in international credit markets.

4.   **The government aims to foster economic growth and reduce poverty by increasing government spending in selected areas, and by reducing labor taxes**. The new strategy seeks a reorientation of spending toward infrastructure, social needs, and agriculture. It targets an increase in capital spending from 4 percent of GDP in 2007 to 7 percent of GDP during 2008−11. The government also plans to gradually reduce social insurance contributions from 32 percent of gross wages in 2008 to 22 percent in 2011, to minimize labor market distortions that hamper employment growth in the formal economy.

B.   Coverage of Government Operations

5.   **A meaningful assessment of the fiscal policy stance requires that all elements that pose a significant risk to public finances are covered**. The components of the fiscal sector in Macedonia are the core central government, the social funds (pension, health, and unemployment), the road fund, municipal governments, and public enterprises. Normally, fiscal policy is implemented by the central and local governments. But public enterprises can also conduct fiscal policy, typically bypassing the government budget.

6.   **The usual coverage of government operations in Macedonia is too narrow and could understate future liabilities.** Fiscal deficit targets are defined for the central government, which includes the core central government and the extrabudgetary funds. Since municipalities are constrained by the need to run balanced budgets, it may be possible to exclude them for analytical purposes. But some public enterprises (especially in the electricity sector) conduct significant quasi-fiscal operations that have reduced their solvency; sooner or later, these enterprises will require large budget transfers from the central government.

C.   Short-Term Macroeconomic Stability

7.   **The current account deficit has widened sharply during 2008, increasing external vulnerabilities**. This deficit is projected to increase by 10 percentage points to 14 percent of GDP. This large swing has three causes: a rising trade deficit (in part as a result of worsening terms of trade), falling private transfers, and lower net factor income (due to a large telecommunications dividend payment). Despite a strong increase in foreign direct investment, which should cover over half of this year's current account deficit, such a high deficit is not sustainable and could be more difficult to finance in the prevailing international environment.

Current Account Deficit Forecast, 2008
(Percent of GDP)

Forecasted Current Account Deterioration, 2008
(Percent of GDP)
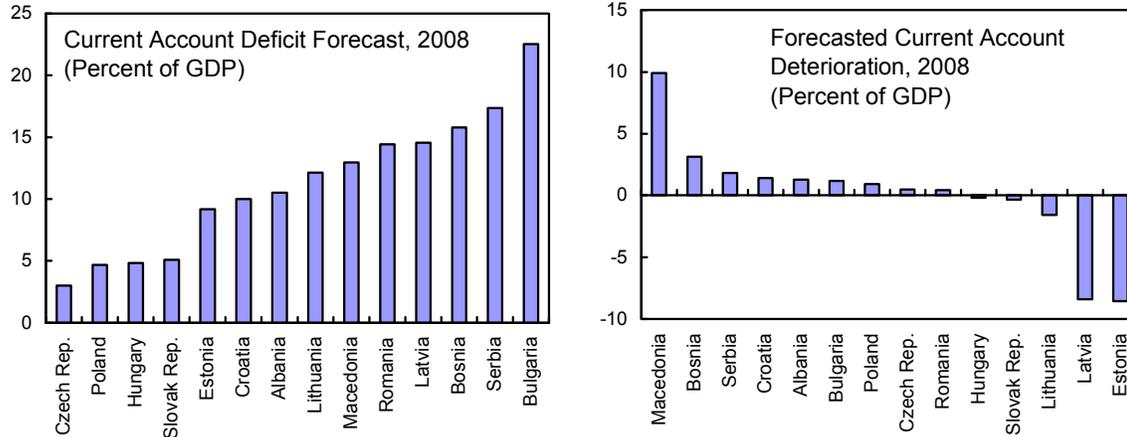
Source: WEO.

8.   **Inflation jumped sharply in 2008, driven by oil and food price increases**.
Average inflation is projected at 9 percent in 2008, slightly above the regional average.
Although the exchange rate anchor is expected to bring inflation down in 2009,
administrative price increases (in particular in the energy sector) could keep it relatively high.

9.   **Fiscal policy plans are procyclical and potentially destabilizing**. Real output
growth in 2008 is projected at 5.5 percent, well above the average growth rate of 4 percent
during 2003−07. The fiscal deficit target of 1.5 percent of GDP entails a fiscal impulse of
2.1 percent of GDP in relation to 2007 and may generate additional macroeconomic
pressures (Box 1).

Box 1. Cyclically Adjusted Fiscal Balance

The cyclically adjusted fiscal balance corrects the actual fiscal balance for the effects of the business cycle, by using potential rather than actual output. Thus,

$$FB^* = R^* - E^*$$

where

FB^* = cyclically adjusted fiscal balance, R^* = cyclically adjusted revenues, and E^* = cyclically adjusted expenditures.
Both revenues and expenditures are adjusted proportionally to the ratio of potential output to actual output, as determined by its elasticity. Thus,

$$R^* = R \times (Y^*/Y)^{\alpha} ; E^* = E \times (Y^*/Y)^{\beta}$$

where

R = actual revenues, E = actual expenditures, Y = actual output, Y^* = potential output, α = elasticity of revenues with respect to output, and β = elasticity of expenditures with respect to output.

In advanced economies, the cyclical component of expenditures is mainly driven by unemployment insurance payments. Given that these payment are insignificant in Macedonia, the estimates presented below focus on the revenue side. These estimates use the Hodrick-Prescott time series filtering method to estimate potential output, and a revenue elasticity estimate of 1.12. The projected fiscal impulse in 2008 (2.1 points) is even larger when revenues are adjusted for the state of the business cycle (2.6 points).

Cyclically Adjusted Fiscal Balance

	2005	2006	2007	2008	2009
Actual GDP (billion denars)	286.6	310.9	343.0	387.1	422.7
Potential GDP (billion denars)	291.8	315.7	344.9	384.2	420.8
Output gap (percent of cyclically adjusted GDP)	-1.8	-1.5	-0.5	0.8	0.5
Fiscal Balance (percent of GDP)	0.3	-0.5	0.6	-1.5	-3.0
Cyclically adjusted Fiscal Balance (percent of GDP)	1.0	0.0	0.8	-1.8	-3.2

Source: IMF staff.

D. Long-Term Considerations

10.   **The higher fiscal deficit will most likely crowd out private investment**. An increase in the government fiscal deficit means lower public saving. If we rule out the extreme case of Ricardian equivalence, a fall in public saving implies a fall in national saving (although likely less than one for one). Relying on national accounting identities, a fall in national saving comes hand in hand with a reduction of investment, net exports, or both. Interest rate increases coupled with a real exchange appreciation will bring about this fall in investment and net exports.

11.   **Public investment could replace private investment**. In principle, public investment can promote private investment and increase its productivity (Box 2). But poor quality public investment simply absorbs funds that could have been used to finance more productive private investment. Cross-country studies show that public investment complements private investment only after a threshold level of institutional quality has been reached; prior to that, they are substitutes. In the region, public and private investment are typically substitutes.

Average Public and Private Investment, 2003-07 (Percent of GDP)

Source: WEO.
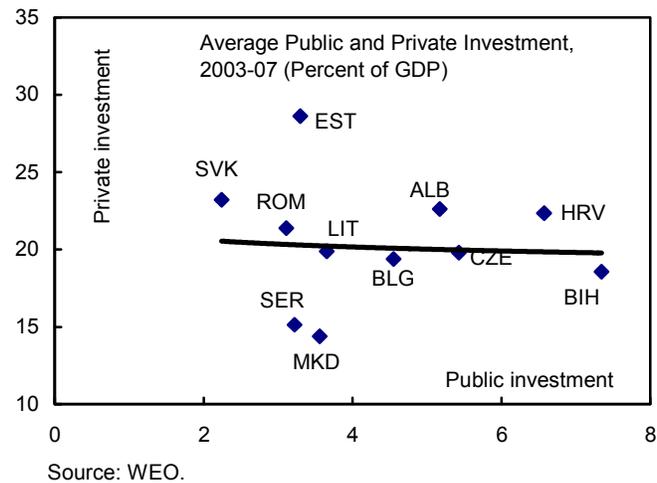
12.   **The already fragile financial situation of the pay-as-you-go pension system is set to worsen**. The gap between contributions to and benefits from the public pension system widens every year. This is the result not only of the transition cost of the 2002 pension reform (with the introduction of a 'second pillar' defined contribution pension system), but also of recent policy measures (e.g., change in the indexation formula, and ad hoc increases in benefits). On top of this, the government plans to gradually reduce pension contribution rates from 21 percent in 2008 to 15 percent in 2011. Since no plans have been announced to reduce pension benefits under the first pillar (a defined benefits system that links benefits to salaries using fixed accrual coefficients), these cuts imply an increasing burden on the central government budget (Box 3).

Public pension finances (Percent of GDP)

Source: Ministry of Finance.
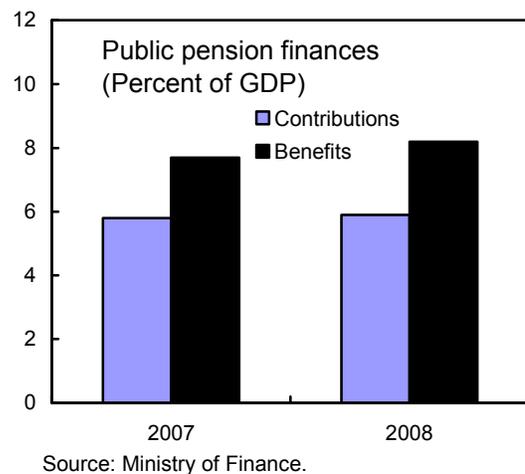
Box 2. Strengthening Public Investment Planning and Prioritization

Public investment decisions should take account of the full costs of projects over their lifetimes. This can be done through a medium-term budget framework (MTBF), but very few transition and developing countries have been able to introduce full-fledged MTBFs. It has proven particularly difficult for line ministries to develop reliable multiyear budget estimates, and for finance ministries to manage the multiyear ceilings transparently.

A less demanding alternative to MTBFs is to prepare multi-year budget estimates only for investments and for major expenditures. These estimates should take (i) account of dynamics driven by demographics and entitlements, (ii) be based on common methodologies, and (iii) be agreed upon by the line ministries and the Ministry of Finance. While this approach does not provide the stringency of a full MTBF, it provides a much better basis for effective budget deliberations than the traditional annual approach.

The key measure to increase the productivity of public investment is to formally introduce cost-benefit analysis for deciding which projects will be undertaken, and when. This task entails (i) establishing administrative mechanisms by which investment projects will be appraised and reviewed; (ii) establishing technical standards, norms, and procedures to follow in the evaluation; and (iii) developing technical staff capable of conducting the analysis.

The implementation of cost-benefit analysis of public investment projects is challenging. In addition to creating the technical capacity to accomplish it, there may be resistance from vested interests. Still, the reward from successful implementation of such a system can be very substantial, as it can enhance the growth impact of each year's public investment budget.

Box 3. Financial Outlook of the Pay-As-You-Go Pension System

Macedonia's pension system consists of two pillars, both mandatory: a pay-as-you-go, defined benefit system (first pillar) and a fully funded, defined contribution system initiated in 2006 (second pillar). The second pillar covers people who started to work after 2002 and others who voluntarily chose to switch to the two-pillar system. The contributions to the pay-as-you-go system are 21 percent of the gross salaries for those who only participate in the first pillar, and 14 percent of the gross salaries for those who also participate in the second pillar.

The medium term financial outlook of the pay-as-you-go system can be assessed with this equation:

$$\text{Pay-as-you-go deficit} = s*W*E - P*R$$

where s = the pension contribution rate, W = the average nominal gross wage, E = number of contributors, P = the average nominal pension, and R = the number of pensioners.

Three key indicators are the dependency ratio D = R/E; the replacement ratio, L = P/W, and the contribution rate, s. The deficit of the system will increase when s decreases, D increases, and L increases. In Macedonia D = 0.68, L = 0.37, s = 0.21 for those who only participate in the first pillar, and s = 0.14 for those who participate in the two-pillar system. These variables can be used to estimate the deficit of the pay-as-you-go system during 2009−11, assuming that (i) the dependency ratio gradually increases over time (as a result of demographic pressures); (ii) the replacement ratio gradually falls over time (since wages usually grow faster than pensions); and (iii) the envisaged reduction in contribution rates during 2009−11 is implemented.

Pay-as-you-go Deficit

	2008	2009	2010	2011
Contribution rate mono-pillar	0.212	0.19	0.165	0.15
Contribution rate two-pillar	0.138	0.124	0.107	0.098
Dependency ratio	0.68	0.69	0.69	0.70
Replacemente ratio	0.37	0.36	0.35	0.34
Pay-as-you-go deficit (percent of GDP)	-2.2	-2.4	-3.0	-3.4

Sources: IMF staff.

13.   **The planned reduction in pension contributions is projected to increase the deficit of the system from 2 to 3 percent of GDP**. The deficit could be lower if the rate cut leads to a higher increase in the number of contributors, or higher if more ad-hoc pension increases are implemented.

E. Conclusion

14.   **The government's plan to relax fiscal policy should be implemented more gradually, bearing in mind external vulnerabilities in the short-term, as well as longer-term considerations such as crowding out, the productivity of public investment, and the build-up of unfunded liabilities**. Since the fixed exchange rate regime limits the effectiveness of monetary policy, fiscal policy is the main instrument to reduce macroeconomic risks. In the short-term this means saving revenue over performance and running a fiscal surplus in 2008. Once the current account deficit returns to more sustainable levels, fiscal deficit targets could be gradually relaxed to finance public investment. This gradual approach would also provide more time to carefully scrutinize investment projects.

III. ASSESSMENT OF EXTERNAL STABILITY[3]

A. Introduction

1.   **This chapter assesses external stability in Macedonia.** It finds evidence of rising vulnerabilities in the current and capital accounts, but not external instability under the standards of the 2007 Surveillance Decision. Section B presents descriptive and formal assessments of the current account, exchange rate, and competitiveness and finds the underlying current account deficit (CAD) to be somewhat above its equilibrium level, with mixed evidence of real exchange rate overvaluation (export market share and structural competitiveness indicators are trending up, but have been weaker than in peer countries). Section C assesses the capital account, and finds rising risks in the external balance sheet.

2.   **Several factors create challenges for this assessment.** First, the global financial crisis creates higher than normal degree of uncertainty. Second, the authorities' general pledge to adjust policies as needed to address external sector stress complicates assessment of the likelihood of stability problems. Third, ongoing structural change since independence and periodic shocks (e.g., 2001 political crisis), limit the usefulness of historical data.

B. Assessment of Current Account, Exchange Rate, and Competitiveness

3.   **Macedonia's CAD is projected to jump to a record high 14 percent of GDP in 2008, prompting questions about external stability, the real exchange rate, and competitiveness**. [4,5] This is well above the 5 percent average during the prior decade, and has been accompanied by a record trade deficit of 27 percent of GDP (versus an average of 18 percent during the prior decade).

Current Account Deficit, Trade Balance, Terms of Trade, and Real Effective Exchange Rate, 1998-2008p

Sources: WEO, and IMF staff estimates.

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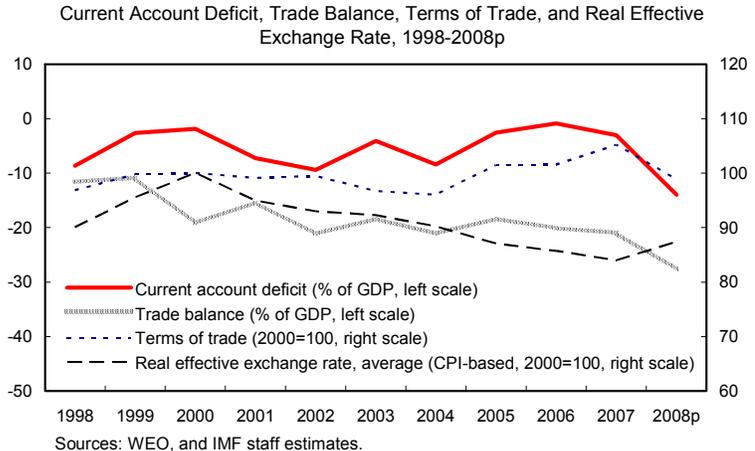
[3] Prepared by Peter Dohlman (SPR).

[4] The sharp CAD deterioration over 2007 is somewhat exceptional even among transition economies.

[5] The CAD reached a historic *low* of 1 percent in 2006. Early that year, IMF (2006) found that price competitiveness in Macedonia was broadly appropriate.

4.   **This deterioration has been driven by a combination of factors**:

- Terms of trade have deteriorated, private transfers have fallen abruptly (likely due to the impact of events in Kosovo, domestic elections, and the increase in inflation on confidence and unrecorded exports), dividend payments have spiked, import demand has accelerated, fueled by accelerating foreign direct investment (FDI), credit, and government spending, while exports have dipped due to slower global growth.

- Convergence, which has been associated with rising imports and CADs in other transition countries, shows signs of accelerating. Macedonia, which has lagged behind its neighbors, saw: FDI double in 2007 and again in 2008 to 8 percent of GDP; real growth reach 10 year highs in 2007−08; and most recently, rising relative productivity and unit labor costs (the more typical pattern in converging economies). Macedonia became a EU candidate country in 2005.

- Some of these factors (e.g., terms of trade, credit-fueled consumption imports), however, may now be in the process of easing or could be delayed (external dividends) making it difficult to judge the durability of current pressures.

5.   **The recent appreciation of the real exchange rate (RER) may also have contributed, but its relatively recent rise, and the size and speed of the CAD decline, suggest it has been secondary.**

- Macedonia's RER depreciated for most of this decade (in contrast to many of its peers), reflecting falling relative CPI and PPI inflation and unit labor costs (ULC), and suggesting relatively better competitiveness (Figure 1).[6] The relative price of nontradables to tradables was kept in check in part by a concentration of FDI in the nontradables sector as well as an excess labor pool holding down wages.

- However, the RER recently began appreciating, reflecting higher inflation (55 percent of trade is with the Euro zone, where inflation has been more subdued). Relative ULC has also risen, and could rise further if planned public wage hikes are implemented.

6.   **Macedonia's export market share has increased since the 2001 political crisis, but has underperformed relative to its neighbors (Figure 2).** The recent drop in Macedonia's market share reflects weak export diversification (concentration of exports in metals makes it vulnerable to wide terms of trade swings), and suggests weaker near-term export growth prospects (though recent FDI should help diversify exports).

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[6] This depreciation took place despite evidence of rising productivity in the manufacturing sector relative to trading partners since 2003. Typically, this would trigger appreciation, linked to Balassa-Samuelson effects. Here, however, improvements in productivity were accompanied by large-scale shedding of employment as state enterprises were sold-off or closed (leading to relatively flat output per capita during this period).

FYR Macedonia's Manufacturing Exports: 2000−07
(12 Biggest SITC-3 sectors. Size of bubble = share in total goods exports)
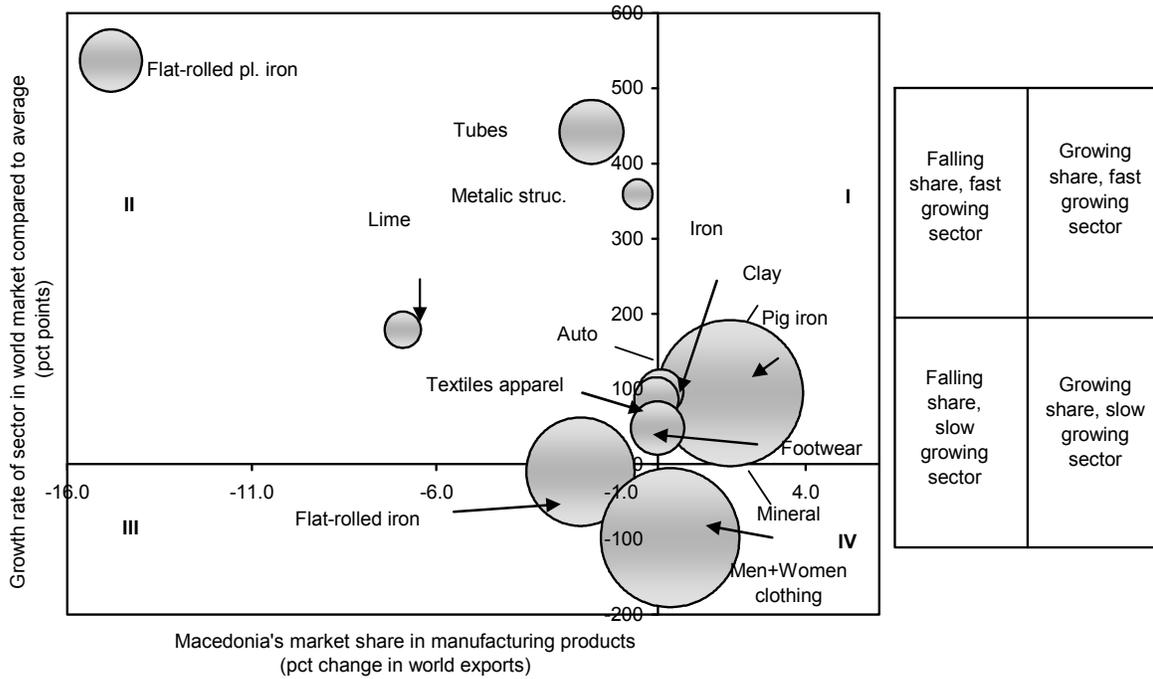
Sources: Direction of Trade Statistics; and Fund staff calculations.

7.   **Structural measures of competitiveness are improving, but Macedonia's standing relative to comparable countries is mixed.** Macedonia's rank in both the World Economic Forum's Global Competitiveness Index (GCI) and the World Bank's Doing Business (DB) improved over the past year. Adjusted for income levels, Macedonia is slightly better than trend in the DB ranking, but somewhat below trend in the GCI.

FYR Macedonia and Selected European Countries: Structural Competitiveness Indicators 1/
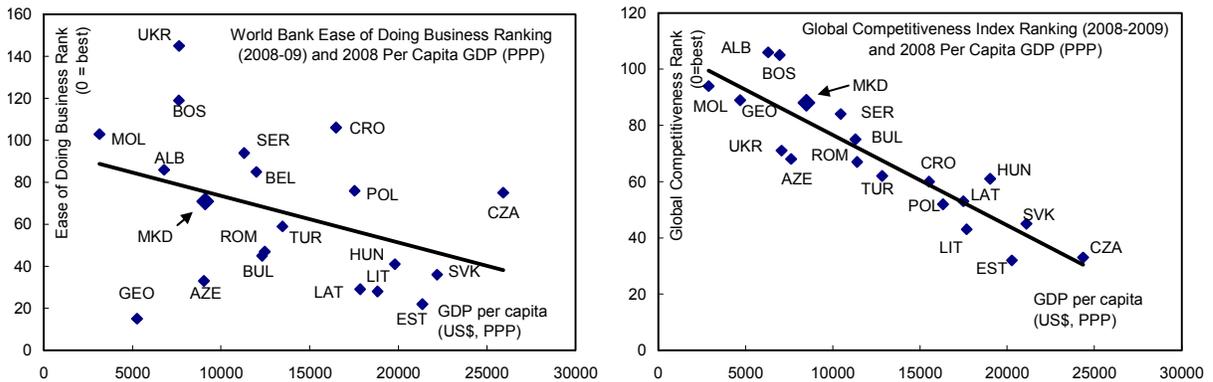
1/ MOL: Moldova; GEO: Georgia; ALB: Albania; UKR: Ukraine; BOS: Bosnia & Herzegovina; AZE: Azerbaijan; MKD: Macedonia, FYR; SER: Serbia; BEL: Belarus; BUL: Bulgaria; ROM: Romania; TUR: Turkey; CRO: Croatia; POL: Poland; LAT: Latvia; LIT: Lithuania; HUN: Hungary; SVK: Slovak Republic; EST: Estonia; CZA: Czech Republic.

Sources: WEO, World Bank, World Economic Forum

Formal Assessment

8.   **We employ four different formal methodologies:** (1) purchasing power parity; (2) the macroeconomic balance approach; (3) the equilibrium real exchange rate approach; and (4) the external sustainability approach. The results are presented below.

Purchasing Power Parity Approach

9.   **The PPP approach suggests Macedonia's real exchange rate is undervalued.** The overall price level of a country relative to the United States can be used as a rough indicator of the appropriate level of the real exchange rate. While a strict PPP approach would suggest anything less than price parity with the U.S. would indicate undervaluation, previous work has shown that countries with lower productivity (incomes) have lower prices for nontradable goods (tied to Balassa-Samuelson effects). This relationship is shown for a subset of transition countries in the figure below: Macedonia's price level is shown to be below that which would be expected given its relative income, suggesting undervaluation. This result also holds when using a broader set of countries.

Price Level Relative to US and Per Capita GDP
(PPP Basis) Selected Countries 1/, 2008 (proj)

$R^2 = 0.5651$

Sources: WEO, and IMF staff estimates.
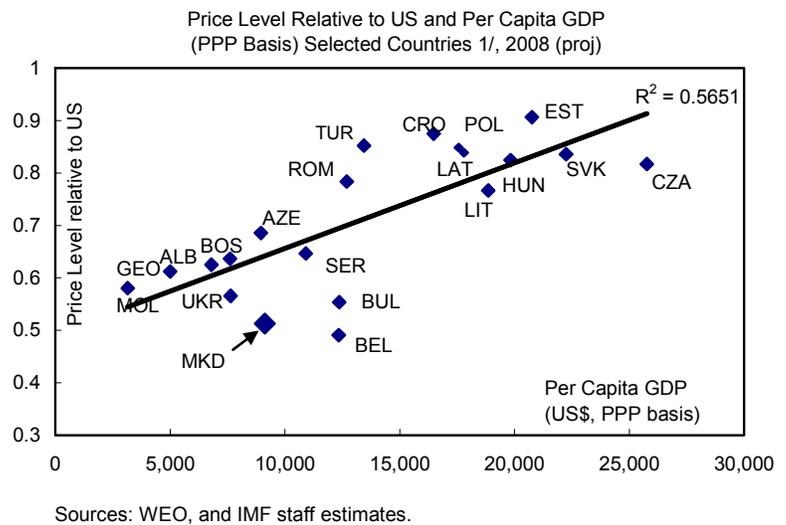
10.   **The PPP approach, however, has limitations.** First, it only looks at the bivariate relationship between the real exchange rate and productivity. Second, the estimated relationship implicitly assumes that exchange rates of the countries in the sample are on average in equilibrium. Third, GDP per capita is only a rough proxy for relative productivity.

Macroeconomic Balance Approach

11.   **This approach indicates that the underlying current account deficit is somewhat above its equilibrium ("CA norm") level, implying real exchange rate overvaluation.** [7]

Macroeconomic Balance Approach
(Current account deficits)

3 to 11% adjustment

Underlying CA   CA Norm

- *The CA norm* is estimated by applying coefficients from panel studies of the fundamental determinants of current account balances to Macedonia. The resulting CA norm (deficit) ranges between 6.5 and 7.5 percent of GDP, depending on the coefficients used (see Table 1).

- *The underlying current account ("underlying CA")* is typically calculated either by adjusting the base year CAD or using the medium-term current account projection. Here, the 2013 CAD projection is used (10 percent of GDP).

- *Macedonia's underlying CA is above the CA norm, suggesting overvaluation* (see text figure and text table). The magnitude of overvaluation is obtained by calculating the implied change in real exchange rate required to close the gap between the underlying CA and the CA norm, using the elasticity of the current account balance to movements in the real exchange rate (we use a range of elasticities of -0.32 to -1.0: i.e., a one percent depreciation of the real exchange rate will improve the current account by a range of 0.32 to 1 percent of GDP).[8]
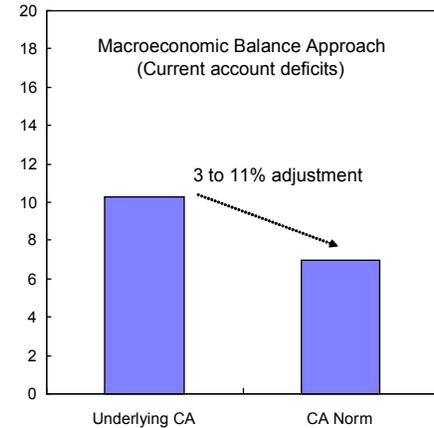
Macroeconomic Balance Approach Summary

Underlying CA (2013 projection) \1 (% of GDP)	-10.0%
Estimated CA Norm (% of GDP)	-7.0%
Deviation of Underlying from Norm (% of GDP)	-3.0%
Elasticity (current account to real exchange rate)	-0.34 to -1.0
REER adjustment needed to bring the underlying CA to the level of norm	3 to 11 percent

Sources: WEO, Rahman (2008), Imam and Minoiu (2008), and staff estimates

1/ Similar results were calculated adjusting base year CAD for output gaps, lagged real exchange rate movements, and one-off factors.

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[7] Fund staff exchange rate (MBA) assessments during 2008 of neighboring countries found similar evidence of gaps between CA Norms and underlying CAs. Implied real exchange rate adjustments were: Albania (5 percent under to 25 percent "overvaluation"); Bosnia and Herzegovina (1 to 23 percent "overvaluation"); Croatia (1.8 to 4 percent "overvaluation"); Romania (10 to 12 percent "overvaluation"); Serbia (16 percent "overvaluation").

[8] This range reflects different underlying trade (to REER) elasticities. The high end is from CGER elasticities of ε_X =-0.71 and ε_M =0.92, for exports and imports, respectively, (see IMF 2008a) and on Macedonia-specific elasticities from the NBRM of ε_X =-1.71 (reflecting in part the importance of commodities) and ε_M =1.1.

12.   **There are several caveats to these results.** First, the gap is within margins of error using Rahman (2008), though not Imam and Minoiu (2008) (see Table 1). Second, the authorities argued that the medium-term export response would be stronger than staff projections due to more export-oriented FDI which, if correct, would imply a lower CAD and therefore lower overvaluation. Third, the results are sensitive to projections for private transfers, which have been somewhat volatile (we project slight declines).

Equilibrium Real Exchange Rate Approach

13.   **This approach does not indicate significant misalignment (slight overvaluation in early 2008).** The "behavioral" equilibrium exchange rate approach is used to estimate the structural relationship between Macedonia's equilibrium real exchange rate (ERER) and economic fundamentals. The ERER is then compared to the actual real effective exchange rate (REER), with the difference reflecting exchange rate over- or undervaluation.

Actual and Equilibrium Real Effective Exchange Rates (Index)
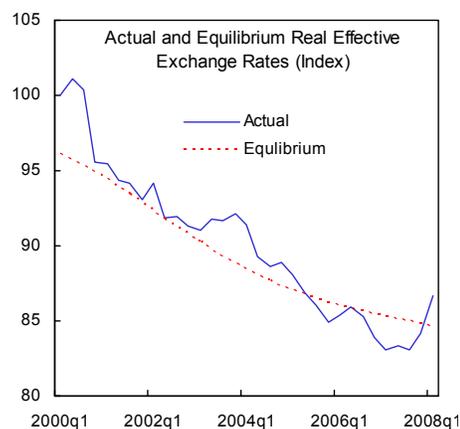
14.   **A range of potential fundamental determinants were considered** (Figure 4).[9] The results (applying Johansen cointegration estimation methodology) indicate that much of the long-run behavior of the ERER in Macedonia can be explained by government expenditure-to-GDP ratios (an increase in Macedonia's expenditures relative to trading partners leads to appreciation), and by relative productivity differentials (increases lead to appreciation), consistent with economic theory.[10] The technical results are presented in Table 2.[11] The results indicate the REER was slightly overvalued (above its ERER) by early 2008.[12]

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[9] We used seasonally adjusted quarterly data (1998q1−2008q1). All variables passed unit root tests: i.e., were integrated of order one (unit root tests and data sources are available on request). Because we found more than one cointegrating relationship with the broad set of variables, we searched for a combination of variables that had a unique cointegrating relationship, where the estimated model had expected (and significant) coefficients, and the estimated model passed standard robustness and diagnostic tests.

[10] See IMF (2008c) for a discussion of the theoretical justifications of expected signs for standard determinants.

[11] See Model 1 in Table 2. Similar results were found using a PPI-based REER (Model 7). We calculated the ERER series by applying the estimated coefficients to HP filtered historical determinant values.

[12] The NBRM recently completed a similar analysis using top five trading partner data and disaggregated price and productivity data, and found one percent overvaluation.

External Sustainability Approach

15.   **The ES approach suggests an overvaluation of the RER**. This approach calculates
the gap between the CAD (we use the
underlying CA deficit of 10 percent of GDP)
and the current account that would stabilize the
net foreign asset (NFA) position of Macedonia
(we use the net international investment position
(IIP) in place of NFA) at some benchmark level.
Using the same current account elasticity as
above, the gap is translated into the real
exchange rate adjustment that would bring the
medium-term CAD in line with the IIP-
stabilizing CAD. One advantage of the ES
approach is its simplicity: it relies on relatively
few assumptions, namely, the economy's
potential growth rate (5 percent for Macedonia)
and inflation rate (3.0 percent for Macedonia).[13]
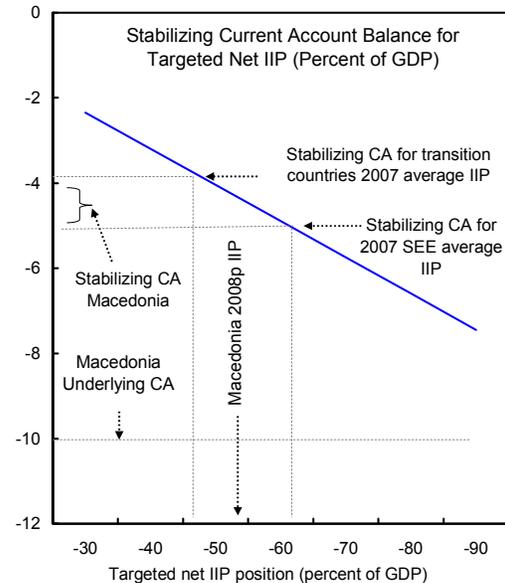
16.   **Choosing the benchmark IIP-to-GDP ratio is the key step,** and relies on judgment
and context. Considerations include risk of external shocks (requiring a higher buffer) and
the experiences of peer group countries (e.g., where higher borrowing and foreign capital
might be needed for achieving faster
convergence).

*   Targeting the IIP-to-GDP
    ratio of its South Eastern
    European "SEE" peers
    (average of -66 percent in
    2007) would require
    Macedonia to achieve a CAD
    of about 5 percent of GDP.
    To reach that level, the real
    exchange rate would
    require 5 to 15.5 percent
    adjustment, depending on the
    elasticity used.

IIP-to-GDP Ratios, 2007 1/
(percent, negative values)
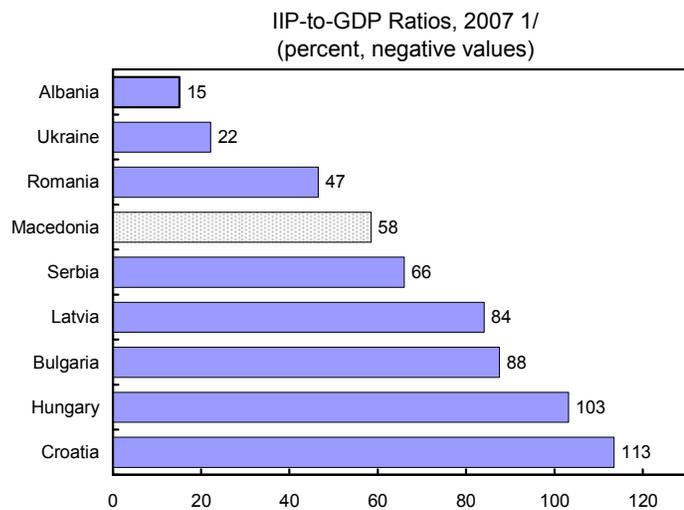
1/ Data for FYR Macedonia is of 2008.
Sources: WEO, and IMF staff estimates.

*   An alternative benchmark is the average IIP-to-GDP ratio for a broader set of
    22 Eastern European transition countries (roughly -52 percent in 2007), which reflects

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[13] Rates of return on external assets and liabilities can be added, if there are differences, but are not used here.

more varied experiences of countries undergoing convergence (see selected IIPs in the figure). Maintaining this benchmark would require a CAD of about 4 percent of GDP, implying that the real exchange rate would require 6.1 to 18.8 percent adjustment.

- Macedonia's projected end-2008 IIP-to-GDP ratio of -58 percent is the rough average of the other two benchmarks. Stabilizing the benchmark at this level would require a 6 to 17 percent adjustment. Maintaining this level would strengthen resilience to further negative shocks (relative to the baseline projection). For context, we calculate that maintaining the CAD at its 2008 level would translate into an unsustainable IIP-to-GDP ratio of -185 percent.

CAD needed to stabilize IIP at 2008 level of -58 percent of GDP, and implied REER adjustment in ()

| | | Inflation (percent) | | |
		3	4	5
Potential Growth Rate (percent)	4	-3.9 (6 to 19)	-4.4 (6 to 17)	-4.9 (5 to 16)
	5	-4.4 (6 to 17)	-4.9 (5 to 16)	-5.4 (5 to 14)
	6	-4.9 (6 to 16)	-5.4 (5 to 14)	-5.9 (4 to 13)

- These results are sensitive, however, to growth and inflation assumptions, and should be viewed with some caution.

C. Assessment of Capital Account Vulnerabilities

17. **Macedonia's external indicators are weakening in several key areas.**

- **Gross external debt** is currently in line with the transition country average but is projected to rise over the next several years as government borrowing rises to finance higher spending and private borrowing continues. Standard external debt sustainability analysis shock tests show the biggest risk to debt dynamics comes from depreciation. Under such a scenario, there would likely be additional stress emanating from unhedged private borrowing and forex-linked domestic debt.
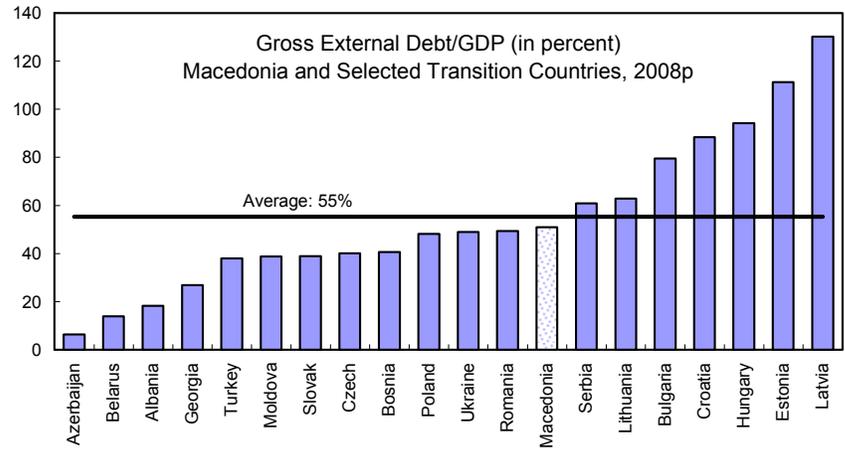
Gross External Debt/GDP (in percent) Macedonia and Selected Transition Countries, 2008p
Average: 55%
Azerbaijan, Belarus, Albania, Georgia, Turkey, Moldova, Slovak, Czech, Bosnia, Poland, Ukraine, Romania, Macedonia, Serbia, Lithuania, Bulgaria, Croatia, Hungary, Estonia, Latvia
Sources: WEO, NBRM, and staff estimates

- **Liquidity indicators are weakening.** Short-term debt-to-reserves ratio (residual basis) will surpass the "Greenspan-Guidotti rule" level of 100 percent in 2008 (i.e., short-term debt will exceed official reserves), and is projected to continue to rise over

the medium-term. Reserve coverage is expected to fall just below three months of imports this year, and then to remain roughly steady (assuming the government's borrowing plans are realized).

Macedonia: External Debt Sustainability
(External debt in percent of GDP)

Baseline and historical scenarios

Gross financing need under baseline

Baseline

77

Historical

55

Real depreciation shock 1/

30% depreciation

95

77

Baseline
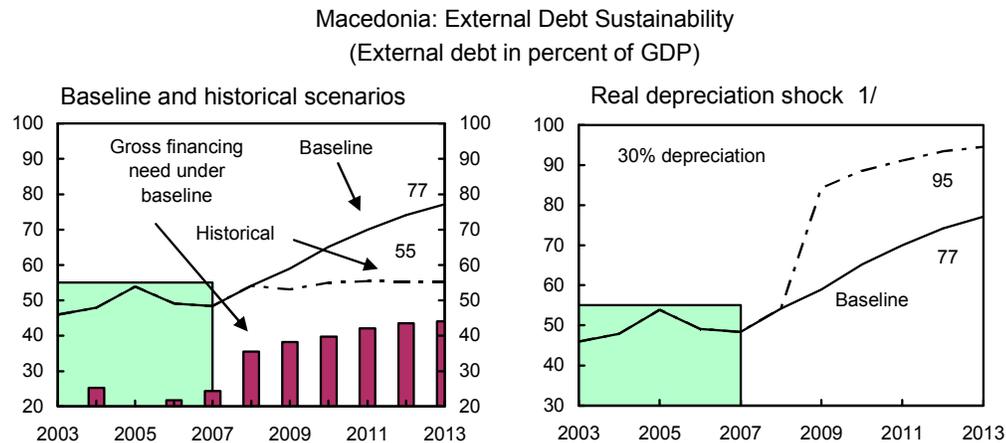
Sources: International Monetary Fund, Country desk data, and staff estimates.
1/ One-time real depreciation of 30 percent occurs in 2009. Shaded areas represent actual data.

18.   **There are some positive developments as well.** First, FDI has accelerated (with roughly 40 to 50 percent concentrated in the export sector) and is now financing over one-half of the current account deficit and providing an investor "vote of confidence". Second, Macedonia's financial sector appears to have low susceptibility to contagion from the current global financial crisis (given robust growth in deposits, banks have not had to overly rely on external financing to fund lending). Third, roughly one-third of the run-up in short-term debt is relatively stable intercompany short-term debt tied to FDI.

19.   **These developments together indicate rising, but for now manageable, risks to external stability.** Government policies should be oriented towards mitigating these risks, and strengthening the foundations for maintaining the de facto peg to the euro. A policy of short-term tightening of fiscal and monetary policy (including reconsideration of plans to increase public sector wages), and longer term structural reforms (generating export-oriented FDI and other investment) would reduce macroeconomic vulnerabilities, strengthen confidence, and boost prospects for maintaining external stability.

Figure 1. FYR Macedonia: Exchange Rate Indicators, 2000-08 (2000q1=100) 1/
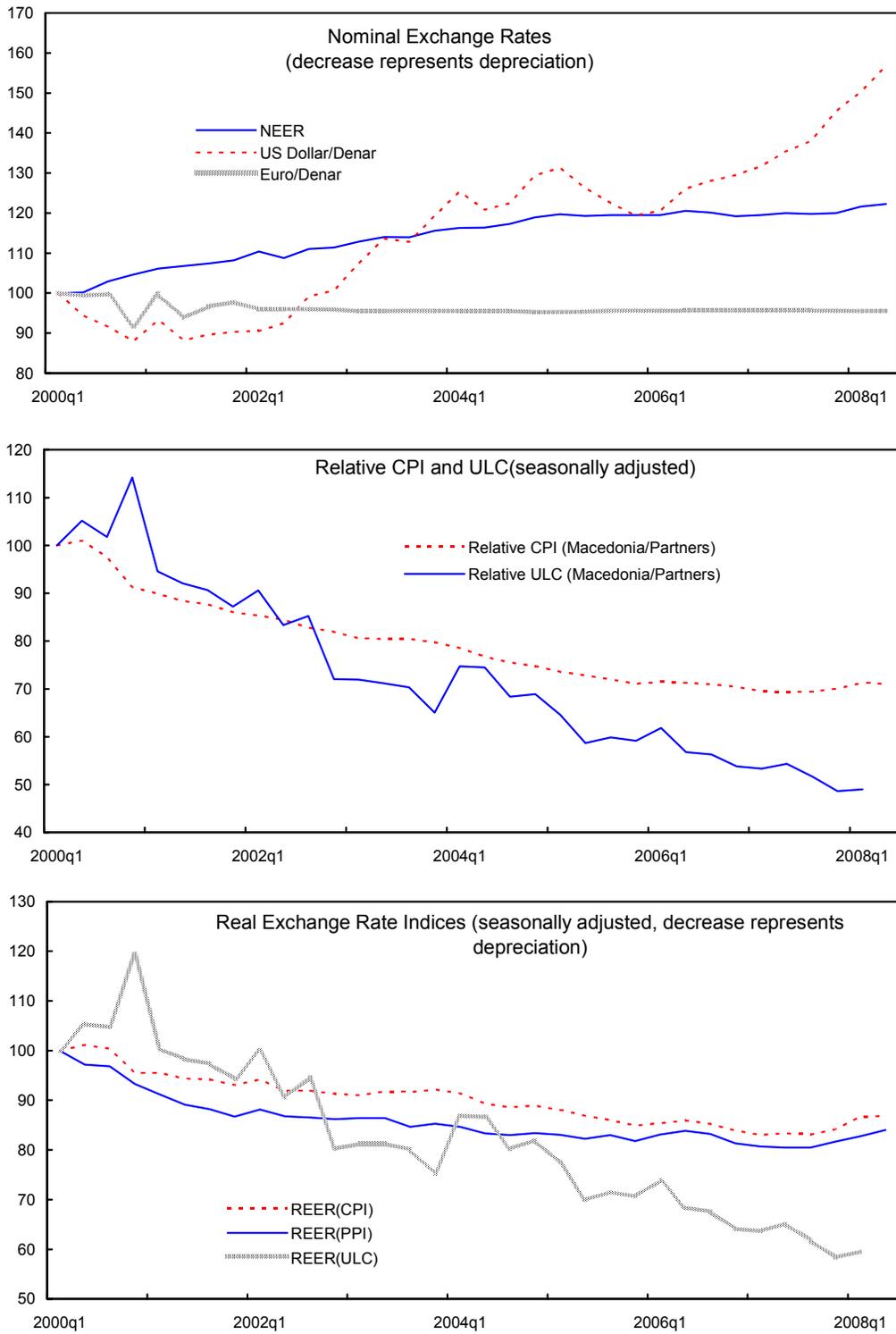
Sources: Eurostat; IFS; and IMF staff calculations.
1/ Trade weights based on 2002-2004 data for exports and imports of goods. Partner countries comprise: Austria, Bulgaria, Croatia, France, Germany, Greece, Italy, Netherlands, Russia, Serbia, Slovenia, Turkey, Ukraine, United Kingdom, and United States.

Figure 2. FYR Macedonia and SEE Countries Export Market Shares, 2000-08

Macedonia Export Market Shares: 2000q1-2008q2 (percent)

SEE Country Export Performance: 2000q1-2008q2 (percent of world market)

SEE Country Export Performance: 2000q1-2008q2 (Share of world market: 2000=100)
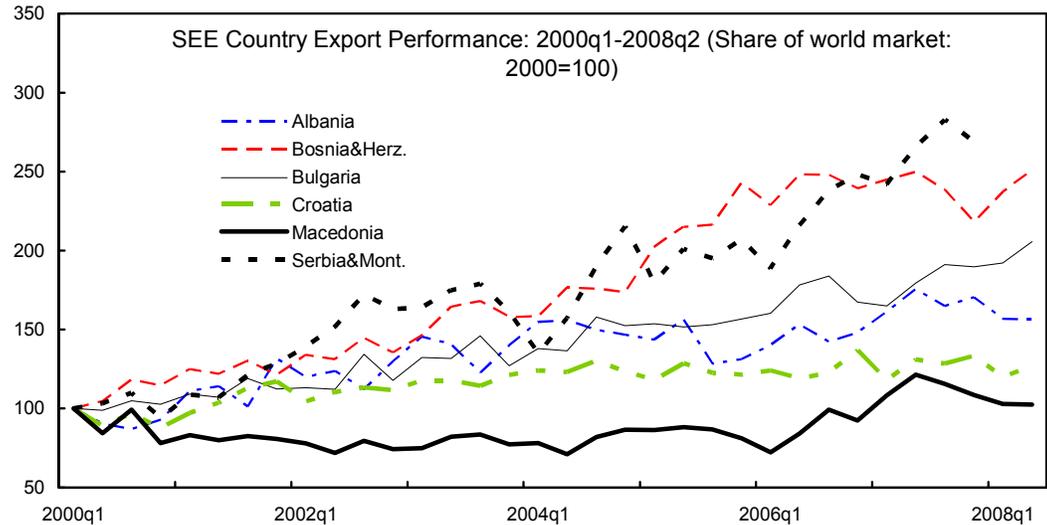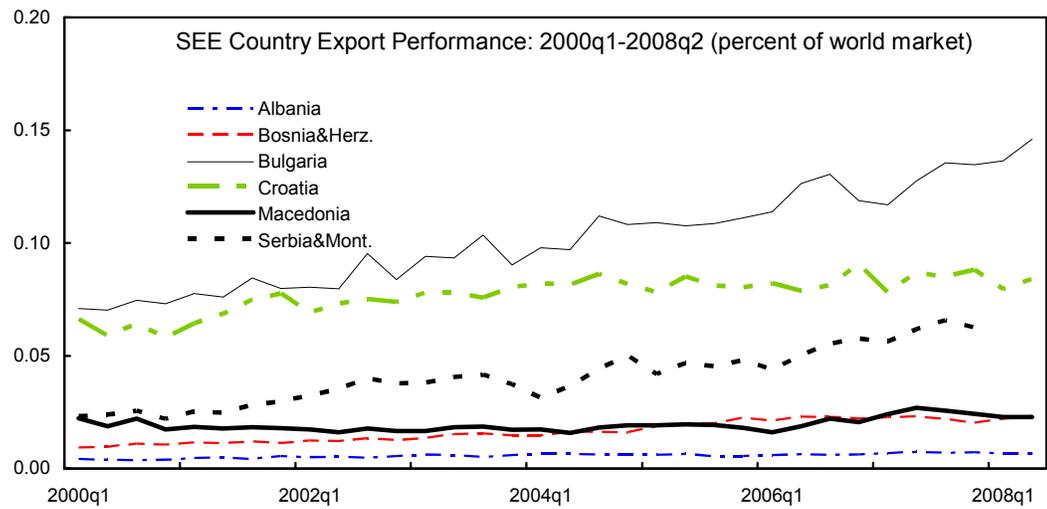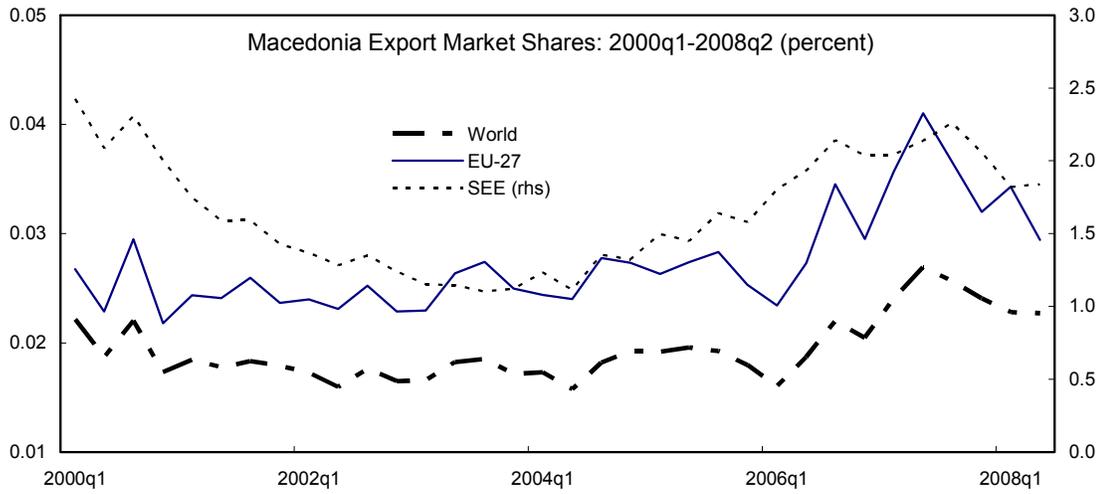
Sources:DOTS, Serbian authorities, and IMF staff

Figure 3. Real Effective Exchange Rate and Long-Run Determinants, 1998-2008
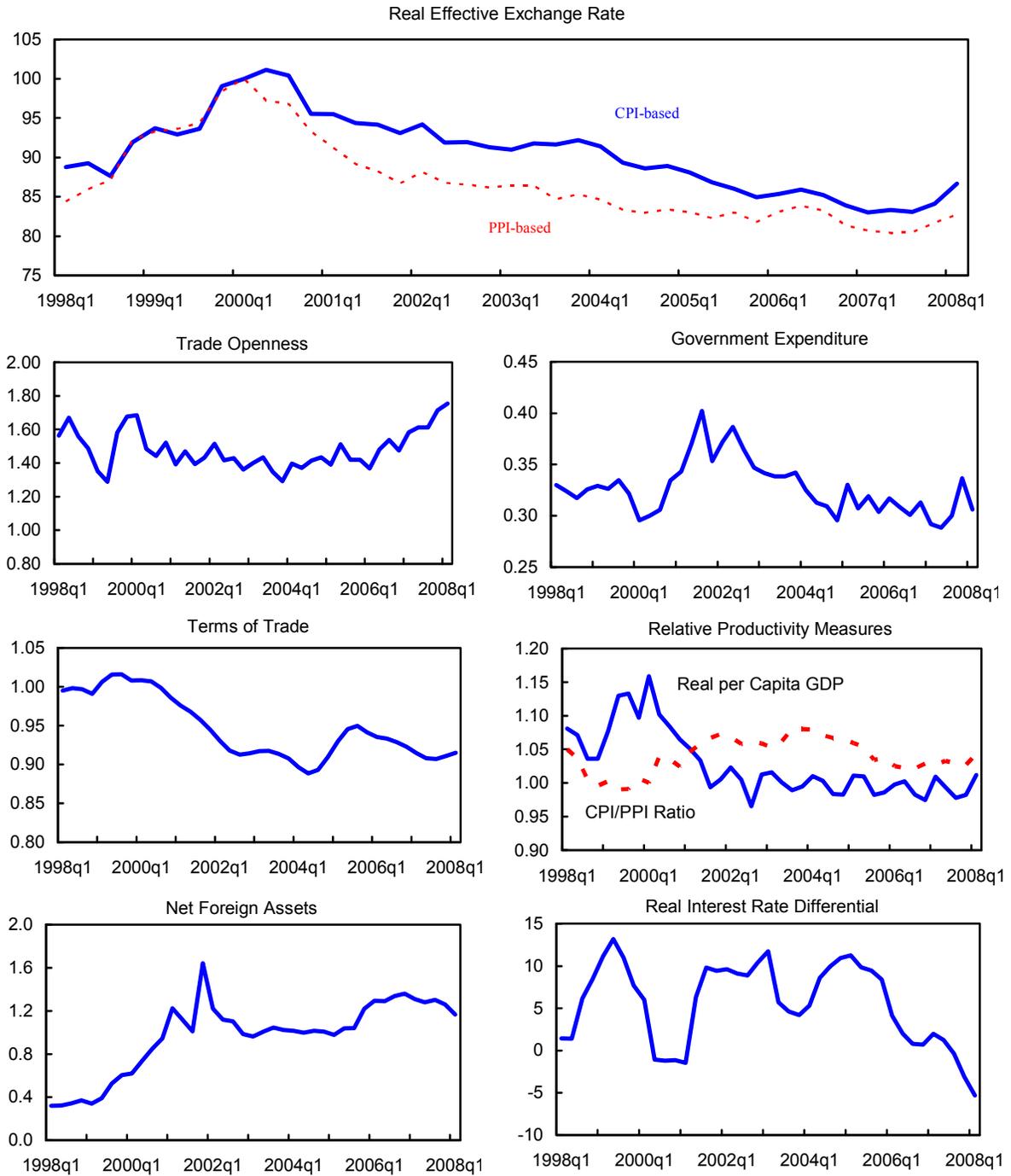
Sources: WEO, Haver, country statistics offices, IMF staff estimates.

Table 1. FYR Macedonia: Macroeconomic Balance Approach—Calculation of CA Norm

Macedonia Fundamentals			Coefficients		Contribution to CA Norm		
Fundamentals	2009-13 Average	2013 only	IM (2008) Full sample (random effects)	Rahman (2008) EUR based (pooled)	IM (2008) 2009-13 Average	Rahman (2008) 2009-13 Average	2013 only
Fiscal Balance	-2.7	-1.0	0.39 ***	0.23 ***	-1.05	-0.6	-0.2
Population growth	0.0	0.0	-0.35 **	---	0.00	---	---
NFA (initial period, percent of GDP)	-58.5	-58.5	0.03 ***	0.02 ***	-1.58	-1.4	-1.4
Oil balance	-6.8	-6.8	---	0.40 ***	---	-2.7	-2.7
Per capita GDP growth	4.1	3.7	-0.10 ***	-0.14 *	-0.41	-0.6	-0.5
Relative income (ratio to US level)	21.7	22.7	0.04 ***	---	0.76	---	---
FDI (% of GDP)	6.0	5.2	---	-0.61 ***	---	-3.7	-3.2
Remittances >5% of GDP (dummy)	1.0	1.0	---	---	---	---	0.0
C			-4.70 ***	0.02	-4.70	1.5	1.5
CA Norm (% of GDP)					-7.0	-7.5	-6.5
Margins of Error 1\ Upper bound Lower bound					-6.10 -7.87	-4.4 -10.5	-3.6 -9.4

Note: ***, ** and * denote significance at 1%, 5%, and 10% levels, respectively.

Sources: WEO, Imam and Minoiu "("IM") (2008), Rahman (2008), and Fund staff calculations.

1/ Calculated using standard errors and +/- one standard deviation

Table 2: FYR Macedonia ERER: Vector Error Correction Model Estimatation Results

Sample: 1998Q1 2008Q1 t-statistics in ( )	Preferred VECM						Preferred VECM
	(CPI-based) Model 1		Specification Tests of Preferred VECM (CPI-Based)				(PPI-based) Model 7
		(2)	(3)	(4)	(5)	(6)	
VECM model/Unrestricted VAR							
Intercept	Y/Y	Y/Y	Y/Y	Y/Y	Y/Y	Y/Y	Y/Y
Trend	N/N	N/N	N/N	N/N	N/N	N/N	N/N
Lags	2	2	2	2	2	2	2
Number of cointegrating vectors							
Trace Statistic							
5%	1	0	1	3	1	2	1
1%	1	1	0	2	1	2	1
Max Eigenvalue Statistic							
5%	1	0	1	2	1	2	1
1%	1	0	0	1	1	2	1
Estimates of the cointegrating relationship with the real exchange rate							
Log REER (CPI-based)	1	1	1	1	1	1	---
Log REER (PPI-based)	---	---	---	---	---	---	1
Log Government expenditure/GDP (MKD) (MKD relative to trading partners)	-0.29 *** (-4.84)	-0.19 *** (-2.58)	-0.26 *** (-3.81)	-0.24 *** (-3.63)	-0.40 *** (-7.10)	-0.42 *** (-7.72)	-0.20 *** (9.01)
Log Relative productivity (based on relative real GDP per capita)	-0.98 *** (-7.53)	-0.97 *** (-7.89)	-1.01 *** (-6.94)	-0.82 *** (-3.33)	-1.94 *** (-5.73)	-2.26 *** (-7.10)	-1.18 *** (-26.1)
Log Trade openness (MKD only)	---	0.09 * (1.51)	---	---	---	---	---
(MKD relative to trading partners)	---	---	-0.04 (-0.33)	---	---	0.01 (0.19)	---
Log Net Foreign Assets (banking system) (MKD only)	---	---	---	0.05 *** (2.80)	---	-0.02 (-1.23)	---
Log Terms of trade (MKD relative to trading partners)	---	---	---	---	0.84 *** (3.29)	1.30 *** -4.82	---
C	-4.37	-4.42	-4.37	-4.39	-4.23	-4.17	-4.36
Error correction	-0.49 *** (-5.70)	-0.50 *** (-5.35)	-0.45 *** (-5.15)	-0.34 *** (-5.26)	-0.46 *** (-6.72)	-0.53 *** (-6.68)	-0.79 *** (-5.3)
Log Likelihood	266	328	332	308	400	538	278
AIC	-12.6	-15.0	-15.2	-13.9	-18.7	-23.6	-13.2
SC	-11.4	-13.1	-13.3	-11.98	-16.6	-19.7	-12.0
Number of observations	38	38	38	38	38	38	38

The symbols *, **, *** denote significance at 10, 5, and 1 percent, respectively.

IV. MACROECONOMIC EFFECTS OF ELECTRICITY POLICY[14]

A. Introduction

1.   **Weaknesses in the electricity sector pose risks to macroeconomic stability and economic efficiency.** Prices for households are kept artificially low, payment discipline is inadequate, and technical losses are high. The scale of these problems generates important macroeconomic consequences: the sector is a drain on the government budget (with 2008 electricity quasi-fiscal subsidies estimated at 5 percent of GDP) and an important contributor to the country's external deficit (with the 2008 electricity trade deficit projected at 5 percent of GDP). Keeping household electricity prices below market equilibrium helps contain inflation, for now—but this is only a temporary gain. Underpricing also has serious microeconomic implications: the economy remains too energy-intensive, and incentives to increase electricity production are weak. Price discrimination between electricity users further distorts economic decisions.

2.   **Electricity consumption is growing fast, leading to increasing imports.** In 2007, 30 percent of domestic use had to be imported, costing 3 percent of GDP, and this is projected to increase to 5 percent of GDP in 2008. The depletion of domestic coal deposits implies that more will have to be imported, either directly (in the form of electricity imports) or indirectly (in the form of coal imports).

Consumption and Production of Electricity (in GWh)

Source: MEPSO.
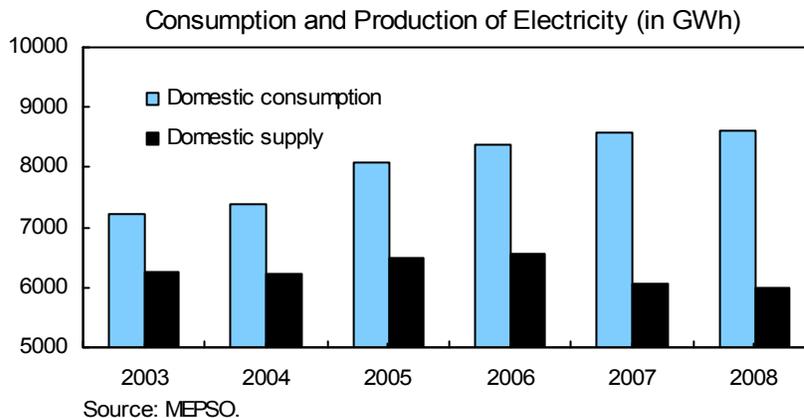
3.   **The marginal cost of increased domestic production is high—at least in the short term.** At present, coal-fired plants produce around three quarters of total supply, with most of the remainder produced in hydro-electric plants. While these sources produce relatively cheap power, high fuel prices have pushed up costs at the fuel-oil fired Negotino plant, the country's back-up supplier.

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[14] Prepared by Bert van Selm (EUR) and Pablo López-Murphy (EUR).

Uses and Sources of Electricity, 2007
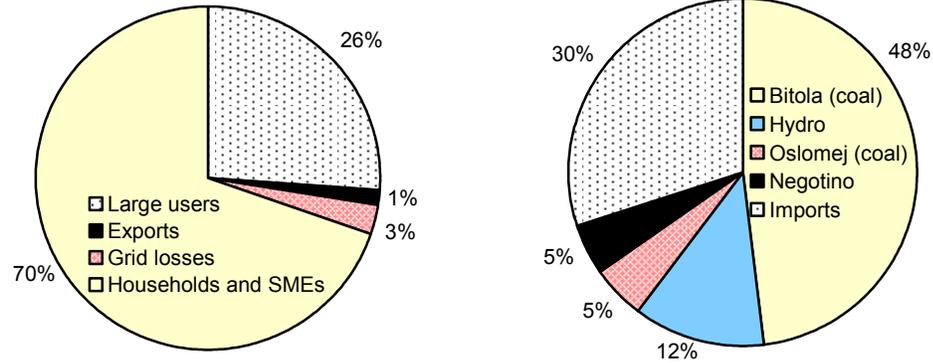
Source: Energy Regulatory Commission Annual Report.

4.   **Prices for households (the main users) are amongst the lowest in the region, and much lower than import costs**. The 13 percent price increase effective November 2008 raises the daytime tariff for households to €47 per MWh. However, import prices are much higher; in the first eight months of 2008, MEPSO (the state transmission company) imported electricity for €82 per MWh on average. The differential between import and regulated prices implies that MEPSO incurred losses for every kilowatt-hour that it purchased abroad and sells (to distributor EVN, for a regulated price of €30 per MWh).

Electricity Prices in FYR Macedonia and Regional Comparison
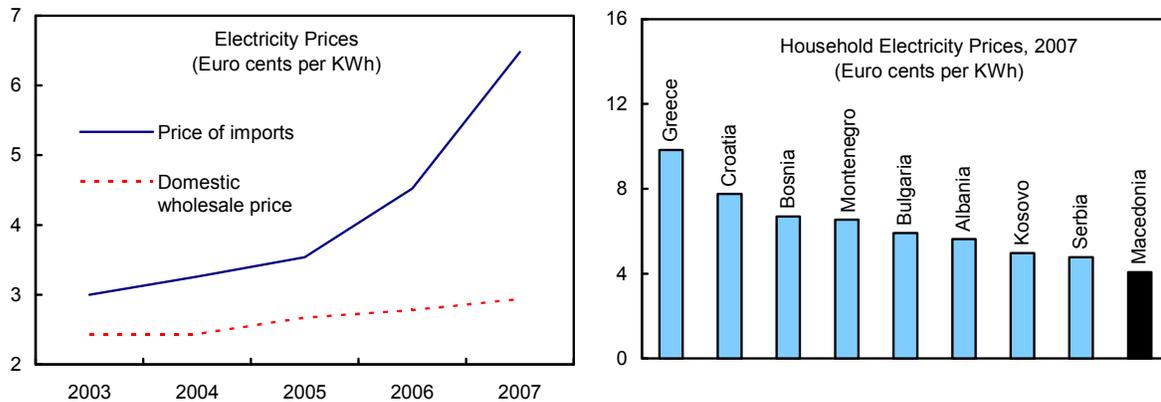
Source: MEPSO

Source: Energy Regulatory Comission.

5.   **The subsidy to households implicit in underpricing is poorly targeted, as it applies to everyone, not just the poor**. The bulk of the subsidies is provided to high-income households, as they consume more electricity. Data from the Household Budget Survey show that the poorest 20 percent of households receive only 2.7 percent of the electricity subsidy. Underpricing also blunts incentives for economizing. This helps explain why electricity (a secondary, and as such relatively expensive, form of energy) plays a major role in winter heating. The August 2008 60 percent increase in district heating prices will likely further boost the demand for electricity for this purpose.

Distribution of Electricity Subsidy

Source: Household Budget Survey, 2006.
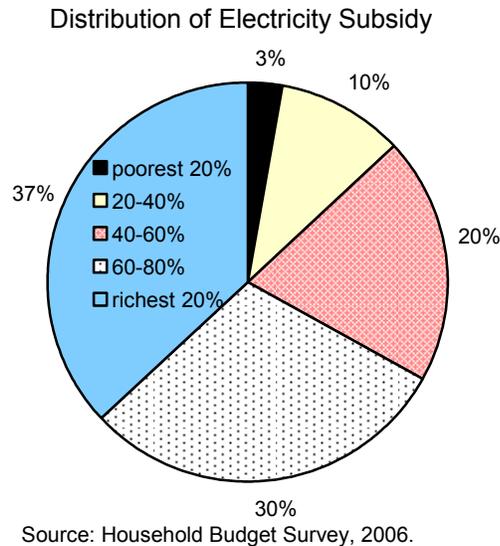
6.   **Toleration of nonpayment is a second source of poorly targeted electricity subsidies**. The privatization of the distribution network in early 2006 has helped to improve collection rates from around 67 percent in 2001−04 to around 75 percent in 2006 and 2007.[15] Further improving collection rates is complicated by many factors, including metering problems and poor payment discipline in remote areas.

Collection Rate (Percent)

Source: EVN.
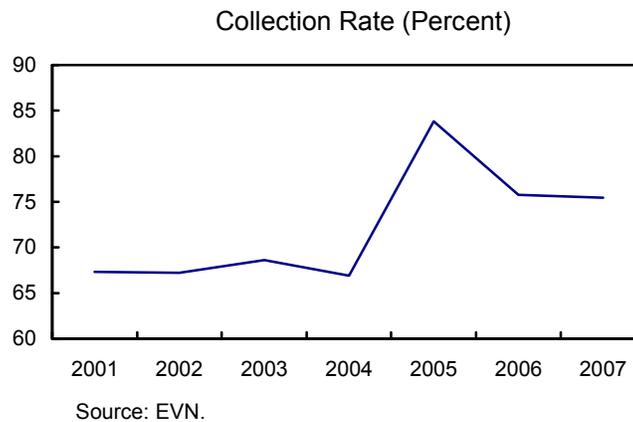
7.   **To reduce its exposure to losses in the sector, the government has increased prices for a small group of large industrial users, while keeping household prices unchanged.** Starting January 2008, a group of 10 large users purchase their electricity directly from abroad, at market prices. MEPSO just transmits power for these enterprises—the terms of the sales are agreed directly between the foreign producer and the domestic user.

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[15] The temporary increase in collections reported for 2005 reflects a clearance operation of old arrears, not a sustainable improvement of collections on the current use of electricity.

As a result, these users now face much higher prices than households.[16] While this measure significantly reduces MEPSO's losses (by an estimated 2 percent of GDP), it discriminates against large users of electricity.[17] On efficiency grounds, these users should be charged lower prices for their use, not higher, as it is cheaper to supply large users with power.

B. Fiscal and Quasi-Fiscal Losses

8.   **In recent years, MEPSO's losses have forced the government to supply it with cash via supplementary budgets**. In November 2006, swift government action was required to provide MEPSO with €20 million (0.4 percent of GDP) to secure adequate winter supplies. The 2008 supplementary budget contained a €8 million (0.1 percent of GDP) allocation for MEPSO to help offset losses from buying at high prices abroad, and selling at low prices domestically.

9.   **Quasi-fiscal losses in the sector (including opportunity costs) are much higher than the direct impact on the budget**. For 2008, projected losses from underpricing, nonpayment by final users, and higher than normal distribution losses add up to **4.7 percent of GDP**.

Table 1. FYR Macedonia: Sources of Quasi-Fiscal Losses in the Electricity Sector, 2008

	quantity (MWh)	price (€ per MWh)	cost (% GDP)
Pricing 1/	4,600,000	82-30=52	3.8
Excess distribution losses 2/	692,760	30	0.3
Collection shortfalls 3/	1,225,000	30	0.6
Total Quasi-Fiscal Losses			4.7

Source: IMF staff calculations

1/ The import price differential applied to household use and distribution losses.

2/ Assumes 11 percent distribution losses as the international standard.

3/ Assuming EVN's collection rate remains at 75 percent.

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[16] In March 2007, the energy law was amended to remove MEPSO's monopsony rights in purchasing power directly from foreign suppliers. Starting from May 2007, the provision of electricity at domestic wholesale prices to the 'large users' (or, more precisely, the users directly connected to the transmission grid) was reduced to 45 percent of their historical use—any additional needs were to be purchased at the regional market. Starting January 2008, these companies had to buy all of their electricity needs at the regional market.

[17] Assuming a price differential of €52 per MWh between MEPSO's import price of €82 per MWh, and its domestic sales price of €30, and 2008 use by large users of around 2.2 million MWh, MEPSO's savings amount to around €114 million, or 1.8 percent of GDP.

C. Reforming the Electricity Sector

10.   **In July 2008, the energy law was amended to address problems in the sector.** The main innovations are:

- **ELEM,** the generation company, is provided with a license to directly supply EVN with electricity for the needs of its customers. ELEM will be entitled to sell any surplus (beyond the needs of EVN's customers) on the open market. If ELEM's production is lower than the demand of EVN's customers (including technical losses), ELEM will import the additional quantities of electricity at its own expense.

- **MEPSO** will transmit power for a transmission fee, and no longer buy and sell electricity.

- **EVN** will to continue to pay regulated prices for losses technical losses (of not more than 11 percent of the electricity supplied to it); for any additional losses in the distribution grid, market prices will be charged.

While these reforms will likely reduce the government's fiscal risk stemming from the electricity sector (in particular by charging EVN higher prices for 'excessive losses'), they do not provide incentives for more efficient use of electricity to final users.

11.   **A further increase in household tariffs (building on the 13 percent increase effective November 2008) is inevitable**. This would:

- Directly address the **main source of quasi-fiscal subsidies**—estimated at 3.8 percent of GDP in 2008, as shown above.

- Bring prices charged to households closer to prices charged to large users, thereby reducing economic distortions.

- Bring Macedonia's household tariffs closer to **prices elsewhere in the region,** thereby reducing the sector's contribution to the trade deficit.

12.   **But social protection needs to be improved to cushion the price increase.** Under the EU Energy Community Treaty, to which Macedonia is a signatory, the electricity market for households is to be liberalized by 2015. It will be important to use the coming years to gradually converge prices for these users to regional levels, while at the same time designing and implementing a well-targeted social protection mechanism—either by a direct budget transfer to the poorest users (along the lines of the support provided to the poorest households in the spring of 2008, to compensate for higher fuel and food prices); or by block tariffs (providing a basic supply of electricity to each household at a lower price). Poor households spend a significant part of their budget on electricity (the poorest 20 percent of

households spend 18 percent of their budget on electricity). Without offsetting measures, a significant increase in prices could have a major impact on the budgets of these households.

Budget Share of Electricity Consumption, 2006 (Percent)

Source: Household Budget Survey, 2006.
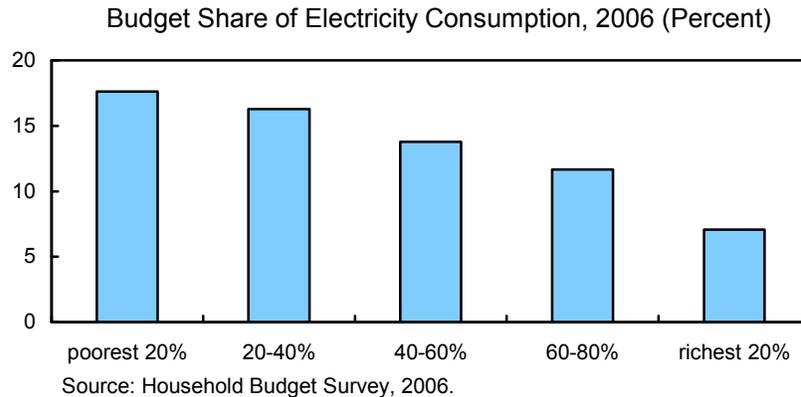
D. Conclusion

13.   **Higher electricity prices are needed, together with improved social protection for the poor**. Higher prices would provide much-needed incentives to economize on use, and stimulate domestic production. This would help reduce quasi-fiscal losses in the sector (estimated at 5 percent of GDP in this paper), and also address the electricity sector's high and growing contribution to Macedonia's trade deficit (projected at 5 percent of GDP in 2008). With poor households spending up to one-fifth of their budget on electricity, it is crucial that a price increase is accompanied by a scheme to mitigate the social impact.

References

Bogoev, Jane, Sultanija Bojceva Terzijan, Magdalena Petrovska, and Balazs Egert, (2007), "Real Exchange Rate Dynamics in Macedonia: Old Wisdoms and New Insights," Economics Discussion Paper 2007-37.

Imam, Patrick, and Camelia Minoiu, 2008, "Mauritius, A Competitiveness Assessment," IMF Working Paper WP/08/212 (Washington: International Monetary Fund).

IMF (2006), *FYR Macedonia—Selected Issues,* IMF Staff Country Report No. 06/345, (Washington: International Monetary Fund)

IMF (2008a), *Republic of Croatia: Selected Issues*, IMF Staff Country Report No. 08/159, (Washington: International Monetary Fund).

IMF (2008b), *Romania: Selected Issues*, IMF Staff Country Report No. 08/210, (Washington: International Monetary Fund).

IMF (2008c), "Exchange Rate Assessments: CGER Methodologies", IMF Occasional Paper No. 261 (Washington: International Monetary Fund).

MacDonald, Ronald, and Luca Ricci, "Estimation of the Equilibrium Real Exchange Rate for South Africa," IMF Working Paper WP/03/44 (Washington: International Monetary Fund).

Rahman, Jesmin, 2008, "Current Account Developments in New Member States of the European Union: Equilibrium, Excess, and EU-Phoria," IMF Working Paper WP/08/92 (Washington: International Monetary Fund).

Saadi-Sedik, Tahsin and Martin Petri, 2006, "To Smooth or Not to Smooth - The Impact of Grants and Remittances on the Equilibrium Real Exchange Rate in Jordan," IMF Working Paper WP/06/257 (Washington: International Monetary Fund).