

Report No. 48879- HR

CROATIA

Croatia's EU Convergence Report: Reaching and Sustaining Higher Rates of Economic Growth

(In two volumes)

Vol. II: Full Report

June 2009

Europe and Central Asia Region



Document of the World Bank

CURRENCY AND EQUIVALENT UNITS

Currency Unit=Croatian kuna
 US\$1 =HRK 5.6102
 (As of April 30, 2009)

FISCAL YEAR

January 1 – December 31`

WEIGHTS AND MEASURES

Metric System

ACRONYMS AND ABBREVIATIONS

AAE	Agency for Adult Education	IEC	International Electrotechnical Commission
ADR	Alternative Dispute Resolution	ILAC	International Laboratory Accreditation Cooperation
AVET	Agency for Vocational Education and Training	ILO	International Labor Organization
CA	Company Act	IP	Intellectual Property
CARDS	Community Assistance for Reconstruction, Development and Stabilization	ISO	International Organization for Standardization
CEE	Central and Eastern Europe	OECD	Organization for Economic Cooperation and Development
CENLE	European Committee for Electrotechnical Standardization	LLL	Life Long Learning
C	???	MoSES	Ministry of Science, Education and Sports
CES	???	MoELE	Ministry of Economy, Labor & Entrepreneurship
CGPM	General conference on Weights and Measures	MS&T	Mathematics, Science & Technology
ECA	Europe and Central Asia	NIS	National Innovation System
FDI	Foreign Direct Investment	PMR	Product Market Regulation
FE	Fixed Effects	PPS	Purchasing Power Standards
FINA	Financial Agency	PPP	Public Private Partnership
GDP	Gross Domestic Product	R&D	Research and Development
GFCF	Gross Fixed Capital Formation	RE	Random Effects
GLS	Generalized Least Squares	REER	Real Effective Exchange Rates
GNI	Gross National Income	SMA	Security Market Act
GER	Gross Enrolment Ratio	SME	Small & Medium Enterprises
GPI	Gender Parity Index		
HANFA	Croatian Agency for Supervision of Financial Services		
HEI	???	TFP	Total Factor Productivity
HP-Filter	Hodrick-Prescott Filter	UMIC	Upper Middle Income Countries
HZMO	Croatian Pension Insurance Institute	VAT	Value Added Tax
HZZO	Croatian Health Insurance Institute	VC	Venture Capital
IAF	International Accreditation Forum	VET	Vocational Education & Training
ICA	Investment Climate Assessment	WTO	World Trade Organization
ICS	???		
ICT	Information & Communication Technology		
ICMS	Integrated Case Management System	ZSE	Zagreb Stock Exchange

Vice President:	Shigeo Katsu, ECAVP
Country Director:	Orsalia Kalantzopoulos, ECCU5
Sector Director:	Fernando Montes-Negret, ECSPF
Sector Manager:	Lalit Raina, ECSPF
Task Team Leaders:	Paulo Guillerme Correa, ECSPF Sanja Madzarevic-Sujster, ECSPE

ACKNOWLEDGEMENTS

This report is the product of a collaborative process involving the Croatian Ministry of Finance and the National Competitiveness Council. The team would like to thank Mr. Ante Ćigman (former State Secretary, Ministry of Finance), Mr. Zdravko Marić (State Secretary, Ministry of Finance) and staff at the Ministry of Finance and other line ministries for their comments and support at various stages during the preparation of this report. Early findings of the background work were shared with government and non-government officials, including key donor community representatives, during three workshops organized in the February-June 2008 period. The team is grateful for all the comments received.

The World Bank team was led by Paulo Correa and Sanja-Madzarevic-Sujster. It comprised Allen Dennis, Chris Uregian, Doina Cebotari, Donato De Rosa, Gerald Ollivier, Jan Rutkowski, Jana Kunicova, Jean Louis Racine, Jorge Pena Izquierdo, Matija Laco, Naotaka Sawada, Nina Arnhold, Prathima Rodrigues and Smita Kuriakose. Background papers were prepared by Alvaro Escribano, Velimir Sonje, Ana-Maria Boromisa, Victor Gomes, Vedran Sosic, Sanja Crnkovic-Pozacic, Domagoj Racic, Arjan M. Lejour, Gerard Verweij and Bas ter Weel. Dubravka Jerman, Cristina Velazco-Weiss and Maureen Itepu provided editorial and administrative assistance.

The report was undertaken under the guidance of Orsalia Kalantzopoulos, Country Director, Fernando Montes-Negret, Sector Director, and Lalit Raina, Sector Manager. Mark Dutz and Mark Thomas were the peer reviewers of the report. In addition, the team would like to thank Michael Edwards, Andras Horvai, Francisco Ferreira and Andrea Mervar for their comments, advice, and help throughout the course of this work. The responsibility for any data and/or opinion expressed in this paper remains exclusively that of the authors.

CONTENTS

1. INTRODUCTION	1
A. MACROECONOMIC SETTING	2
B. CONVERGENCE	7
2. ECONOMIC GROWTH IN CROATIA: WHAT HAVE WE LEARNED?	11
A. GROWTH DIAGNOSTICS	11
Sources of Growth.....	12
Can Croatia Achieve and Sustain Higher Growth Rates?	13
B. WHAT ARE CROATIA’S “GROWTH RESERVES”?	16
C. GROWTH SCENARIOS	17
The Impact of the Lisbon Agenda: Results from the WorldScan CGEM.....	17
Growth Regression	19
Estimating the impact of different TFP growth rates on economic convergence	21
3. INCREASING LABOR CONTRIBUTION: EMPLOYMENT AND HUMAN CAPITAL	23
A. LABOR MARKET DIAGNOSTICS	23
Raising Employment	23
Demographic Challenge	24
Why is labor participation so low in Croatia?	26
What drives up the unemployment rate?	28
B. ADDRESSING THE SKILL GAP: VOCATIONAL TRAINING, TERTIARY EDUCATION AND LIFELONG LEARNING IN CROATIA	35
Vocational education and training (VET).....	36
Higher Education in Croatia.....	42
Lifelong Learning	45
4. INCREASING TOTAL FACTOR PRODUCTIVITY	49
A. IMPROVING ALLOCATIVE EFFICIENCY IN CROATIA	54
What is hindering allocative efficiency in Croatia?.....	54
How can Croatia induce better allocative efficiency?	60
Improving Product Market Regulations	60
Complementary Measures Improving Entry and Exit conditions.....	66
B. AVERAGE PRODUCTIVITY	69
The Impact of the Investment Climate on Average TFP	69
Addressing the Causes.....	71
5. TRADE AND INNOVATION	85
A. LEVERAGING THE GLOBAL ECONOMY: THE ROLE OF INTERNATIONAL TRADE	85
Deepening Trade Integration	85
B. UNLEASHING CROATIAN INNOVATIVE POTENTIAL	118
Innovation Performance	119
Human Resources and R&D.....	125
Industry-Research Collaboration.....	127
Governance of the National Innovation System.....	128
Recommendations	129
6. CONCLUSIONS AND POLICY RECOMMENDATIONS	132
BIBLIOGRAPHY	136
TABLES	
Table 1.1: Croatia: Selected Macroeconomic Indicators, 2000-2008.....	5
Table 2.1: Overall effects of the five Lisbon targets in 2025.....	18
Table 3.1:Employment, unemployment and participation rates, 2007	23

Table 3.2: Migration rates to OECD countries by level of education, %	25
Table 3.3: Indicators of employment flexibility in Croatia and selected EU countries, 2008	31
Table 3.4: Types of regular secondary education, number of programs and entry quotas, 2006-2007	37
Table 3.5: Secondary school graduates who were employed within 6 months of registration, 2007	39
Table 4.1: Net job creation by ownership (in %)	55
Table 4.2: Breaking down the time and cost of trading across borders	76
Table 4.3: The logistics environment in Croatia and comparator economies	79
Table 5.1: Product Concentration of Croatia's Exports	87
Table 5.2: Decomposition of Export Growth 1995 to 2004, percent	88
Table 5.3: Benchmarking Paying Taxes in Croatia	97
Table 5.4: Building a warehouse in Croatia	103
Table 5.5: Enforcing Contracts in 2007	109
Table 5.6: International and Regional Integration of Croatia's National Quality Infrastructure ...	113
Table 5.7: Logistics Performance Index 2007	116
Table 5.8: Use of foreign licensed technologies by Croatian firms	125

FIGURES

Figure 1.1: Price developments, y/y growth rates	2
Figure 1.2: Credit growth developments	3
Figure 1.3: External imbalance as % of GDP	3
Figure 1.4: Sectoral composition of external debt (% of total)	6
Figure 1.5: Growth Rates vs. Relative Initial Income (1995-2006)	8
Figure 1.6: Catching Up with the EU	8
Figure 1.7: Croatia's terms of trade, 1997=100, in %	9
Figure 2.1: Real GDP, population and per capita income in Croatia 1994-2007 (const1994 prices)	11
Figure 2.2: Trend in per capita income as a share of the US	12
Figure 2.3: Contribution to output growth in Croatia 2000-2007, %-age points	13
Figure 2.4: Growth Accounting for Croatia (1994-2010)	13
Figure 2.5: Real and Potential Growth (HP-Filter)	13
Figure 2.6: Increase in real GDP per capita (PPP)	20
Figure 2.7: Estimated change in real GDP per capita (PPP) in response to changes in other variables	20
Figure 2.8: Estimating the impacts of TFP gains on growth using a dynamic general equilibrium approach	Error! Bookmark not defined.
Figure 3.1: Population change in Central and Eastern Europe, 1989-2004	24
Figure 3.2: Projected population change in Central and Eastern Europe, 2005-2025	24
Figure 3.3: Top OECD destination countries for skilled Croatian emigrants	26
Figure 3.4: Unit labor cost is higher in Croatia than its regional competitors	28
Figure 3.5: While there is a shortage of workers with high and specialized skills, there is an excess supply of workers with low and only general skills	32
Figure 3.6: Too many lawyers and designers, too few construction, engineering and service workers	33
Figure 3.7: Skills of available workers as an obstacle to the competitiveness of firms	33

Figure 3.8: It takes more time to recruit a worker with required skills in Croatia than in other countries in the region	34
Figure 3.9: Expanding firms are particularly affected by the skills shortage	35
Figure 3.10: Employment by sectors, total unemployment and the number of newly registered unemployed people according to their previous employment, 2005	40
Figure 4.1: Productivity decomposition by industry, region and size: mixed Olley and Pakes.....	50
Figure 4.2: Kernel estimates of productivity densities.....	51
Figure 4.3: Kernel estimate of log-productivity density	52
Figure 4.4: Hypothetical changes in the productivity distribution.....	52
Figure 4.5: IC absolute weights on aggregate log-productivity by blocks of variables.....	52
Figure 4.6: Investment Climate contributions to aggregate and average log-productivity.....	54
Figure 4.7: Firm Turnover in Croatia.....	56
Figure 4.8: Share of gross value added by agriculture in the national GDP, 2006.....	56
Figure 4.9: Employment in agriculture (percent of total civilian employment), 2006	56
Figure 4.10: Distribution of family farms according to size of agricultural land	57
Figure 4.11: Structure of agricultural land ownership in Croatia	59
Figure 4.12 The PMR indicator system	60
Figure 4.13: Product market regulation in Croatia (2008).....	61
Figure 4.14 : Economic and administrative regulation	61
Figure 4.15: Decomposing the PMR.....	63
Figure 4.16: Barriers to Competition	64
Figure 4.17: The ETCR Indicator for Croatia	65
Figure 4.18 : Barriers to Entry and Public Ownership.....	65
Figure 4.19 : Simulation of the effect of ETCR on GDP.....	66
Figure 4.20 The process for starting a business in Croatia	67
Figure 4.21 Starting a Business in Croatia, 2003-2008.....	68
Figure 4.22 : Closing a Business in Croatia, 2003-2008.....	69
Figure 4.23 : Relative ICA effects on average productivity (mixed decomposition)	71
Figure 4.24: Workers Using Computer across Croatian regions and Countries	72
Figure 4.25: Workers Using Computer per Firm Size and Firm Age, 2007	72
Figure 4.26: Workers Using Computer, Exporters and Sectors, 2007.....	73
Figure 4.27: Workers Using Computer per Ownership, 2007	73
Figure 4.28: Skilled production permanent workers, country comparison and company type.....	74
Figure 4.29 : Regional distribution of skill shortages in Croatia	74
Figure 4.30 : Ease of trading across borders 2008	75
Figure 4.31: Percent of companies that report transport as a major or very severe obstacle to their current operations.....	78
Figure 4.32: Percent of the consignment value of products lost due to breakage, spoilage or theft while in transit to domestic or export markets	79
Figure 4.33: Share of firms with loans, by country.....	81
Figure 4.34: Share of firms with loans, by firm size in Croatia.....	81
Figure 4.35: Main sources of finance for working capital needs, international comparison, percentage values	83
Figure 4.36: Top Reasons for firms not applying for loans, international comparison	83
Figure 5.1: Trade Integration in 2005	86
Figure 5.2: Real Openness in 2005	86

Figure 5.3: Geographic Diversification of Croatia's Exports	86
Figure 5.4: Croatia's main exports, 1997 & 2006	87
Figure 5.5: Degree of technological sophistication of Croatia's exports are below those of most CEE's	88
Figure 5.6: Trends in Real Effective Exchange Rates in CEE's 1997-2006	89
Figure 5.7: Top 10 obstacles for the Expansion of Business in Croatia: Exporting Firms	90
Figure 5.8: Relative ICA effects on the probability of exporting	90
Figure 5.9: Top 10 obstacles for the Expansion of Business in Croatia: Foreign-Owned Firms	91
Figure 5.10: FDI stock per capita	91
Figure 5.11: percent of Firms that Experienced Power Outages	93
Figure 5.12 : Loss as a percent of annual sales due to power outages	93
Figure 5.13: Tax rate as a major or very severe obstacle to business operation and growth, by firm size and age	95
Figure 5.14: Tax administration as a major or very severe obstacle to their operation and growth, by company age and region	95
Figure 5.15: Employers' labor contributions in Croatia and comparator economies, % of profit ...	96
Figure 5.16: Land occupied by the respondent firms that is either owned or leased, by region and company size	99
Figure 5.17: Access to land as a major or severe obstacle to their operation and growth, by firms age	99
Figure 5.18: Property registration (days) in Croatia and comparator economies, 2008	100
Figure 5.19: Percentage of companies perceiving the business licensing and permits environment as a major or very severe obstacle to their operations	102
Figure 5.20: Days to obtain an operating license by company size and region	103
Figure 5.21: Croatia's minority investor's protection compared to its neighbours in 2008	105
Figure 5.22: Percent of companies that had their financial statements verified by an external auditor in 2006, by type and region	107
Figure 5.23: Confidence in the Croatian Legal System in the period 1996-2005	108
Figure 5.24: Trends in Road and Railway Transport (2001=100)	115
Figure 5.25: The 2007 Summary Innovation Index (SII)	119
Figure 5.26: Research and Development/GDP vs. GDP/Capita, 2004	120
Figure 5.27: Innovative Activity in Croatian Firms	122
Figure 5.28: Innovative Activity by Exporter Status	122
Figure 5.29: Share of Firms that Introduced a New Technology in the last three years	122
Figure 5.30: Share of Firms that Introduced a New Technology in the last three years (<i>by Exporter Status</i>)	123
Figure 5.31: Share of Firms that Introduced a New Technology in the last three years (<i>by Region</i>)	123
Figure 5.32: Email for Business Use	125
Figure 5.33: Share of Firm's Employees that use Computers Regularly	125
Figure 5.34: Total R&D personnel as a share of the labor force in 2004	126

BOXES

Box 1.1: Banking Sector Soundness	4
Box 2.2: Growth and the Size of the Government	22
Box 3.1 Croatia's Social Welfare System's Impact on Labor Market Participation: An Illustration	27

Box 3.2: Unemployment Benefit System in Croatia in 2007.....	27
Box 3.3: European Examples of Good Practice: Finland and Ireland	47
Box 4.1: The Effect of having own Transportation on Firm Productivity.....	80
Box 5.1: Can R&D Laboratories of former SOE's survive the market test?.....	120
Box 5.2: Private R&D in SMEs	121

INTRODUCTION

How Croatia can reach and sustain higher growth in per capita income and speed up its economic convergence with EU economies are the questions addressed by this report. Economic and social development achievements in Croatia during the last decade have been impressive: the country consolidated its macroeconomic stability; achieved levels of economic growth close to 4.5 percent in real terms, reducing its income gap with the European Union; while keeping its social development indicators among the best in the region. In addition, full membership of the EU – currently expected around 2011 -- will strengthen Croatia's institutional foundations, thereby contributing to the continuation of this strong performance.

Yet, a simple linear extrapolation of the current growth path shows that Croatia's per capita income 50 years from now would correspond to only 60 percent of the U.S. level, a position that the EU-27 countries reached by 2000. This lower per capita income level in Croatia would imply lower consumption levels and lower living standards than those in its European peers.

More importantly, Croatia's current growth pattern may not be sustainable, as indicated by serious external imbalances. The main driver of economic expansion in Croatia in the period 2001-2008 was domestic demand, which grew at more than six percent per year. Private consumption was boosted by the expansion of credit, and investment was heavily concentrated in private construction. Croatia's external current account deficit doubled between 2001 and 2008, when it reached 9.4 percent of GDP. Meanwhile the gross external debt in EUR terms grew from 60 to above 94 percent of GDP (or 198 percent of the country's exports of goods and services). The sustainability of this growth pattern is questionable given that it relied heavily on mounting inflows of foreign capital. Such flows have more than halved in the aftermath of the international financial crisis, due to increased risk aversion on the part of international investors and shrinking international liquidity. In fact, the economic outlook for Croatia in 2009 is exceptionally uncertain.

In addition, high government spending places a heavy tax burden on the private sector. Current government spending levels, at around 45 percent of GDP, are out of proportion given the country's income level, and its already high need for refinancing of its debt in 2009 and beyond. The country would be well advised to pursue a policy of fiscal consolidation in order to reach a balanced budget. Lower spending levels would allow for lower taxes over the medium term, which would increase the competitiveness of the private sector. Currently, the overall tax burden in Croatia, at around 39 percent of GDP, is some five percent higher than the average for EU-10, while the private sector share in GDP, at 70 percent, remains at the low-end among comparators. Avenues for restructuring public spending, in addition to improving its effectiveness, are presented in the recently published World Bank 2008 Public Finance Review for Croatia.

With adoption of appropriate policies, however, it will be possible for Croatia to reach and sustain higher growth in per capita income and speed up its economic convergence with the EU. While preserving macroeconomic stability remains a prerequisite, particularly in view of the current global environment, the country would be well-advised to start implementing policies that would help achieve and sustain higher rates of economic growth in the coming years. Croatia needs to shift towards a productivity-based and export-led growth pattern. This would ameliorate the country's widening savings-investments gap, would relax its external financial constraints and enable it to benefit from a more elastic demand for its domestic production, improving its long-term growth prospects. As wages rise during the convergence process and international competition in labor intensive sectors intensifies, deeper trade integration will also require consolidating the country's comparative advantage in skill and knowledge-intensive sectors.

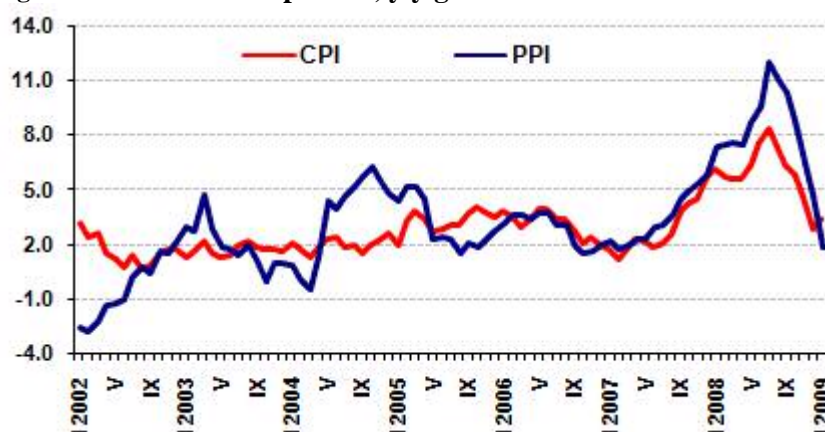
This report discusses three main avenues to consider for accelerating convergence. The first chapter discusses macro and convergence issues. This is followed by a discussion of growth diagnostics in Chapter Two. Chapter Three discusses ways of increasing employment and human capital, so as to raise the contribution of labor to economic growth in Croatia. Chapter Four refers to ways to enhance economic efficiency, thus raising the contribution to growth of total factor productivity (TFP). The report envisages two interconnected approaches to this goal: (i) advancing structural reforms to improve allocative efficiency, and (ii) reforming the investment climate to increase technical (average) efficiency. Chapter Five discusses how to accelerate growth by capturing the potential benefits from adoption of improved technology, and from deepening Croatia's integration in international trade, one of the most important engines of world-wide growth in the last three decades. The political economy aspects of the proposed policy reforms are discussed in Chapter Six, which also provides an overview of the report's policy recommendations.

A. MACROECONOMIC SETTING

While macroeconomic stability has been largely maintained since the middle of the last decade, an achievement which contributed to enhancing the potential for higher productivity and catching-up, the new global environment poses serious challenges for policy-makers. In 2007, GDP growth had accelerated markedly to 5.5 percent, up from 4.7 percent in 2006. Total final consumption recorded buoyant growth driven by strong, but moderating credit growth and debt repayments to pensioners (at 1.3 percent of GDP). Investment activity slowed due to a gradual termination of public investment projects in transport, but private investments became more dynamic. Both private and public investment slowed down and total investment growth decelerated to a still robust 6.5 percent. Imports of goods and services outpaced exports, leading to a negative contribution of net exports to GDP growth. Apart from the export of transport equipment (mainly ships), tourism continued to be the biggest source of export revenue, representing almost 18 percent of GDP in 2007. As of early 2008, economic performance remained robust, with some moderation of growth, largely driven by a slowdown in domestic demand. With continued downward pressures over the course of 2008, however, the eventual growth outturn for 2008 was 2.4 percent.

In 2008, Croatia's inflation was pushed up substantially by the rise in prices of food and energy, as occurred in many countries in the region. Surging prices for food and imported energy were coupled with strong domestic demand. Inflation accelerated significantly by mid-2008, to 8.4 percent. However, it subsequently slowed down to record a rise of 2.9 percent (year-on-year) by December 2008. Still, hikes in administered utility prices, most of which are controlled by local governments and electricity prices that were increased in mid-2008, were to add to higher inflation in 2009. In reaction to stronger inflationary pressures the CNB relied on administrative measures and credit controls, exchange rate stability and enhanced supervision and tighter prudential regulations. The CNB also reduced the level of foreign exchange interventions, in order to prevent creation of excessive liquidity. Only two foreign exchange interventions were held in 2008. In addition, the CNB reduced the volume of repo auctions and increased the interest rate (at repo auctions).

Figure 0.1: Price developments, y/y growth rates

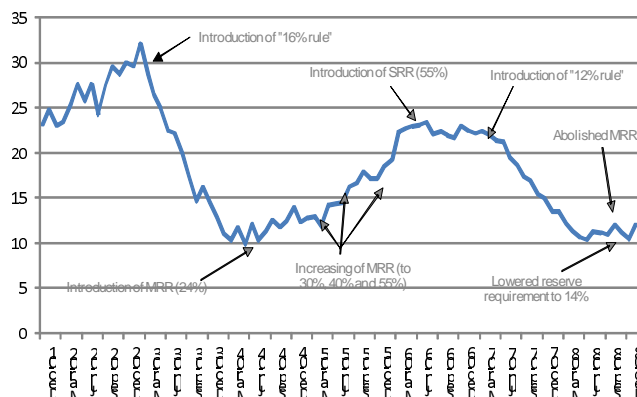


Source: CROSTAT

The central bank's efforts to reduce external vulnerability by curbing credit growth have proven effective. The growth in bank credit to the non-banking sector slowed down substantially (though to some extent this reflects diversion of corporations to direct borrowing from abroad). Benefiting from the combination of monetary, administrative and prudential measures, aimed at reducing both macroeconomic and financial vulnerabilities, data on foreign-currency lending show a slowdown (from 71.7 percent in 2006 of total loans to 68 percent in 2009). However, the banking system still faces interest- and exchange rate-induced credit risks, as most loans carry variable interest rates and are denominated in or indexed to foreign exchange.

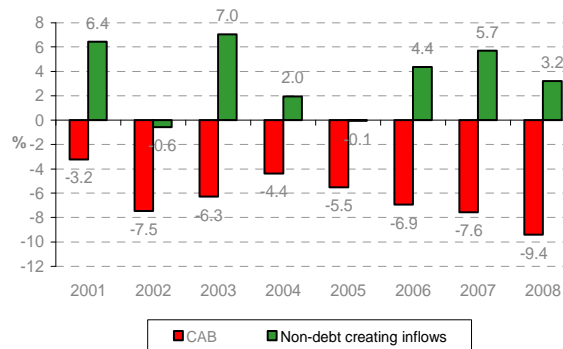
So far, the global financial turmoil appears to have caused only limited negative effects on the Croatian economy. However, it is expected that growth prospects will worsen due to ongoing impacts from the financial market turbulence. Generally, the stable exchange rate policy has remained a factor of monetary and financial stability so far. The financial system remains sound and well supervised. While global financial tensions and the macroeconomic outlook have heightened some existing vulnerabilities, these should remain manageable and the financial system by-and-large resilient (see Box 1.1).

Figure 0.2: Credit growth developments



Source: CNB

Figure 0.3: External imbalance as % of GDP



Sources: CNB, CROSTAT

Box 0.1: Banking Sector Soundness

As shown in the latest CNB sensitivity analysis, the banking sector is fairly resilient, even to a low-probability but plausible scenario of a sudden stop in capital inflows. Risks for the banks arise from significant domestic economic vulnerabilities associated with a substantial current account deficit and high levels of external debt and financial euroization. This is further supported by the fact that deterioration in the overall net external position of Croatia has been largely due to rising debt of the household and non-tradable sectors, which mostly do not generate foreign currency income. In March 2009, bank loans denominated in or indexed to foreign currency accounted for around 68.3 percent of all loans to households and enterprises in Croatia (at the same time, the share of bank deposits denominated in or indexed to foreign currency stood at around 63.7 percent). As monetary policy can often play only a limited role in containing foreign currency lending in “catching-up” economies, other policy tools, including promotion of risk awareness through improvements in financial literacy and prudential measures, can help keep foreign currency lending under control.

The banking sector was already well recapitalized in 2007 and, coupled with stable profitability, it further enhanced its resilience to the potential materialization of credit risks. The capital adequacy ratio, set at 10 percent, has been well exceeded at an average 15.4 percent of risk-weighted assets as at March 2009. Thus, with banks’ capital ratios well in excess of regulatory requirements, the banking sector has a substantial buffer in the event of shocks stemming from operational and market risks. Finally, widespread foreign ownership has also bolstered banking system stability. The slower rate of credit growth recently was mainly driven by a marked slowdown in corporate lending, as banks started to redirect corporate clients to direct borrowing from their parent banks abroad, enabling local banks to continue to focus on the more profitable retail segment. Household lending, which predominantly consists of mortgage lending, exceeded 36 percent of GDP in 2008, which is still well below euro area levels, but clearly above levels in other countries in the region. On the liability side, deposits of domestic non-banks, at a 68 percent share, dominate total liabilities.

The profitability of the banking sector remains relatively high, as mirrored by a fairly stable return on average assets of 1.6 percent at the end-2008. This should provide banks with a comfortable buffer to weather unexpected and short-lived regional or sectoral shocks. On the other hand, return on average equity declined gradually from a peak of 16.1 percent in 2004 to 10.1 percent in December 2008, mainly on the back of ample capital increases, which should likewise underpin the shock resistance of the Croatian banking market. Liquidity risks have increased somewhat in recent years, as reflected in slightly worsening liquidity indicators. Over the past few years the ratio of liquid assets to total assets declined gradually to 28 percent by September 2008, while at the same time the loan-to-deposit ratio rose to around 104 percent by end-2008. Nevertheless, liquidity levels can still be considered high, inter alia given the large amounts of free reserves held with the CNB (denominated mainly in foreign currency). The non-performing loan ratio declined further in recent years, reaching 3.2 percent by end-2008. Interest rate risk seems to be moderate. The assets of the banking sector have a limited exposure to interest rate fluctuations, given the way loan contracts are written in Croatia. At the same time, on the liability side, deposits are predominantly of a short-term nature, allowing for some flexibility in times of high interest rate volatility. Direct foreign exchange risk appears to be manageable. According to CNB regulations, total open foreign currency positions may not exceed 20 percent of banks’ regulatory capital.

Sources: CNB

Table 0.1: Croatia: Selected Macroeconomic Indicators, 2000-2008

	2004	2005	2006	2007	2008
Nominal GDP (in millions of kuna)	245,550	264,367	286,341	314,223	342,159
GDP per capita (in current EUR)	7,380	8,043	8,807	9,647	10,669
Atlas GNP per capita, USD	8,070	9,600	10,660	11,990	13,740
GDP per capita (in PPS terms, EU27=100) ^{1/}	56.2	57.2	59.1	61.9	62.7
Real GDP growth	4.2	4.2	4.7	5.5	2.4
Domestic demand	4.0	4.3	5.3	6.4	3.2
Public consumption	2.6	1.2	2.2	3.4	1.9
Private consumption	4.3	4.4	3.5	6.2	0.8
Gross domestic investments	5.0	4.9	10.9	6.5	8.2
Net foreign balance	1.7	4.9	11.5	15.9	10.9
Exports	5.4	3.7	6.5	4.3	1.7
Imports	4.7	3.9	7.4	6.5	3.6
Consumer Price Index	2.1	3.3	3.2	2.9	6.1
Industrial production	3.2	4.6	4.1	4.9	1.2
Labor productivity in industry	5.7	3.6	5.6	5.2	3.6
Average real gross wages, CPI 1995=100	4.2	1.1	2.9	3.3	0.9
Unemployment, LFS (In percent)	13.8	12.7	11.2	9.6	9.0
Current Account Balance	-4.4	-5.5	-6.9	-7.6	-9.4
Gross external debt	80.0	82.4	85.5	87.8	94.1
(in percent of export of goods and services)	161.0	168.7	172.2	179.2	198.1
Short-term external debt (in percent of reserves)	40.9	45.6	49.3	47.1	59.0
Amortization due within a year (in percent of reserves)	34.0	36.4	54.2	53.6	51.3
Net FDI	2.0	3.6	6.5	8.1	5.9
Foreign exchange reserves (in millions of EUR)	6,436	7,438	8,725	9,307	9,121
(in months of imports)	4.8	5.1	5.3	5.2	4.6
Exchange rate HRK/U.S. dollar, period average	6.0	5.9	5.8	5.4	4.9
Exchange rate HRK/Euro, period average	7.5	7.4	7.3	7.3	7.2
General government balance ^{2/}	-4.3	-4.0	-2.4	-1.6	-1.7
General government debt	37.9	38.4	35.9	33.3	29.3
Public debt ^{3/}	45.2	45.8	43.5	41.9	42.3
Broad money (M4)	8.6	10.5	18.0	18.3	4.3
Domestic credit	14.0	17.2	22.9	15.0	10.5
Bank deposits	10.9	9.9	15.6	17.9	7.5

1/ EUROSTAT

2/ ESA, 2008 includes HAC.

3/ General government debt including guarantees

Sources: CROSTAT, Ministry of Finance, Croatian National Bank; and World Bank staff calculations.

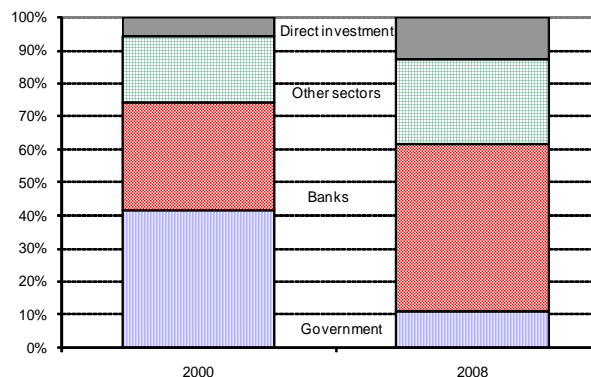
However, external vulnerability, as seen in the high current account deficit and the high and growing external debt, needs to be addressed through an appropriate policy mix. The current account deficit continued to widen from 7.6 percent in 2007 to 9.4 percent in 2008, mainly due to a higher trade deficit and weakening of tourism receipts. Strong domestic demand and imports, combined with higher world commodity prices as well as lower export growth, resulted in a widening of the trade gap. On the financing

side, the share of non-debt creating inflows¹ increased from 4.4 percent of GDP in 2006 to 5.7 percent in 2007, reflecting a rise in equity capital. This trend, however, changed in 2008 when these inflows declined to 3.2 percent of GDP. Net FDI reached a remarkable 8.1 percent of GDP in 2007, thus more than offsetting the current account deficit. These FDI flows were largely driven by the recapitalization of banks and investments in wholesale trade and the insurance sector. Notably, 97 percent of FDI inflows originated from EU Member States, highlighting the potentially serious impact of any economic slowdown in the EU on the Croatian economy. The rate of net FDI declined in 2008 to 5.9 percent of GDP.

Significant private sector borrowing in recent years reflects a continuing savings-investment imbalance.

In euro terms, external debt increased from 86 percent of GDP in 2006 to 94 percent in 2008, as a result of continued strong private sector borrowing (and despite public sector borrowing turning to domestic sources, and efforts by the central bank to discourage external borrowing by banks). Domestic banks managed to reduce their foreign liabilities significantly, also in response to central bank measures aimed at containing banks' foreign borrowing. However, the corporate sector's external indebtedness increased strongly. This shift partly reflects the circumstance that domestic banks encouraged their corporate clients to borrow directly from parent banks abroad, thus circumventing their own borrowing restrictions. The short-term component (by residual maturity) has risen to about 31 percent of GDP in early 2009, suggesting some rollover risk. Significant capital inflows have sustained a substantial reserve cushion – import cover was 4.6 months at end-2008 – although reserve accumulation slowed relative to 2006.

Figure 0.4: Sectoral composition of external debt (% of total)



Source: CNB

The short-term component (by residual maturity) has risen to about 31 percent of GDP in early 2009, suggesting some rollover risk. Significant capital inflows have sustained a substantial reserve cushion – import cover was 4.6 months at end-2008 – although reserve accumulation slowed relative to 2006.

The fact that a substantial share of external debt is denominated in foreign currency reveals the vulnerability of Croatia to external shocks and underlines potential dangers from currency risk.

In case of unexpected, strong depreciation of the national currency, the burden of debt repayment in domestic currency will increase for the share of debt denominated in foreign currency. The currency structure of Croatia's external debt shows that its largest share is denominated in foreign currencies, primarily Euros. The currency composition of total external debt² showed that 76 percent is denominated in Euros, 9.3 percent in Swiss francs (CHF), 7.2 percent in domestic currency (HRK), 6.3 percent in US\$, 0.9 percent in Japanese yen (JPY), and 0.3 percent in other currencies. Changes are primarily a reflection of the trends in borrowing by the banks, which primarily borrow Euros from their parents. The kuna/US\$ appreciation effect contributed to a decline of debt expressed in US\$ by 2 percentage points, while the overall debt in euro terms increased by 8 percentage points compared to the end of 2006.

The dynamics of external imbalances warrant close monitoring and a set of appropriate policies directed at maintaining macroeconomic stability, reducing external imbalances and lifting growth and productivity.

Fiscal policy remains the most powerful tool for addressing external vulnerability, as the scope for greater discretion over monetary and exchange rate policy is quite limited. Consequently, fiscal adjustment needs to be stepped up with a view to reducing the savings-investment gap and external vulnerability of the economy.

This may call for some trade-offs between faster growth and higher risks of costly reversals of foreign capital flows.

Good policies can help countries to avoid excessive overheating and disorderly adjustments

¹ FDI minus intercompany lending plus portfolio investments.

² End-2007 data

in external balances. Foreign demand and global imbalances pose external risks, while wage growth and developments in prices constitute domestic sources of uncertainty. A faltering of growth in the EU may dampen Croatian economic activity and then translate into **special challenges for fiscal policy**. Growth-induced revenue overperformance improved Croatia's fiscal position up until early 2008. The 2007 outturn was marked by strong revenue growth, which allowed for additional spending as well as a reduction of the fiscal deficit by 0.3 percent of GDP. However, taking into account off-budget and quasi-fiscal activities not included in the general government accounts (at 1.8 percent of GDP), the overall fiscal position remained unchanged compared to the 2006 level, while the overall fiscal policy stance turned cyclically neutral. The 2008 revised budget envisaged a headline budget deficit of 0.8 percent of GDP (ESA 1995 methodology), with the Croatian Highways excluded from the coverage. The deficit would show an increase from 1.6 percent of GDP in 2007 to 1.7 percent in 2008 if the Croatian Highways were included, although together with the off-budget items and arrears, the broader public sector deficit showed a decline by 0.6 percent of GDP in 2008, mostly due to unusually heavy tranches of pensioners' debt repayment repaid in 2007. After declining by more than 2.5 percentage points of GDP in 2007, public debt (including state guarantees and the debt of the state development bank HBOR) remained approximately at the same level in 2008, at around 42 percent of GDP (if the Maastricht definition of public debt is applied to Croatia, public debt at the end of 2008 stood at 29.3 percent of GDP).

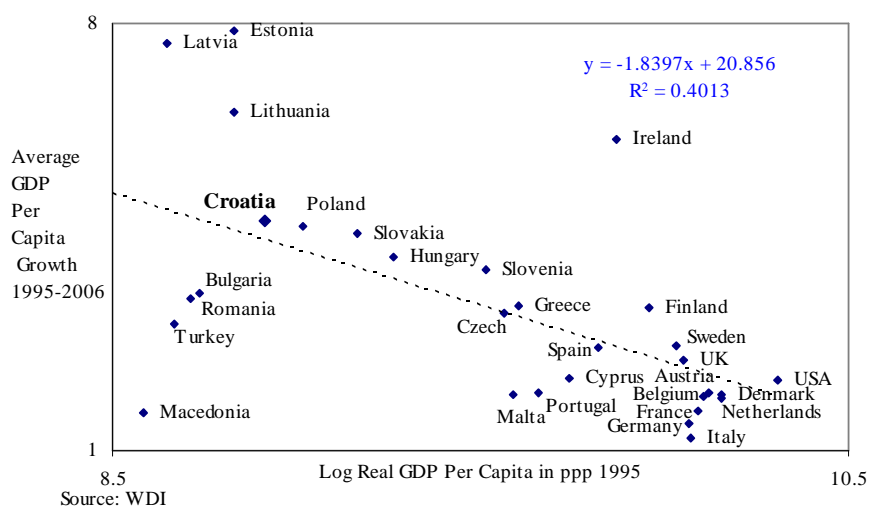
Forward-looking, significant frontloaded expenditure-led fiscal adjustment is essential to address external vulnerabilities in Croatia's highly euroized economy. This would include public sector wage restraint, well-targeted means-tested social benefits to vulnerable citizens to address the impact of the crisis on living standards, and undertaking faster structural reforms that would address unduly high levels of public sector spending and the large need for public sector efficiency improvements, as indicated in the 2008 Public Finance Review.

B. CONVERGENCE

As a result of high and sustained per capita GDP growth, Croatia's income has been converging to the EU and US levels over the period from 1992 to 2008. By 2008, Croatia's per capita income corresponded to slightly less than one third the U.S. income level compared to one quarter in 1992, a progress that is better than the average upper middle income country (UMIC) and similar to the average result of the EU-27 countries. The speed of convergence of Croatia's per capita income in the period (1.38 percent per year) is superior to that for the EU-27 (0.34 percent), an expected result given Croatia's lower initial per capita income levels.

When controlled for the initial income level and other country characteristics, Croatia's result over 1995-2006 is slightly above the average for a sample of comparator economies. This said, a significant number of countries with similar (e.g. Estonia, Lithuania) or higher (Ireland) initial per capita income managed to achieve better results in the same period. We interpret this as an indication that Croatia's development level and country characteristics are not, per se, an obstacle to the acceleration of economic growth.

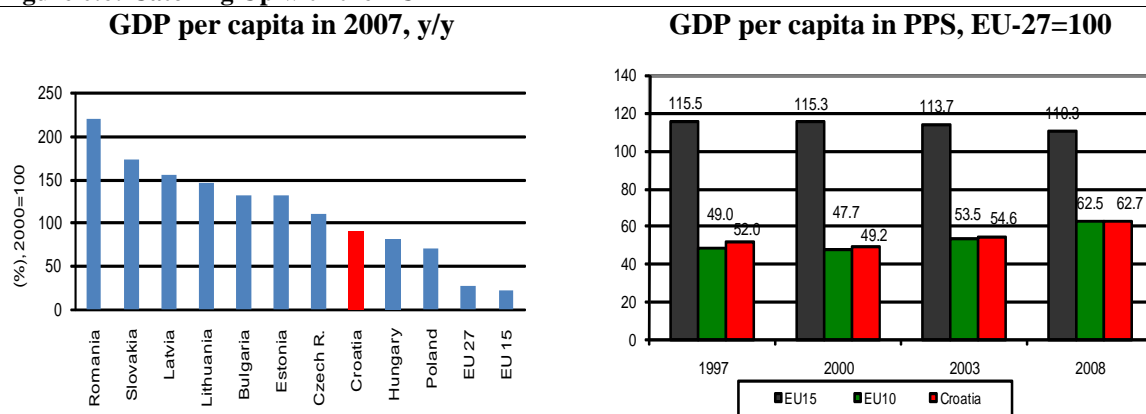
Figure 0.5: Growth Rates vs. Relative Initial Income (1995-2006)



Source: Staff elaboration

Gains derived from Croatia’s well-advanced economic transition and the EU agenda have pushed economic activity upwards in the past few years, though room remains for improvement. Croatia’s average real GDP growth has lagged performance in comparable regional transition economies. The country’s GDP per capita in 2008 (on a PPS basis) was 60 and 100 percent of the average level of the EU-27 and the EU-10³, respectively. Nevertheless, Croatia still has a long way to go to catch up with other EU member countries. Closing the income gap and facilitating convergence with other EU countries is, and has been for some years, an overriding priority for Croatia. To close the income gap and converge, Croatia needs to raise labor force participation, but above all productivity. It needs to do that in a significantly changed global environment, which has emerged in the past decade.

Figure 0.6: Catching Up with the EU



Sources: EUROSTAT, CROSTAT; and Bank staff calculations.

³ EU10 includes new EU member states with accession dates between 2004 and 2007, excluding Cyprus and Malta.

Some commentators have pointed recently to the fact that GDP growth rates do not necessarily capture the effect of ongoing differences in terms of trade⁴ (OECD, 2006). A strong increase in productivity thus may not enhance a country's performance if the country at the same time has to sell goods and services at falling prices. All other things being equal, however, an increase in GDP in constant prices increases a country's real incomes, while deterioration in the terms of trade has the opposite effect.

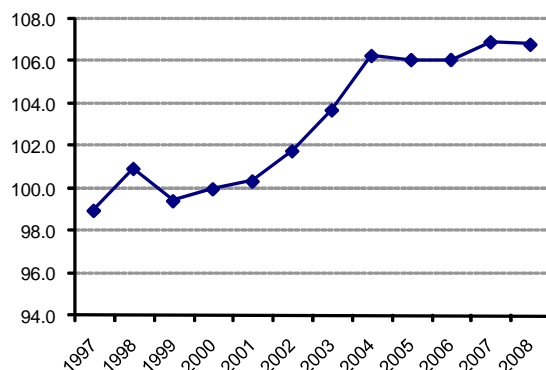
In order to speed up the convergence process, Croatia does not need to generate spectacular growth rates. Rather, small increases in growth rates sustained for a long period would suffice for this purpose. In Taiwan, for example, average per capita income growth of 6.2 percent during 1985-2000 raised the country's per capita income from one third to one half of the U.S. levels. Taiwan's growth acceleration in the last fifteen years of the last century generated, therefore, a level of economic convergence that would take Croatia twenty additional years to achieve!

There are sensible reasons for pursuing the objective of accelerating economic growth in Croatia aside from speeding up economic convergence. Higher economic growth would further augment employment opportunities and -- as inactive individuals feature prominently among the poor in Croatia -- would contribute to further reduction in poverty rates. It would also raise job opportunities for the relatively large and impoverished rural population, addressing a challenging issue for Croatia and several neighboring countries. Higher economic growth would also help to finance the social security requirements of an aging population -- an additional area of concern for all Eastern European countries.

Reaching and sustaining higher growth rates is a justifiable goal, but the economic policies that could contribute to this achievement are not immediately evident. As the empirical review of episodes of sustained growth acceleration in the last fifty years shows, such events have been more frequent among lower-income countries, and were not necessarily preceded or accompanied by major changes in economic policies, institutional arrangements, political circumstances or external shocks. In short, sustained episodes of growth accelerations seem to be highly unpredictable.⁵ In addition, on the theoretical side, the research on the determinants of economic growth is less than fully conclusive, with competing explanations leading to equally plausible alternative recommendations.⁶

This report will try to identify a limited number of economic strategies (policy goals and corresponding measures) that would be sufficient to raise and sustain economic growth rates in the country. Another way to describe our approach is to say that we seek to identify (i) the "hidden sources" of economic growth and (ii) the corresponding measures that would be needed to "unleash this growth potential". In a more technical sense, a standard Solow growth model provides the main structure for this analysis. This implies that growth is understood first of all as a result of more (and better) capital (human and physical) per worker, with the residual impact on growth tentatively interpreted as capturing

Figure 0.7: Croatia's terms of trade, 1997=100, in %



Sources: CROSTAT; and Bank staff calculations.

⁴ The terms of trade measure changes in the ratio between the average unit price of exports and the average unit price of imports (typically calculated from the deflator in the national accounts for exports of goods and services and the deflator for imports of goods and services).

⁵ See Hausmann, R.; Pritchett, L. and Rodrik, D.: "Growth Accelerations", 2005.

⁶ See Dixit, A. Evaluating Recipes for Development Success. *The World Bank Research Observer*, vol. 22 (Fall 2007).

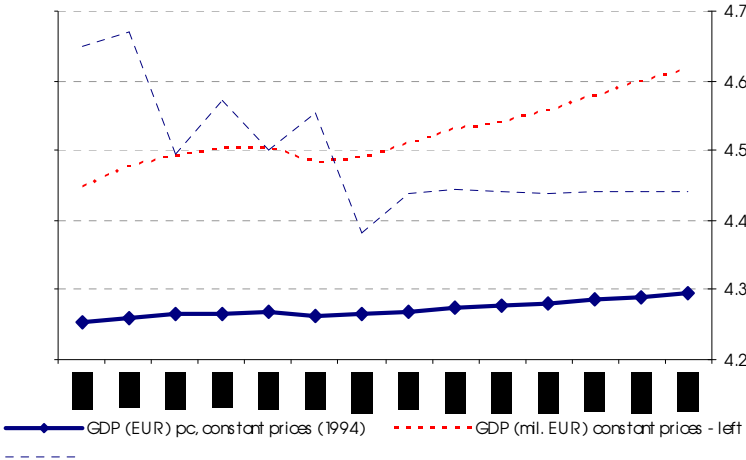
(exogenous) technological progress and efficiency in resource allocation. This framework is extended with the inclusion of international trade and innovation.

ECONOMIC GROWTH IN CROATIA: WHAT HAVE WE LEARNED?

A. GROWTH DIAGNOSTICS

Croatia’s economic growth rate averaged 4.3 percent in real terms between 1994 and 2008. Croatia’s economic growth performance over these years can be divided into three different periods. In the initial years, Croatia’s growth averaged 6.4 percent (1994-1997), a good start for the beginning of the economic transition. Output declined substantially in 1998 and 1999, as a result of a combination of different factors including banking problems and a political (Kosovo) crisis. Since then, Croatia experienced a period of high and sustained expansion in economic activity, with real GDP growing by 4.8 percent on average. While positive for an upper middle-income country, however, this result does not compare favorably with most of the EU-10 countries.

Figure 0.1: Real GDP, population and per capita income in Croatia 1994-2007 (const1994 prices)



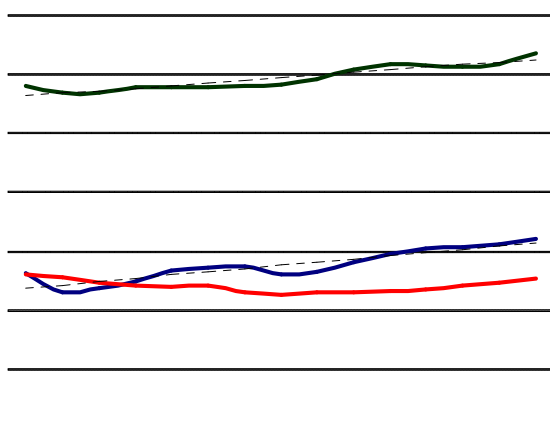
Croatia’s population declined between 1994 and 2000, and stabilized afterwards. From a demographic point of view, Croatia can be characterized as a low-birthrate country with a slowing rate of population growth. The declining population growth rate reflected a steady decrease in the birth-rate and a slightly rising mortality rate, combined with a constant negative migration balance. This in turn generated a considerable imbalance in the age structure of the population, implying (i) a decrease in the number and proportion of young people; (ii) a

mild increase in the working age population and (iii) an intensive increase in the number and proportion of old people. Population decline in this period seems more specifically to be related to two important events: the Homeland War (1991-1995) and the 1999-2000 recession, which generated outward migration. Recent demographic trends and the general conditions of sustainable development in Croatia are slowly improving, but the rate of population reproduction is still well below replacement level. The process of depopulation and progressive aging is expected to continue (and intensify) into the foreseeable future.

Per capita income in Croatia in 1994-2008 has been strongly associated with both demographics and business cycle events. Real per capita income growth averaged 4.53 percent when the total period is considered (more than double the average growth rate of per capita income in the United States over the last century, at 2 percent p.a.). This overall performance is affected by (a) a substantial increase in per capita income during 1995-96 (10.4 percent), caused by the striking population decline at that time, and (b) the economic decline during the 1999 recession (-7.7 percent). These two events ended up more-or-less

offsetting each other, in the sense that the overall average growth in per capita income excluding these two periods (4.63 percent) does not significantly differ from the rate when both are included. With the subsequent stabilization of population growth and a period of steady overall economic growth, per capita income in Croatia entered a period of robust growth. Between 2001 and 2007, Croatia's rate of per capita income averaged 5.1 percent.

Figure 0.2: Trend in per capita income as a share of the US



Sources of Growth

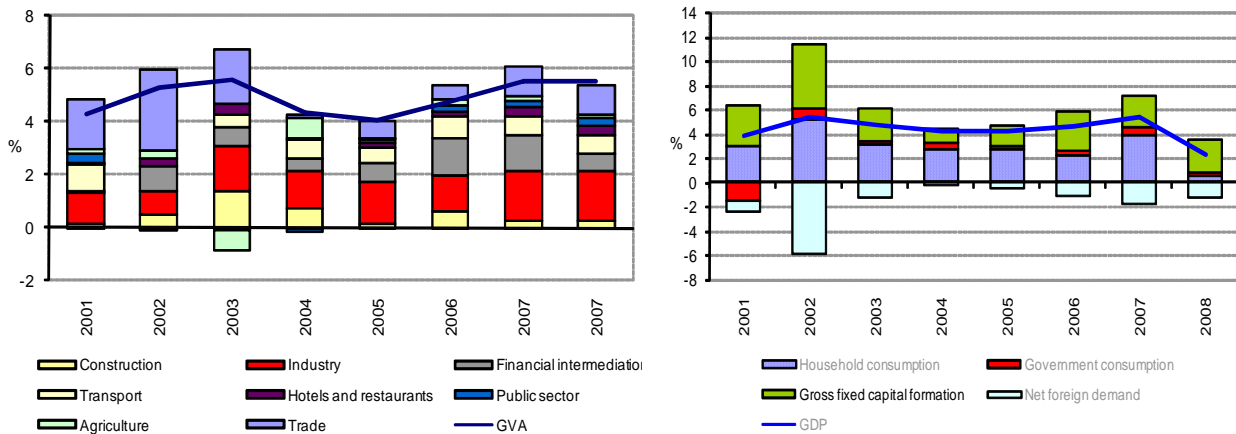
Demand side decomposition shows that growth has been essentially driven by domestic demand.

The relative weight of domestic investments is large in the initial years, particularly in 2002, though it declines thereafter. The contribution of private consumption has been growing since 2005, and was the main driver of economic growth in 2007. The share of government consumption also increased to a small degree in 2006-2008. One striking result is the negative share of net foreign demand throughout the whole period (with the exception of 2004 and 2005). In terms of sector composition, data show a significant decline for the share of agriculture in total output, and an equivalent increase of the share of services (which increased from 43 percent in 1994 to 61 percent in

2008), including a noticeable expansion in civil construction. The share of industry remained stable, hovering around 30 percent (and still below the 1989 level), confirming a trend towards a service economy. One implication of this growth pattern was a widening current account deficit, which doubled during the period to reach 9.4 percent of GDP in 2008. As a consequence, external debt doubled to 94 percent of GDP or 198 percent of Croatia's exports. Mounting inflows of foreign capital have financed this growth pattern, but the rising risk aversion of international investor and the falling liquidity of international financial markets are reminders of the threats to the financial sustainability of such a pattern. In fact, economic activity in Croatia (as well as in most EU-10 economies) substantially slowed down in the second half of 2008 and was to contract in early 2009.

What were the “proximate causes” of economic growth in Croatia between 1994 and 2006? A standard growth accounting exercise using the Cobb-Douglas production function shows that economic expansion in this period can be divided between two periods: (i) between 1994 and 2001, when 3 points of the total output growth was driven by an increase in total factor productivity (TFP); and (ii) between 2002 and 2006, when growth was essentially explained by capital accumulation (corresponding to more than 3.5 percentage points of total output increase annually). One interesting change between these two periods is the symmetrical contribution of labor, which goes from a negative to a positive 1 point contribution. It is noticeable that the increase in the contribution of labor compensates for the decline in the contribution of TFP between the two periods. This probably reflects the reforms introduced in 2003 to increase labor market flexibility. To the extent that TFP gains in the first period reflect the use of unoccupied productive capacity (caused for example by the deceleration in 1998 and subsequent negative growth in 1999), and considering Croatia's demographic trends, one could reasonably conclude that growth in the coming years will depend upon the continuation of capital accumulation and/or a sustained increase in TFP (this assumption is illustrated, for example, in Figure 2.4 for the 2007-2010 period). *The limited contribution of TFP to growth in Croatia since 2002 is a striking difference compared to most countries in Eastern Europe and the ECA region more broadly, for which growth in the last two decade has been essentially driven by productivity gains resulting from the advancement (and completion of the structural reforms).*

Figure 0.3: Contribution to output growth in Croatia 2000-2007, %-age points
Sector composition **Demand-side composition**



Sources: CROSTAT; and Bank staff calculations.

Can Croatia Achieve and Sustain Higher Growth Rates?

Given this growth pattern, can Croatia accelerate and sustain higher rates of economic growth?⁷ To answer the above question we estimate Croatia's potential output (i.e. the output level where factors of production are fully employed at the given level of technology) using two approaches. First, we simply extend the Cobb-Douglas function of the growth accounting exercise: this approach estimates a potential output growth of 4.9 percent per year, just about the recent growth rates.

Figure 0.4: Growth Accounting for Croatia (1994-2010)

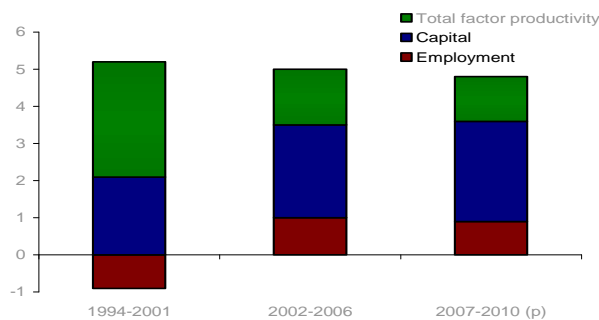
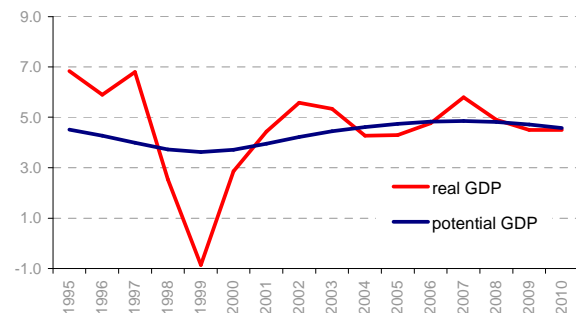


Figure 0.5: Real and Potential Growth (HP-Filter)



Sources: Bank Staff calculations based on CROSTAT.

A second technique utilized to calculate Croatia's potential output, the Hodrick-Prescott filter (HP-filter), yields a similar result with a growth estimate between 4.6 and 4.8 percent. The HP-filter helps to identify how much of Croatia's past growth fluctuations are attributable to the trend component, by

⁷ The current financial crisis is distorting the discussion on potential growth and convergence. The authors are of the opinion that that this is a temporary situation, and although it has an influence on the short-term prospects, it does not change the long-term convergence path. The calculations that follow were done with adjusted data that mimic the behavior of the Croatian economy before the crisis.

removing temporary shocks within the business cycle. The result obtained by the application of the HP-filter suggests that recent growth in Croatia has generally been fairly close to the calculated growth in potential output (with the exception of 1998 and the preceding period, due to exceptional volatility). The largest negative gap was recorded in the 1999-2001 period, which may be explained as reflecting the recession and early recovery years. In the remainder of the period, growth in actual GDP was rather close to growth in potential GDP. We tentatively interpret this result as a convergence towards a balanced growth path, which then implies, according to standard growth theory, that the effects of Croatia's past favorable shocks that contributed to healthy growth will soon come to an end and new sources of growth (positive shocks) should be found (generated) if robust growth is to be sustained. In other words, Croatia would need to mobilize untapped (potential) sources of growth (see Box 0.0).

Box 0.0 Economic Convergence in Croatia and the EU: moving towards a higher long-run path

The long-run path of economic growth in Croatia is a central point in the economic agenda of politicians and policy makers. In spite of the sustained long-run path of economic growth observed during the last years there still exists concern about whether the current growth path (steady state) is enough for Croatia to achieve convergence with respect to the EU in a reasonable period of time.

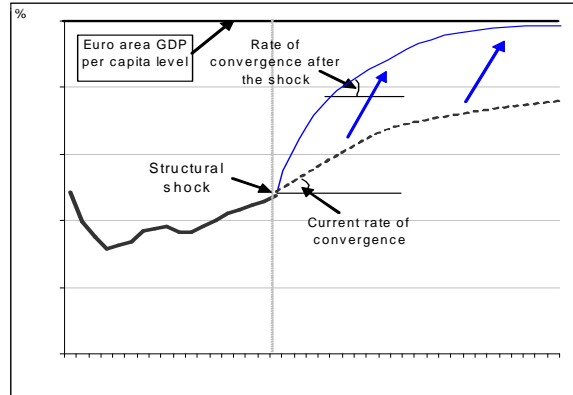
The exponential characteristic of long-run economic convergence can exacerbate differences in living standards across countries. For instance, with the current steady state with rates of growth that vary within the range 4%-5% Croatia would double its GDP, reaching the level of the Euro Area, within 28 years. However, if Croatia were able to move to a steady state with rates of growth similar of those of the Asian Tigers, say 8%, Croatia would converge to the level of the Euro Area in only 10 years. The first chart at the right illustrates this challenge.

The starting point to move to a new steady state is a positive structural change (shock) that would ignite Croatia's "growth reserves". Such a change could be triggered by good economic policies, improvements in the terms of trade and changes in political preferences among other events. One challenge in identifying such "good" economic policies, however, is that the economic literature is less than conclusive in terms of possible prescriptions. Indeed, the main conclusion of a recent review of 80 episodes of rapid and sustained economic growth in the last half century is that growth accelerations are very hard to predict (See Hausmann, Pritchett and Rodrik, 2005).

The existence of diminishing returns in an economy causes attrition in growth, leading in the long-run to a steady-state with rates of growth equal to zero on average. This is illustrated in the second chart at the right. One way to break out of a steady-state would be by better economic policies and/or technical progress shifting the economy production possibilities frontier towards the right (e.g. the adoption of new technologies that improve marginal productivity, and/or generate a process of creative destruction in the *Schumpeterian* sense. These improvements would be represented as changes to the given variables in typical growth models predicting the shift to a new long-run path of growth; however, in the long-run the *diminishing returns dictatorship* predicted by the neoclassical school will slow down growth again.

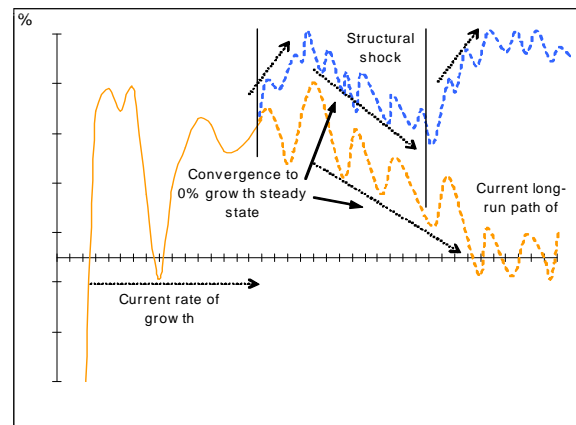
Sustaining economic growth in this context implies continuous shifts of the production possibilities frontier (PPF) towards the right. Supposing that Croatia is producing efficiently on the frontier, the adoption of new innovations, improvement of terms of trade or productivity enhancements displaces the PPF, in the period of time between the steady-state equilibrium and the new equilibrium the economy will experiment sustained and high rates of growth. Once on the new frontier—and supposing that there is allocative efficiency and hence the mix of inputs (capital and labor) meets the preferences of the individuals—the only way to sustain growth is with another structural change that shifts the PPF again.

Evolution of GDP per capita with respect to the Euro Area



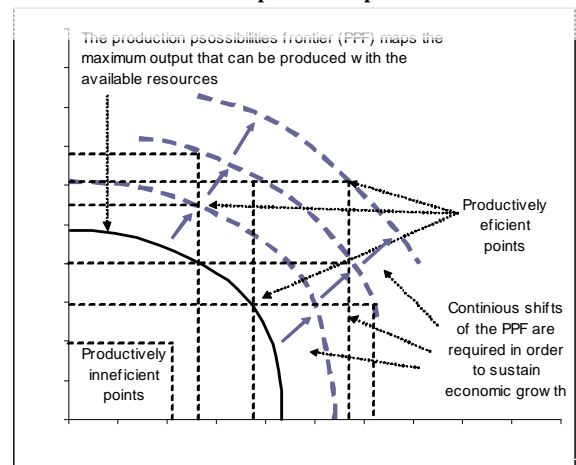
Source: WDI, World Bank 2008.

Illustration of economic acceleration



Source: WDI, World Bank 2008.

Economic acceleration and production possibilities frontier



Source: WDI, World Bank 2008.

B. WHAT ARE CROATIA'S "GROWTH RESERVES"?

Investment levels in Croatia are already high in comparison to upper middle income economies, but their impact on growth has been comparatively limited. Investment ratios in Croatia have been increasing for more than 10 years, averaging over 29 percent of GDP during 2003-2007; this is high by the standards of upper middle income economies (UMIC), and higher than fast-growing economies in the region (e.g. Latvia). A high 65 percent of Croatia's total investments have been in civil construction, compared to just 35 percent in machinery and equipment. While investments in infrastructure can be expected to have a positive effect on growth -- a large share of these investments in Croatia was related, for example, to the rehabilitation of roads -- it is also important to bear in mind that infrastructure investments, in particular when made by the public sector, can very often involve socially inefficient choices (i.e. investments that could have had a higher social rate of return elsewhere in the economy). Public investments corresponded on average to more than 40 percent of Croatia's total gross fixed capital formation (GFKF) in 2002-07. The low investment in machinery and equipment, in its turn, implies a growing obsolescence of the stock of capital compared to the world-frontier. Some capital obsolescence is probably the explanation why the elasticity of growth to GFKF in Croatia (i.e., the responsiveness of growth to investment) is 2/3 lower than in Latvia. The difference is significant: Croatia would have achieved a 1.5 percentage point higher average growth rate (5.8 percent instead of 4.3 percent) if the value of its elasticity was the same as in Latvia between 1995 and 2005.

Croatia's chronically low labor force participation, together with skills mismatches, are challenging obstacles to raising the contribution of labor to growth. The country shows one of the lowest rates of participation in the labor market among European countries, and the second highest unemployment rate among EU countries. Social welfare and pension programs that discourage individuals from participating in the labor market; a growing skills-gap that hinders labor demand; rising unemployment rates; and the remaining tight labor regulations that make it difficult for enterprises to adjust the size of their workforce to the business cycle (even though the Croatian labor market does not seem to be among the most rigid in the region); all are factors that hinder the contribution of labor to economic growth. On the other hand, if the experience of the period 2002-2006 is of any guidance, raising the contribution of labor appears to be possible. Unleashing the growth potential of the labor market in Croatia will require addressing some of the issues just mentioned. We discuss in more detail how Croatia could do so in Chapter 3 of this report.

Several factors point to the possibility of achieving higher rates of TFP in Croatia. First, the share of employment in the public sector declined by some 17 percentage points during 1990-2006 (from 48.8 to 31.3 percent, according to the ILO), compared to a decline of 46 points in Bulgaria (from 76.5 to 30.5). The lower impact in Croatia may point to continued scope to shrink a still unduly large public sector, as well as to incomplete privatizations (e.g. shipyard and tourism industries). Employment in agriculture, corresponding to around 20 percent of total employment in 2007 (more than double than Bulgaria) is large when compared to UMIC levels, suggestive of a continuing need for transition from low productivity (subsistence) agriculture to higher productivity activities. In addition, evidence of incomplete enterprise restructuring indicates that less efficient firms still command a large share of Croatia's output, reducing average productivity. Analysis performed for this report shows that larger firms are less efficient than smaller enterprises (when other factors are controlled for).⁸ Enterprises in Croatia in 2005 were on average older (20.6 years old) and larger (150 employees) than those in comparable countries.⁹ This low market dynamism in Croatia corresponds to a relatively precarious development of "*de novo*" (small and medium sized) firms. Chapter 4 of this report will discuss how Croatia could unleash productivity gains by

⁸ Escribano et al. (2008). Croatia Investment Climate Assessment, background paper.

⁹ Compared to 11.8 years old in the Czech Republic and 17.1 years old in Bulgaria. Even when only the firms originally private are taken into account, most of the Croatian firms are still comparatively older: the median age in Croatia is 9.6 years old for firms that were originally private, compared to a median value of 9 years for all enterprises in the Czech Republic (WB, EBRD, BEEPS 2005).

improving (i) allocative and (ii) technical efficiency (average productivity). With the purpose of “endogenizing growth” in Croatia, this report will also look at trade and innovation (Chapter 5). In the remainder of this section we simulate possible growth scenarios.

C. GROWTH SCENARIOS

The Impact of the Lisbon Agenda: Results from the WorldScan CGEM¹⁰

In 2000, EU leaders agreed on a goal of making Europe the world’s most competitive economy. In response, the so-called Lisbon Agenda was elaborated, including a number of specific goals intended to be reached by 2010. Five of these targets, which are the most relevant for economic progress and also relatively well measurable, will be considered and the economic effects of reaching them will be calculated for Croatia:

- (i) The conclusion of the internal market for services: application of the “country of origin” principle to advance the free flow of services among countries and reduce barriers;
- (ii) The reduction of the administrative burden;
- (iii) Improving human capital, which calls for attaining the following targets by 2010: an average rate of no more than 10 percent early school leavers; 85 percent of the 22 year-old to have completed at least upper secondary education; the percentage of low-achieving 15 year olds in literacy to have decreased by at least 20 percent relative to 2000; the average level of participation in lifelong learning to be at least 12.5 percent of the adult working age population (25-64 age group); and the total number of graduates in mathematics, science and technology (MS&T) to increase by at least 15 percent, with gender imbalances decreasing;
- (iv) A three-percent target for R&D expenditures as a share of GDP;
- (v) A 70 percent target for the rate of employment as a proportion of the working age population.

To estimate the economic effects of the Lisbon goals, the WorldScan model, a general equilibrium model for the world economy, is used. The model is linked to specific satellite sub-models, accounting schemes and background empirical work that translates the five Lisbon targets into a meaningful economic model. The model quantifies the policy effects by taking various kinds of feedback loops into account. It includes behavioral feedbacks in the domestic economy for the EU member states (for instance the impact of higher employment on wages) and international feedbacks (such as effects on trade). The estimates for Croatia are compared to those for Romania, which entered the EU in 2007, and to those for the Czech Republic and Poland¹¹. Impacts are evaluated for 2025 and 2040. The findings for each of the five Lisbon targets are the following:

- **Internal market for services:** When the internal market for services is completed, Croatian exports should increase by 4.3 percent in 2025 (and by 4.7 percent in 2040). GDP should rise by 0.8 percent in 2025, and by 1.6 percent in 2040;
- **Reduction of administrative burdens:** A 25 percent reduction in the administrative burden is predicted to increase GDP by 2.4 percent in Croatia by 2025. This proportional effect remains the same in 2040;
- **Increasing human capital:** Increasing the level of human capital has a long-run benefit, but imposes short-run costs of investment. In 2025, Croatian GDP is predicted to be 0.3 percent higher than in the absence of these improvements, and by 2040 this impact would rise to 2.0 percent;

¹⁰ Lejour, A.M. et al (2008): The Economic Effects of the Lisbon Agenda Targets: The Case of Croatia, background paper for this report.

¹¹ Bulgaria also entered the EU in 2007, but there are problems with the underlying GTAP data. There are results for Bulgaria in the study, but they should be treated with caution.

- **Increasing R&D:** Increasing annual R&D expenditures from 1.2 of GDP to 3.0 percent has a strong effect on income. In 2025, Croatian GDP is forecast be 6.0 percent higher than without this change, and by 2040 it would rise by an additional 8.2 percent;
- **Increasing employment:** The effects of increasing the employment level to 70 percent are the largest. GDP would be 17.7 percent higher in 2025, and 22.9 percent higher by 2040. One reason for this relatively large effect, however, is that the model only includes the *gross* benefits, because it is very hard to model the *costs* of increasing employment.

Pulling the five areas together, the model estimates the cumulative effects of reaching all five goals at a 26.7 percent higher income in 2025. Consumption volume would be increased by 21.6 percent and exports by 36.8 percent. Finally, average real wages per worker would be 3.6 percent higher in 2025. The strongest contributors to these effects are reaching the 70 percent employment target and increasing annual R&D expenditures to 3 percent (see Table 2.1).

Table 0.1: Overall effects of the five Lisbon targets in 2025

	Employment	Human capital	Services	Administrative burden	R&D	Total
	(1)	(2)	(3)	(4)	(5)	(6)
GDP						
Croatia	15.7	0.3	0.8	2.4	5.8	26.7
Poland	15.6	0.4	0.4	2.0	5.4	25.2
Czech Republic	5.5	0.1	1.5	1.7	4.9	14.3
Romania	11.0	0.7	0.3	1.7	11.7	27.2
EU-27	6.3	0.4	0.1	1.5	4.5	13.3
Consumption volume						
Croatia	14.0	0.3	1.2	2.2	2.8	21.6
Poland	13.8	0.3	0.6	1.8	3.2	20.6
Czech Republic	4.8	0.1	1.6	1.5	3.0	11.5
Romania	9.6	0.6	0.5	1.5	7.7	21.2
EU-27	5.6	0.4	0.5	1.3	2.2	10.4
Export volume						
Croatia	14.0	0.3	4.4	2.2	12.2	36.8
Poland	16.6	0.5	3.3	2.1	8.2	33.7
Czech Republic	6.8	0.2	4.9	1.8	6.7	21.9
Romania	9.5	0.5	2.1	1.5	13.6	29.6
EU-27	6.3	0.4	2.8	1.4	7.1	19.3
Real wages						
Croatia	-4.6	0.3	1.0	2.2	4.8	3.6
Poland	-5.8	0.3	0.6	1.8	5.5	2.0
Czech Republic	-2.0	0.1	1.4	1.5	4.8	5.9
Romania	-7.7	0.6	0.4	1.5	14.6	8.4
EU-27	-3.4	0.4	0.6	1.4	5.7	4.6

Note: The numbers in columns (2)-(5) are relative changes from the policy simulations in the previous column in the year 2025.

In column (1) and (6) the numbers are relative changes from the baseline.

Source: WorldScan simulations.

Growth Regression

In order to identify the main determinants of growth in Croatia, a series of growth regressions were run¹². The panel data for the growth regressions consisted of a selection of 26 countries over the period 1995-2006¹³.

Technical aspects of the analysis. According to Durlauf, Johnson, and Temple (2005), there are two assumptions regarding growth regressions: homogeneous slope and heterogeneous slopes across countries. The homogeneous slope assumption was the most appropriate one to use for the growth regressions, given the small time series (T) and the large number of countries (N) in the sample, as the alternative heterogeneous slope assumption requires both a large T and a large N. Among the estimators for the homogeneous slope assumption, two methods were identified: the Random Effects (RE) Generalized Least Squares (GLS) estimator and the Generalized Methods of Moments (GMM)¹⁴. An upper bound of β convergence was obtained by a pooled OLS estimator, following Bond (2002), while a lower bound of β was determined by using the Fixed Effects (FE) estimator. Since they are biased in opposite directions, consistent estimators are bound to lie between or at least around the lower or upper bounds. Ultimately, the RE GLS estimator was selected after the Hausman test showed it to be more consistent than the FE estimator, which does not capture cross-country effects. For comparison, the one-step robust system GMM estimator was selected, following Bond (2002) and Roodman (2006), given the small T and large N. The coefficients for the explanatory variables were thus obtained by using the RE GLS estimator and the one-step robust System GMM estimator.

The results obtained with the RE-GLS estimator confirm that a 10 percent improvement in innovation (measured as the number of new patents issued per million workers), trade (real openness), financial system (financial risk indicator), privatization (employment share of GDP), and human capital (years of schooling) will give a statistically-significant boost to the per capita real GDP level (measured on a Purchasing Power Parity basis). A reduction in the fiscal burden (fiscal burden indicator) has a similar impact¹⁵. The RE-GLS and GMM estimators show similar results in terms of real increases in GDP per capita as the selected variables converge to the 7th best country level within the sample of countries in the study, and the best practice level (see Figure 2.7). The results also show a high potential response to additional investments. However, given Croatia's already-high investment levels, it may not be feasible to achieve substantial further increases.

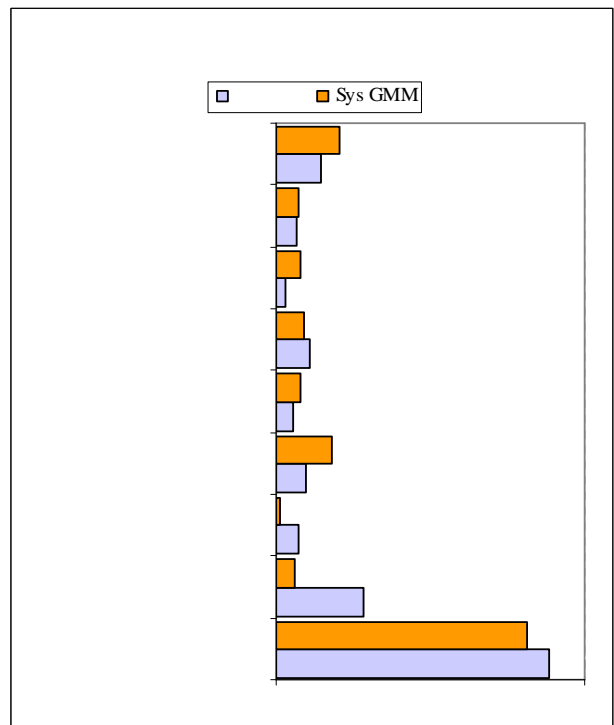
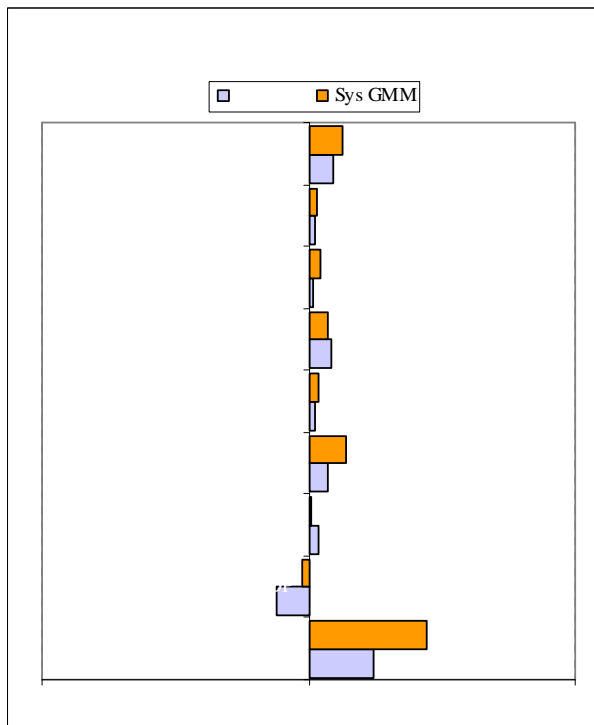
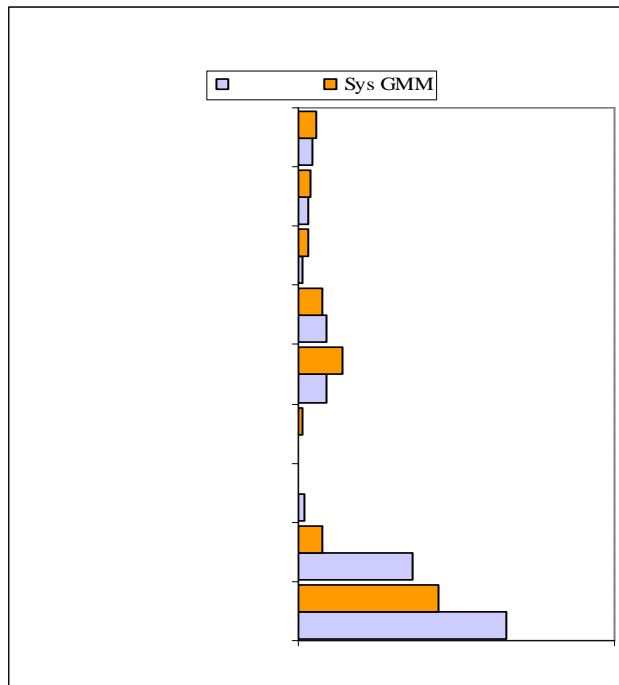
¹² See Sawada and Correa, 2008 (one of the background papers for this report).for details of the growth regressions.

¹³ 26 countries represent EU countries, Turkey, Croatia, and USA, except Latvia, Malta, Lithuania, and Luxembourg because of data unavailability on average years of schooling. USA was included as one of the top economies.

¹⁴ Chapter 8 of 2005 Handbook of Economic Growth, eds. Philippe Aghion and Steven N. Durlauf

¹⁵ Percentage increase depends on the level of values. For example, 10 percent of patents per million labor force may be low in Croatia. Therefore, the impact seems to be low, while the impact of investment share of GDP may be large because 10 percent of its 2006 value in Croatia is large. In other words, the impacts shown in Figure 2.7 may be underestimated for patents and overestimated for investment share of GDP.

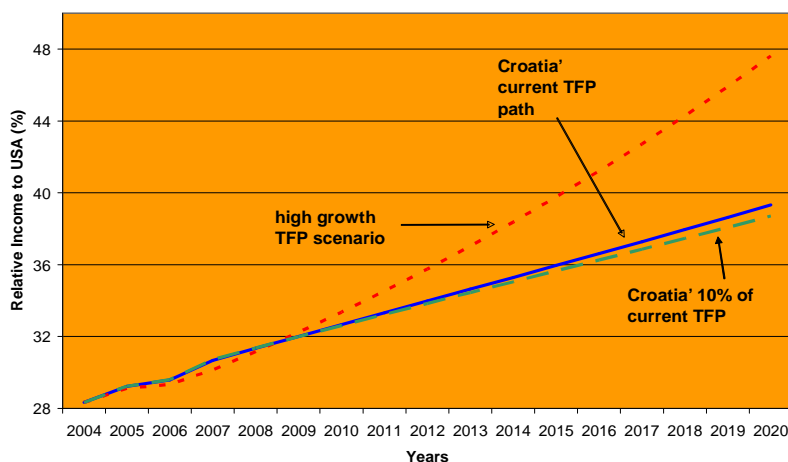
Figure 0.6: Increase in real GDP per capita (PPP)



Estimating the impact of different TFP growth rates on economic convergence

We applied the basic dynamic general equilibrium model that had been used in a series of studies of growth experiences and depressions (Kehoe and Prescott, 2007) in order to simulate different balanced growth paths in Croatia under three different assumption of TFP growth. The first scenario (the base-case) is the simple extrapolation of the current trend growth path. The second scenario (an arbitrary reduction of 10 percent in the TFP growth rate) intends to capture the permanent effect on aggregate TFP of certain economic policies that may induce the misallocation of resources. The third scenario uses the recent growth rate of TFP in Ireland (2.4 percent on average) as a benchmark for the potential impact of microeconomic reforms and market-friendly institutions. Figure 2.8 shows the results (in terms of income relative to the US). In the “base-case” scenario, Croatia’s income would correspond to 40.2 percent of the US level by 2020; in the case of a negative shock (second scenario) it would reach 39.4 percent of the US level; while in the case of “positive policies” Croatia’s income would rise to 47.6 percent of US income. The difference between the third and first scenarios may be interpreted as an illustration of the “economic convergence gains” from economic policies that induce TFP gains in Croatia.

Figure 8: Estimating the impacts of TFP gains on growth using a dynamic general equilibrium approach



Background paper for this Report

Source: Gomes, V (2008) Economic Growth and Predictions for Croatia: A General Equilibrium Analysis.

While the size of the government has not been analyzed in this report, it is important to stress that a broader consideration of growth strategies in Croatia should also take into account the gains that lower public expenditures, and therefore lower taxation levels, could bring for long-term growth (see Box 2.2).

The following chapters of this report discuss which economic policies could contribute to igniting the potential sources of economic growth in Croatia identified in this section, namely: (i) increasing the contribution of labor (raising employment); (ii) increasing productivity; (iii) deepening trade integration; and (iv) fostering technological progress and innovation.

Box 0.1: Growth and the Size of the Government

Choosing between Present and Future Generations (the intergenerational trade-off)

Figure 1-- Taxation matters in Croatia -- a dynamic general equilibrium approach

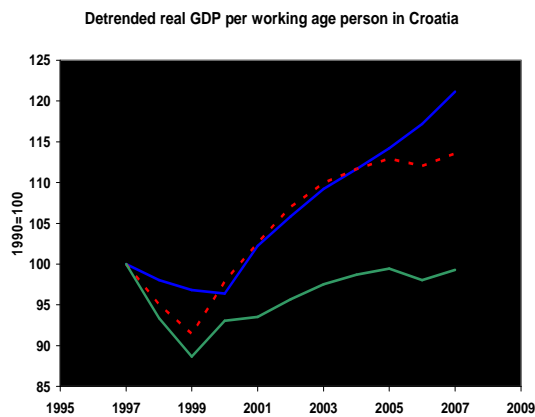


Figure 2 – Estimated Marginal Tax Rates 1997 -2007

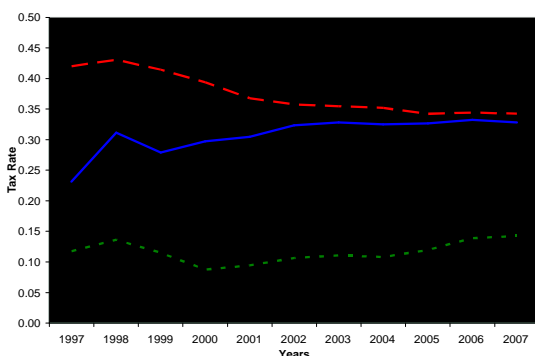


Figure 3: Simulating the Effects of Tax Reduction –a dynamic general equilibrium approach

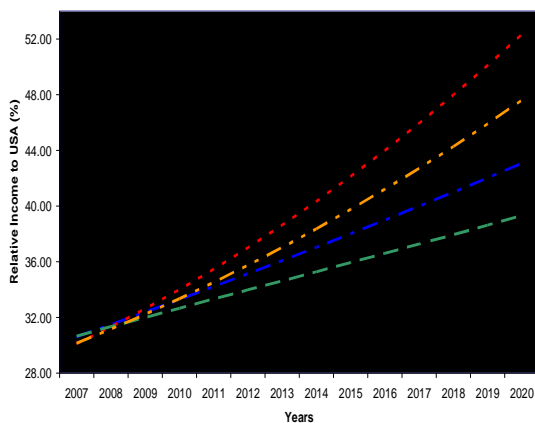


Figure 1 shows the better fit of the dynamic general equilibrium model to Croatia’s actual growth trajectory (“data”) once taxation is taken into account, a result consistent with research on the business cycle in the United States (McGrattan, 1994).

In the case of such models, the representative agent’s total income tax rate is the ratio of individual income tax revenue — which represents the difference between post-tax and pre-tax individual income — to pre-tax household income. The latter is defined as the sum of wage and non-wage individual income i.e. the sum of wages and salaries, property and entrepreneurial income, and the operating surplus of private unincorporated enterprises. Figure 2 shows our estimates for Croatia’s marginal tax rates in the 1997-2007.

We then feed into the model an assumed reduction in consumption tax and labor tax of 2 percent each year until 2020. This represents a cumulative reduction of labor tax from 35.4 percent in 2007 to 27.2 percent in 2020, and a reduction of consumption tax from 32.7 percent in 2007 to 27.2 percent in 2020. This reduction in tax produces a gain of output in 2020 of 17.5 percent in the base case (i.e., a level of income equivalent to 47 percent of US income as against 40 percent), and almost 10 percent in the high growth rate scenario (i.e. 52.3 percent of US income against 47.6 percent). It is important to note that the growth in output is due to higher TFP and labor intensity. Figure 3 shows the impact of a tax reduction on the growth trajectory of Croatia.

What does it take to generate this effect? Reducing taxation levels in Croatia ultimately requires consistent reductions in public expenditures. Croatia’s overall tax burden -- at around 35 percent of GDP -- is some three percentage points higher than the EU-10 average. However, public debt sustainability suggests that reduction of taxes requires that in tandem appropriate expenditure reduction and restructuring measures are taken. Avenues for spending restructuring are presented across seven sectors in the recently published 2008 Croatia Public Finance Review.

That Report shows, in particular, the impact of social transfers, particularly pensions, in total expenditures. With an aging population, the share of elderly receiving pension benefits already exceeds the percentage of working-age population. Pension benefits are a particular challenge in the overall ECA region, but the situation in Croatia is exacerbated by relatively more generous pension coverage and lower employment levels.

The Report also discusses different alternatives for tackling the issue, including gradually raising the retirement age for women to 65. As politically complex as social security reforms may be, the current situation reflects an implicit choice in favor of the living standards of current generations to the detriment of the living standards of future ones.

Source: Staff Elaboration based on Gomes, V. (2008): Economic Growth and Predictions for Croatia: A General Equilibrium Analysis. Background Paper for this Report; and World Bank (2008): Croatia Public Finance Review.

INCREASING LABOR CONTRIBUTION: EMPLOYMENT AND HUMAN CAPITAL

The contribution of labor to Croatia’s economic growth in recent years has been very modest, though it has increased slightly. Increased labor supply contributed around 1 point out of the almost 5 percent average economic growth in the 2002-2007 period. If Croatia could bring its employment rate as a share of the working age population up to the EU’s Lisbon target (70 percent), this report estimates that the country could increase its income level by 15.7 percent in 2025 (22.9 percent in 2040) -- a value that corresponds to more than twice the expected effect of meeting this Lisbon target on the EU-27 as a whole.¹⁶ What are the main obstacles to increasing the contribution of labor to economic growth in Croatia?

A. LABOR MARKET DIAGNOSTICS

Raising Employment

Labor market performance in Croatia is indicative of the obstacles facing Croatia’s effort to increase labor’s contribution to economic growth. The employment rate (57.1 percent in 2007) has been and still is among the lowest in the EU-27 countries. This is caused by a combination of high unemployment levels (estimated to be close to 9.1 percent in early 2008) and low participation rates (around 63 percent).

These results are out of line with those for other transition economies of Central Europe. In 2007, Croatia’s unemployment level was the third highest, after Slovakia and Poland (in the range of 11 percent). Labor participation, in turn, was the fifth lowest, after Romania, Italy, Hungary and Poland. Notice that, except for Poland, Croatia is the only country combining high unemployment and low labor participation rates. Taken all together, these results seem to indicate that Croatia’s labor market is uniquely “unequipped” to contribute to higher and sustained economic growth (see Table 3.1.).

At some stage the low employment content of economic growth was a typical feature of economic transition in virtually all Central European economies. Croatia exhibits a low labor content of economic growth -- a 1 percent increase in GDP per capita was associated with only 0.07 percent increase in employment on average in 2001-06. In most Central European economies during the transition process, the initial stage of enterprise restructuring, when shedding redundant labor was the

Table 0.1: Employment, unemployment and participation rates, 2007

	Employment rate ^a	Unemployment rate	Participation rate ILO ^a
Austria	71.4	4.4	74.7
Belgium	62.0	7.5	67.1
Denmark	77.1	3.8	80.2
Finland	70.3	6.9	75.6
France	64.6	8.3	70.2
Germany	67.6	8.4	76.0
United Kingdom	71.5	5.3	75.5
Greece	61.4	8.3	67.0
Ireland	69.1	4.6	72.4
Italy	58.7	8.3	62.5
Netherlands	76.0	3.2	78.5
Portugal	67.8	8.1	74.1
Spain	65.6	8.3	71.6
Sweden	74.2	6.1	79.1
Poland	57.0	9.6	63.2
Czech Republic	66.1	5.3	69.9
Hungary	57.3	7.4	61.9
Slovakia	60.7	11.1	68.3
Slovenia	67.8	4.9	71.3
Romania	59.2	6.4	63.0
Bulgaria	61.7	6.9	66.3
Rest EU-27	65.4	4.9	68.8
Croatia	57.1	9.6	63.4

a)15-64

Source: EUROSTAT, ILO

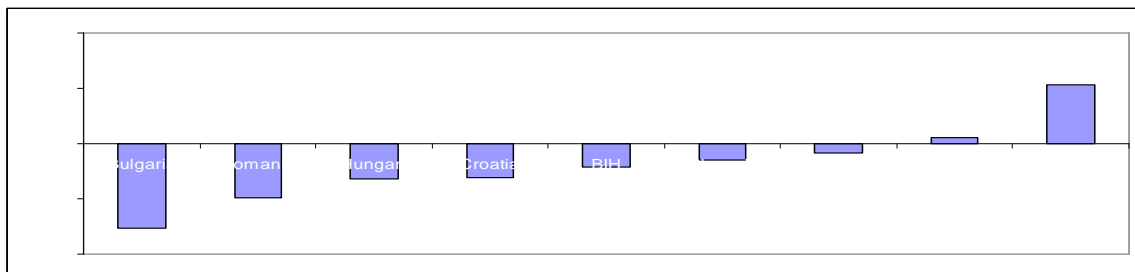
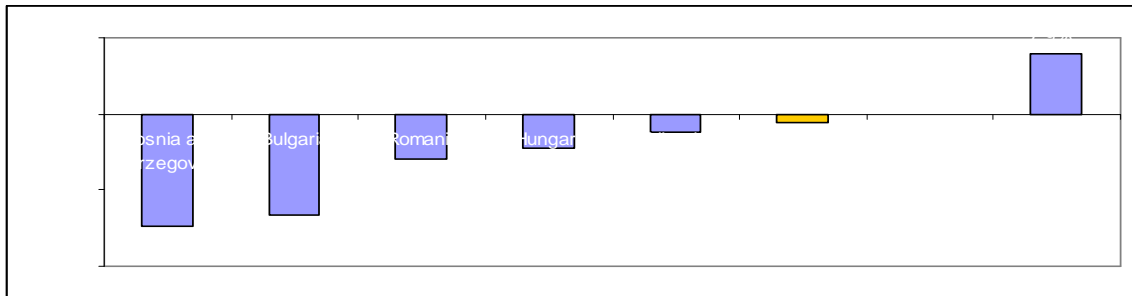
¹⁶ Lejour et al. (2008). *The Economic Effects of the Lisbon Target on Croatia*. Background paper for this report.

main strategy at firm level, was completed by the mid 2000s. In Croatia, however, large enterprises appear still to be overstaffed, particularly state-owned enterprises, which still account for a large share of total employment (32 percent of total employment in 2007). The stage of enterprise restructuring in Croatia will be further discussed in Chapter 4 of this report. In this section we focus on the causes for low labor participation and the more direct supply and demand factors affecting employment levels.

Demographic Challenge

Croatia’s demographic trends show an aging population combined with low birth rates and imminently decreasing school and working age cohorts. The size of the population is stagnant and is likely to decline in the future. The population decrease has been partly kept in check by some inward migration, which has now been mostly exhausted. Croatia is undergoing a demographic contraction - a characteristic of the region. In the period 1989-2004, Croatia’s population decreased by 1.2 percent, a modest decrease by comparison to Bosnia and Herzegovina, Bulgaria, Romania or Hungary. A natural decrease of the population accounted for 0.8 percent of the population change, and net outmigration accounted for the remaining 0.4 percent.

Figure 0.1: Population change in Central and Eastern Europe, 1989-2004



Croatia is experiencing a third transition – the graying of its population. If the current demographic trends and demographic policies persist, Croatia will see its population not only shrink but also age. The median age is set to increase from 40.6 years in 2005 to 45.4 in 2025 and to 48.7 in 2050. Croatia is thus set to go through a third transition, a “graying” transition, overlapping with the recent political and economic transitions. The life expectancy at birth is estimated to be 77.9 years in the period 2020-2025 and 80.6 years in 2045-2050. A slight gender imbalance is likely to persist given that the female population has a longer life expectancy than that of male population (an estimated 83.3 years versus 77.8 years in 2045-2050). The percentage of the population aged 15-24 years is forecast to decrease from 13.1 percent in 2005 to 9.6 percent in 2025. Concomitantly, the group aged 60 and over is projected to increase from 22.1 percent of the total in 2005 to 29.5 in 2025 and 35.5 percent by 2050. The ageing of the population will present a serious challenge to economic growth, due to a shrinking labor force and increasing social welfare costs.

Emigration, especially of skilled workers, will also continue to pose a challenge to the country’s future economic growth. Though international migration is an important channel for the transmission of technology and knowledge, the emigration of better educated citizens can result in a “brain drain” for the country of origin and thus in reduced rates of domestic innovation and technology adoption. It is estimated that in 2000 there were 479,000 Croats 25 years or older living in OECD countries, representing an average migration rate across all educational groups of 12.4 percent. The emigration rate of skilled workers¹⁸ in the period 1990-2000, at 29.4 percent, was higher than the emigration rate of unskilled workers and was the highest in the region, representing a serious brain drain from Croatia¹⁹.

Table 0.2: Migration rates to OECD countries by level of education, %

	Migration rate of workers with primary education	Migration rate of workers with secondary education	Migration rate of workers with tertiary education
Croatia	9.70	10.30	29.40
Bosnia and Herzegovina	11.70	17.00	28.60
Macedonia	12.70	11.50	20.90
Albania	4.50	9.00	20.00
Romania	3.60	1.70	14.10
Hungary	2.40	3.70	12.10
Slovenia	4.90	4.10	11.00
Bulgaria	8.60	6.00	5.80

Source: Docquier and Abdeslam Marfouk (2004)

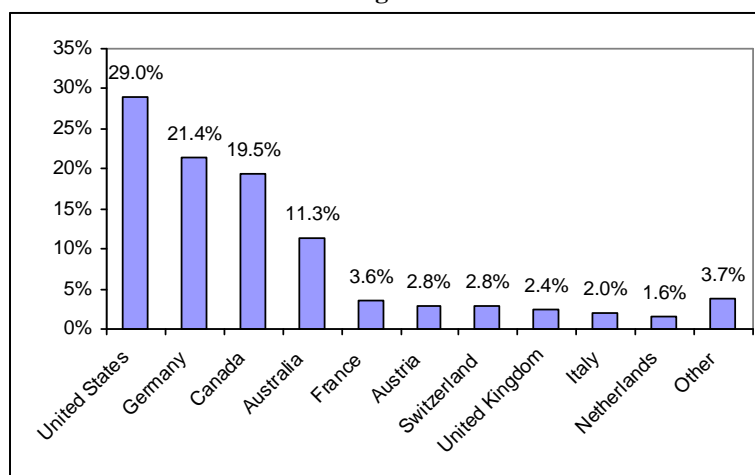
¹⁸ Skilled workers are defined as individuals of 25 years of age or older who have completed tertiary education.

¹⁹ Frederic Docquier and Abdeslam Marfouk (2004), “Measuring the international mobility of skilled workers.” JEL.

The United States of America was the top destination of Croatian skilled workers, attracting 29 percent of the 98,000 Croats residing in OECD countries. Germany and Canada hosted 21.4 and 19.5 percent of the skilled emigrants respectively.

The issue for Croatia in the coming decade is how highly skilled migration can become a positive factor in its development rather than a negative phenomenon resulting in waste. Looking forward, it has been estimated that 24.1 percent of Croatia's young scientists can be considered to have serious emigration potential, given the salary differential and the better professional opportunities offered by the OECD countries²⁰. Although attraction of highly skilled migrants to come in to Croatia would be beneficial, especially in sectors in which such workers are in demand, no overarching migration policy exists. This policy alternative, although highly relevant and recommended, has not been tested in this report in terms of additional growth reserves.

Figure 0.3: Top OECD destination countries for skilled Croatian emigrants



Source: Docquier and Marfouk (2004)

Why is labor participation so low in Croatia?

Labor supply disincentives in Croatia stem largely from the pension system. Participation rates in Croatia's labor market are unusually low among prime age men. This may be related, at least in part, to the disincentives caused by the "war veteran" benefits. In terms of forgone growth opportunities, this result may be particularly costly as these individuals are, most likely, primary earners in their most productive years. In addition, the low effective retirement age and generally insufficient financial penalties for early retirement seem to be the main factors discouraging participation in the labor market.

The pension system in Croatia encourages early labor force withdrawal. A number of factors contribute to this. *First*, the policy of early retirement that was pursued in the 1990s to ease labor market tensions associated with the transition. A *second* factor has been the low official retirement age until 2008.²¹ *Third*, the low pension accrual factor, which implies that deferred retirement is not sufficiently rewarded.²² In addition, the minimum pension regulations significantly reduce incentives to work longer, especially for low-wage workers. *Fourth*, high replacement rates for certain categories of workers. These include police, army and war veterans. For example, the family and disability pensions of war veterans substantially exceed the average wage. In this context "seeking the status of war veteran is the preferred road to income security"²³. Finally, the lax rules governing the award of disability pensions make the system prone to abuse. Box 0.1 illustrates the impact of Croatia's social welfare system on labor market participation.

²⁰ Mirjana Adamovic, "Migration of Young and Scientists: Actual and Potential Brain Drain from Croatia in the 1990s", Master's Thesis (2003)

²¹ Since 2008 the retirement age is 65 years for men and 60 for women.

²² Until 2008 persons who retired before reaching the official age received pension that was 24 percent lower. Since 2008 the difference was reduced to 9 percent, making early retirement significantly less costly.

²³ See Crnković-Pozai (2008)

Box 0.1 Croatia's Social Welfare System's Impact on Labor Market Participation: An Illustration

Croatia's welfare system discourages participation in the labor market at the lower-end of the earnings scale. Though the current social welfare system does increase the size of the labor force, as most benefits are contingent on the beneficiary being in a formal status of unemployment, it does not result in higher participation rates in the formal economy. Its loose administration renders the system open to abuse, as many different benefits can be combined, thus increasing the individual's or family's reservation wage.

For instance, a family of 5 where both parents with low qualifications are registered as unemployed is better off living on welfare than engaging in the formal economy. With the father reaping unemployment benefits of HK 1,200 per month, the unemployed mother receiving social welfare of HK 400 per month, and child benefits in the amount of HK 274 per child and HK 1,663 for the third child in the family, and both parents earning from HK 1,000 to HK 1,420 tax free from engaging in the informal economy, the family would be better off staying out of the formal sector. Their total earnings amount to HK 6,506, which is more than the actual net wage of those with a primary school education working in the formal economy.

If one were to look into the benefits offered to veterans, a similar conclusion could be reached, whereby the current legislative framework creates a culture of dependency on benefits, especially at the lower end of the earnings spectrum.

Source: Crnkovi-Pozai S. (2008). Effects of Legislation, Policy and Institutions on Labor Force Participation. Background Paper for the Report.

Box 0.2: Unemployment Benefit System in Croatia in 2007

The main features of the system (as of 2007) can be summarized as follows:

Financing: a payroll tax of 1.7 percent paid by the employer.

Eligibility: at least 9 month of service in the preceding 24 months. New labor market entrants without previous work experience, as well as persons who voluntarily quit their job, are not eligible for unemployment benefit.

Benefit amount: the benefit is related to past earnings (3 months prior to registration), subject to a minimum of 20 percent of the average wage, and a maximum determined by the Ministry of Finance (1200 Kuna as of October 2007). In practice almost all of the unemployed receive the maximum amount, thus de facto unemployment benefit is flat rate.

Benefit replacement: average unemployment benefit accounts for 25 percent of the average net wage (as of 2007).

Duration: depends on the length of service. Minimum duration is 78 days for the unemployed with less than 2 years service. Maximum duration is 390 days for the unemployed with 10 years service or more. The benefit is of unlimited duration for men with 35 years service and women with 30 years (the benefit is paid until they acquire pension rights).

Coverage: about 23 percent of the registered unemployed receive unemployment benefit (as of 2007). The low coverage largely reflects the high share of the long-term unemployed and new labor market entrants (who are not eligible for unemployment benefits) in total registered unemployment.

Benefits contingent on unemployment registration: health insurance (*de facto* although not *de jure*), maternity benefit, social assistance benefit (for working age persons), various non-pecuniary benefits (e.g. free public transportation, reduced kindergarten fees), employment subsidies for war-veterans.

Assessment: the unemployment benefit system in Croatia does not seem overly generous. The benefit replacement rate is low, and so is benefit coverage. Benefit duration is limited and typical by European standards. Accordingly, the unemployment benefit system creates only limited labor supply disincentives. While the system creates incentives to register at Employment Offices, it hardly supports inactivity or joblessness. Some 46 percent of registered unemployed men and 20 percent of women were not unemployed by the ILO definition (2007 data).

Source: Crnkovi-Pozai (2008).

By contrast, the unemployment benefit system does not seem to have a substantial effect on effective labor supply. Box 0.2 summarizes the main features of the unemployment benefit system in Croatia. The low benefit replacement rate (25 percent) and limited benefit duration imply that labor supply disincentives created by the system are limited. Unemployment benefit is received by less than ¼ of the unemployed. The system may encourage people to work in the informal sector and simultaneously claim unemployment benefit, but it creates little incentive for labor force withdrawal.

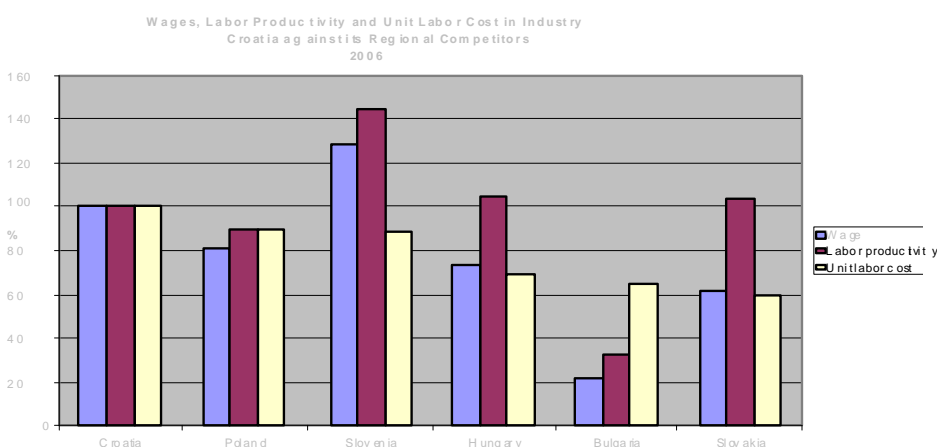
What drives up the unemployment rate?

Labor Costs

One factor affecting Croatia's unemployment rate is the relatively high cost of labor. A previous World Bank study on the labor market in Croatia demonstrated that wages in Croatia are disproportionately high (Rutkowski 2003). For example, in 2000 the gross national income (GNI) per capita in Croatia was roughly the same as in neighboring Hungary. However, Croatian workers enjoyed wages that were on average 60 percent higher than those of their Hungarian counterparts. Taking GNI per capita as a rough proxy for labor productivity, this implies that unit labor costs are high in Croatia, higher than in its regional competitors. The unit labor cost in the industry sector in Croatia has declined somewhat since 2000. However, this 7 percent decline was rather modest. More importantly, unit labor costs also declined in some of Croatia's regional competitors. This report estimates that real wages and productivity together explain almost ½ the variation in labor demand at the firm-level in the manufacturing sector²⁴.

Wages are high in Croatia relative to labor productivity by regional standards. Consequently, unit

Figure 0.4: Unit labor cost is higher in Croatia than its regional competitors



Note: Wages are expressed in current Euro.

Labor productivity = Gross value added (in current Euro) per employee.

Unit labor cost = wage/labor productivity.

Source: Eurostat, WIIW, Croatian Bureau of Statistics; Bank staff calculations.

Slovenian workers are cheaper than Croatian ones. The comparison with Hungary and Slovakia is even more telling. In both Hungary and Slovakia, wages in industry are substantially lower (25 and 40 percent, respectively), although in both countries labor productivity is slightly higher than in Croatia. As a result, Hungarian or Slovak workers are 30 to 40 percent less costly than their Croatian counterparts. In a world characterized by high capital mobility, it may pay more to invest in industries in Hungary or Slovakia than in Croatia.

Why are wages high relative to productivity in Croatia? There are several possible answers. *First*, noncompetitive wage setting in the still large public sector. Wages in the public sector determine

²⁴ Escribano et al. (2008). *Croatia Investment Climate Assessment*. Background Paper for this report.

reservation wages and through this channel influence wages also in the private sector. *Second*, strict employment protection which gives insiders – those workers who have secure jobs – strong bargaining power. *Third*, strong trade union presence (especially in the public sector), and the wide collective bargaining coverage give unions power to determine wages.²⁵ *Fourth*, moderately high payroll and other labor taxes, which raise the labor cost given the wage level, especially when they interact with the minimum wage (which sets a wage floor and thus prevents shifting taxes back onto workers). And *last* but not least, the skills mismatch. All these factors tend to interact with each other and thus provide complementary rather than competing explanations. In particular, the first three factors: large public sector employment, strict employment protection legislation, and union bargaining power are not independent and tend to interact with and reinforce each other.

What is the relative contribution of the above listed factors to wage pressure in Croatia? This important question cannot be answered without further in-depth research. It seems that the first three factors mentioned above: large public sector, strict employment protection, and strong union bargaining power create powerful synergy and a syndrome of “insider dominated wage setting” that plays a key role in determining wage outcomes in Croatia. The growing skills mismatch may be a contributing factor. But it should be borne in mind that wages were already disproportionately high in Croatia during the period of high unemployment and before the labor shortages emerged. So the emerging skills mismatch may aggravate the problem of high labor cost, but is hardly its cause. Labor taxes are moderate by regional standards. Accordingly, they cannot account for the high labor costs in Croatia compared with its regional competitors.

Is there room to reduce labor taxes in Croatia to lower labor costs? The answer is yes, but only at the margin. Although labor taxes are not high by the standards of other European economies, they are high given Croatia’s income level. This is because labor taxes are generally high in all EU-10 countries, higher than in other countries at a comparable income level. For example, the tax wedge accounts for only 17.3 percent in S. Korea and only 23.8 percent in Ireland, a country with much higher income level. The point is important because, as shown in Box 2.2, reducing marginal labor taxes may have a significant impact on economic convergence.

Up to mid-2008 there was neither a statutory nor a bargained minimum wage in Croatia; this has now changed. There was a mandatory minimum social security contribution base, which represented a quasi-minimum wage, although in practice workers could be paid less. This “minimum wage” accounted for around 32 percent of the average wage in the economy, which is at the low end of the EU range.²⁶ At such a low level, it was not a source of an upward wage pressure, even if it were providing an effective wage floor. Accordingly, high unit labor costs in Croatia did not spring from the minimum wage policy. Note, however, that the parliament has recently adopted a minimum wage law, which envisaged an increase of 12.5 percent in the minimum gross wage as of July 1, 2008. According to the law, the minimum gross wage will be 39 percent of the average wage in the previous year, with regular adjustment each year after mid-2009 in line with GDP growth from the previous year.

Labor Regulations

Another factor affecting unemployment rates in Croatia is the still restrictive system of labor market regulation. The 2003 World Bank’s *Croatia Country Economic Memorandum* attributed poor labor market

²⁵ The Labor Code provides for the possibility of mandatory extensions of collective bargaining agreements reached between employers’ representation and trade unions to the whole industry, including non-participating employers. In the recent period the government actually has extended agreements to the whole industry in question.

²⁶ The minimum wage accounts from 1/3 to 1/2 of the average wage in the EU countries, with most transition economies (NMS) being close to the low end of the range. With the exception of Bulgaria and Slovenia, the minimum wage/average wage ratio is below 40 percent in EU10.

outcomes in Croatia to rigidities imposed by the Labor Code. A revised Labor Code was adopted in 2003, which relaxed some of the constraints imposed by the old Code. However, evidence shows that firing redundant workers is still difficult and costly in Croatia. Procedural costs of firing workers are high and so are monetary costs.²⁷ Firing costs are not only higher than in countries with well performing labor markets, such as Denmark or Ireland, but also higher than in Croatia's regional competitors, such as Bulgaria, Hungary, Serbia or Slovakia. Hiring costs are also high. Croatia scores poorly also on other dimensions of labor market flexibility. For illustration, the difficulty of hiring index is higher in Croatia than in all EU-10 countries except Romania and Slovenia, and is substantially higher than in well performing EU-15 economies, such as Denmark, Ireland, and the UK. Croatia scores better in terms of the flexibility employers have in adjusting hours of work to the fluctuations in demand. (Table 3.3)

Overall, employment protection legislation remains extremely strict in Croatia. Both procedural and monetary costs of dismissal are high by international standards. The statutory provisions of the Labor Code are "backed up" and reinforced by provisions of branch level collective bargaining agreements, which thereby create additional labor market rigidities.²⁸ Moreover, courts are reported to exhibit a strong pro-labor stance. According to anecdotal evidence, in most cases courts reinstate dismissed workers back to work and order the firm to pay compensation (foregone earnings). One reason is that existing legal provisions make it hardly possible for employers to prove poor performance or employee redundancy and thus create room for judicial discretion. The practice of reinstatement and compensation acts as an effective deterrent on dismissal, especially in firms with strong employee representation. In this context employers resort to temporary contracts as a means of avoiding high firing costs associated with terminating permanent contracts. But this creates labor market duality, with still well-protected insiders and outsiders bearing the brunt of employment adjustment. Thus, the partial liberalization of the Croatian labor legislation allowing for a greater use of temporary contracts does not fully address the fundamental rigidities. This negatively affects the pace of job creation and productivity growth, and consequently the speed of economic convergence.

²⁷ According to the Labor Code the maximum statutory severance pay is set at 6 monthly wages.

²⁸ It should be noted, however, that the provisions of collective agreements cover and are enforced mainly in large, especially public sector, enterprises.

Table 0.3: Indicators of employment flexibility in Croatia and selected EU countries, 2008

Economy	Difficulty of Hiring Index	Rigidity of Hours Index	Difficulty of Firing Index	Rigidity of Employment Index	Firing costs (weeks of wages)
Bulgaria	17	60	10	29	9
Croatia	61	40	50	50	39
Czech Republic	33	40	10	28	22
Estonia	33	80	60	58	35
Hungary	0	80	10	30	35
Latvia	50	40	40	43	17
Lithuania	33	80	30	48	30
Poland	11	60	40	37	13
Romania	67	80	40	62	8
Serbia	67	20	30	39	25
Slovakia	17	60	30	36	13
Slovenia	78	60	40	59	37
Denmark	0	20	10	10	0
Ireland	11	20	20	17	24
United Kingdom	11	20	10	14	22

Note: The index ranges from 0 to 100, with higher values indicating greater rigidity.

Source: World Bank Doing Business 2009 database, available at www.doingbusiness.org.

Skills mismatches and skill shortages

The third cause for high unemployment rates relates to skills mismatches. This is hinted at by the abnormal share of long-term unemployment (60 percent against a typical benchmark of 30 percent of total unemployment). What are the skills that are in short supply? What are the skills that are in excess supply? To answer these questions one needs to compare the structure of labor demand with that of labor supply.

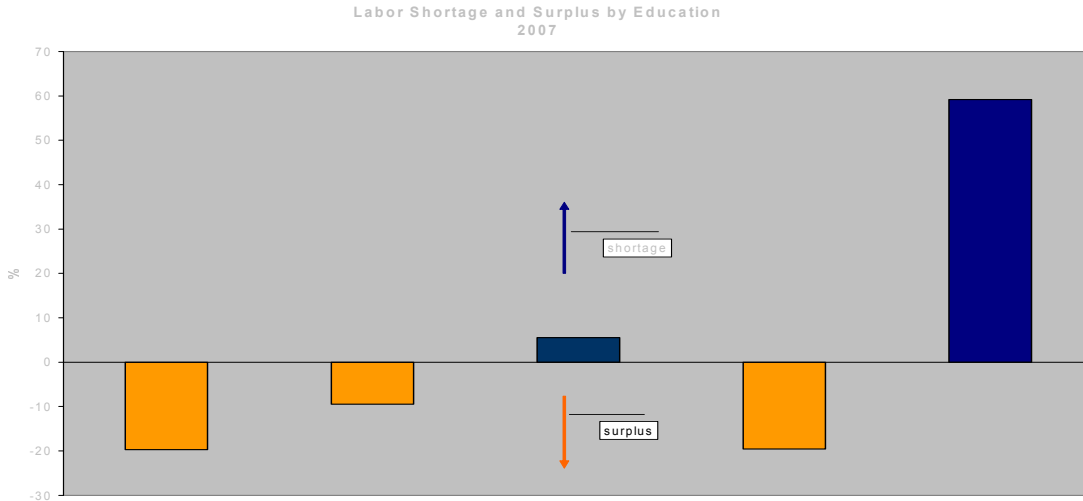
Skilled workers, in particular skilled manual workers, are very difficult to hire, reflecting a shortage of high and specialized skills and a surplus of low and general skills. Specifically, there is a deficit of workers with secondary and tertiary technical education, and at the same time a surplus of workers with less than secondary (including vocational) and general secondary education. In term of occupations, there is a strong demand for professionals, technicians, and skilled workers (in services and in industry); at the same time there is an excess supply of clerks, salespersons and workers in elementary occupations.

The skills mismatch also exists within occupational groups. As regards professionals, there is a shortage of engineers, business and health care professionals, coinciding with a surplus of legal, art, social sciences and teaching professionals. Furthermore, there is a shortage of blue collar workers demanded by the construction industry, as well as personal service workers, coupled with excess supply of administrative white collar workers. ICT specialists are in particularly high demand (Moj Posao 2007), although the number of job applicants in this field is higher than the number of jobs on offer. This suggests a skills gap within the ICT field: apparently many job applicants in ICT lack the skills required by employers.²⁹

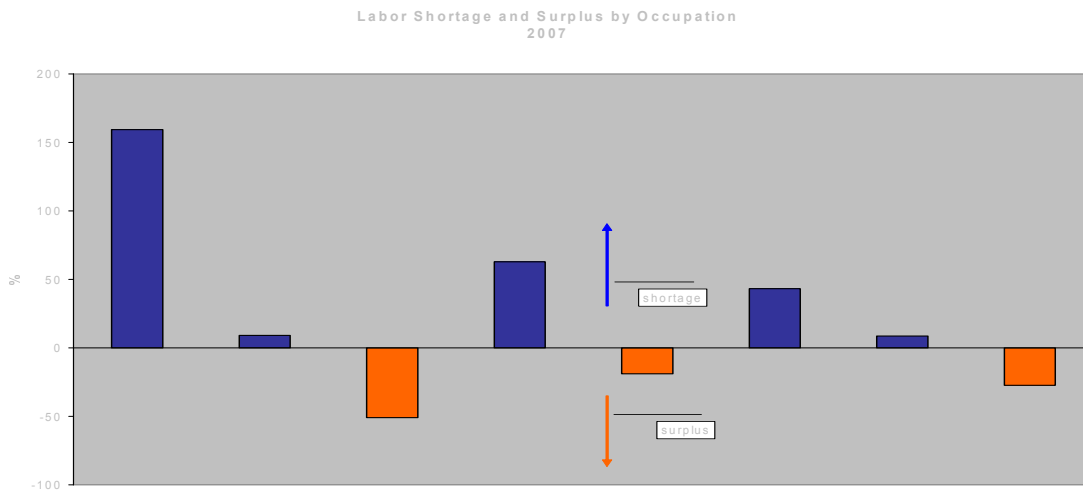
²⁹ It should be noted that employers value not only technical skills but also “soft” skills, such as job attitudes, work ethics, communications and team working skills, etc. (Moj Posao 2007). And it is often the lack of these soft skills, rather than technical skills, which accounts for the skill gap and makes it difficult for employers to recruit workers with required skills. Determining exactly what skills are in short supply, including the distinction between technical and soft skills, is an important policy issue, which needs to be further researched.

Figure 0.5: While there is a shortage of workers with high and specialized skills, there is an excess supply of workers with low and only general skills.

Panel A



Panel B



Note: The index of (relative) skill shortage is defined as $(v_i/a_i - 1) \cdot 100$, where v_i is the share of job vacancies in the skill category in the total number of vacancies, and a_i is the share of job seekers in the skill category in the total number of job seekers. A positive value for the index indicates a shortage in a given skill category. The value of the index then shows the percentage by which the number of jobseekers should be increased to fill available vacancies (*assuming the total number of job vacancies were equal to the total number of job seekers*). By contrast, a negative value for the index indicates a surplus in a given skill category. The value of the index in this case shows the percentage by which the number of jobseekers should be reduced to eliminate the surplus (*if the total number of job vacancies were equal to the total number of job seekers*).

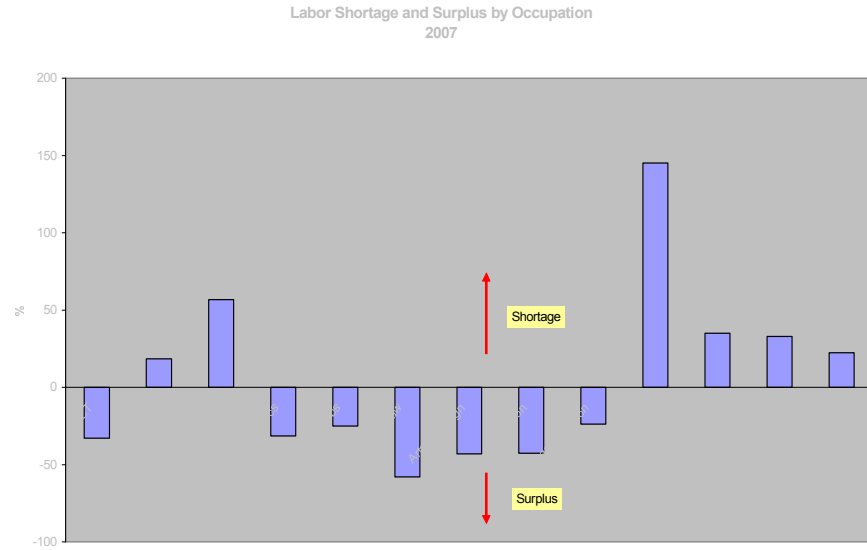
Source: Labor Force in the Republic of Croatia, Second Quarter of 2007, Croatian Bureau of Statistics; Monthly Statistics Bulletin 12, XX/2007, Croatian Employment Service; Bank staff calculations.

As a result, a problem of labor shortages in selected areas is gradually building up in the Croatian economy, and can soon become an obstacle for growth acceleration in coming years. In a recent survey, as many as 80 percent of Croatian employers said that it is difficult to recruit workers with required skills despite high unemployment. Moreover, Croatian employers see skills shortages as an important

obstacle to the competitiveness of their firms. Interestingly, it is small and medium enterprises that are particularly affected by skill shortages.

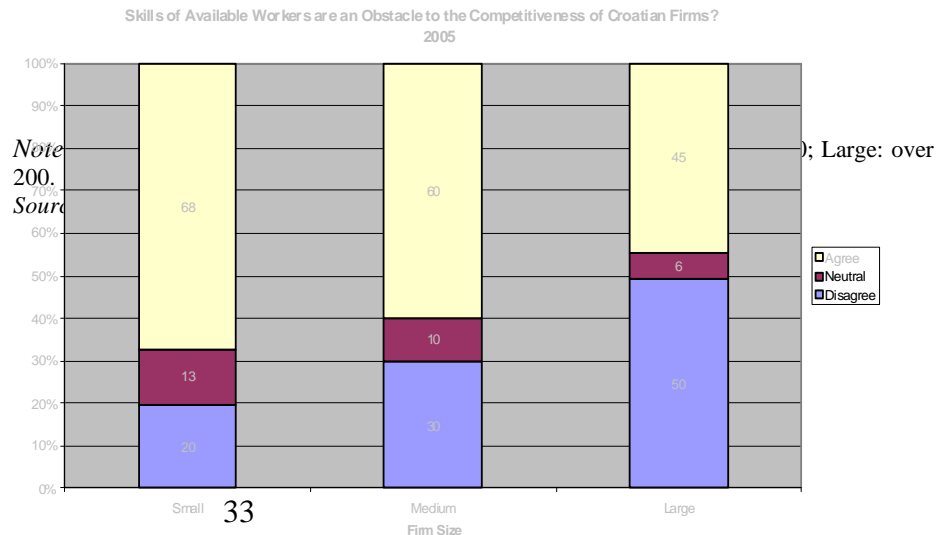
Skills shortages are more severe in Croatia than in other countries in the region. In general, across all occupational groups, it takes more time to recruit a worker with required skills in Croatia than on average in the EU-10. For example, Croatian employers need twice as much time to fill a vacancy for skilled workers as their Bulgarian or Romanian counterparts. Skills shortages have a *direct* negative effect on firm productivity and thus competitiveness. But they also have an *indirect* effect through giving rise to wage pressures which may translate into an increase in unit labor costs, again worsening firms' competitive position.

Figure 0.6: Too many lawyers and designers, too few construction, engineering and service workers



Note: See Note for figure 6.
Source: Moj Posao; Bank staff calculations.

Figure 0.7: Skills of available workers as an obstacle to the competitiveness of firms

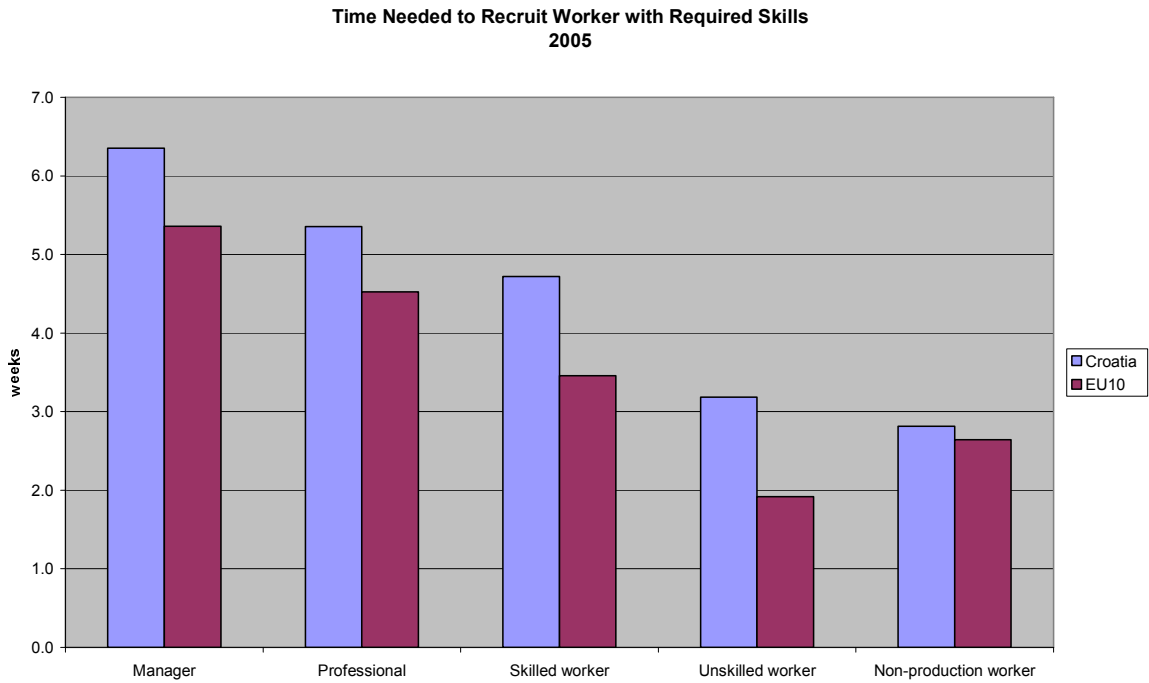


Note: 2005

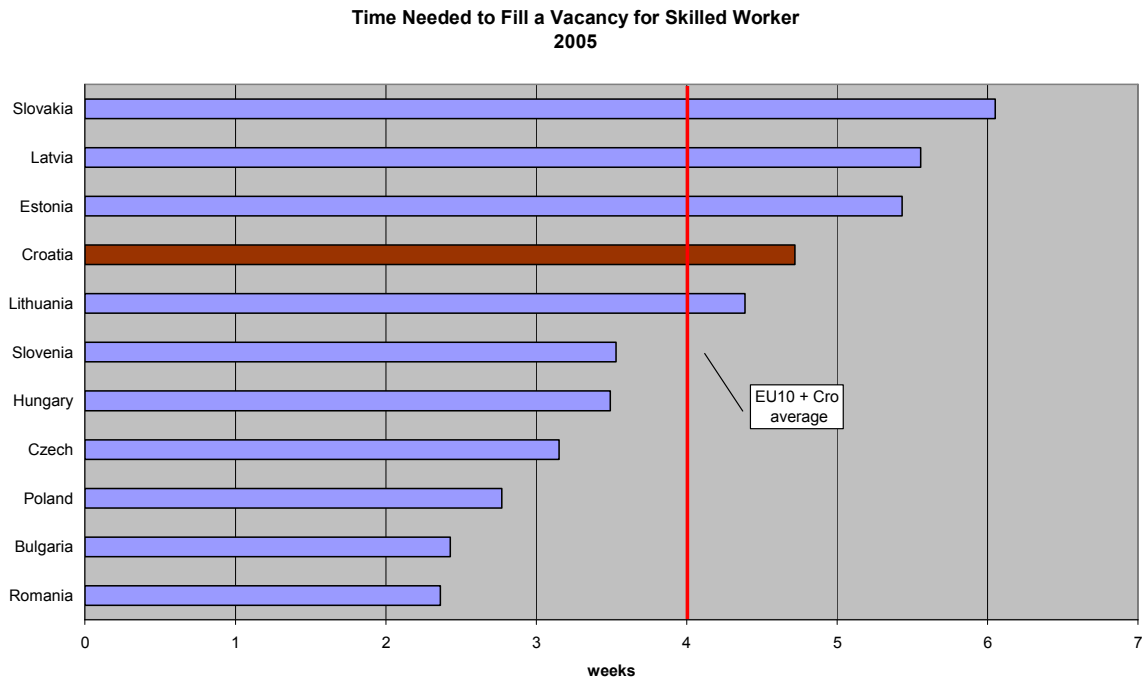
Source: Moj Posao

Legend:
■ Agree
■ Neutral
■ Disagree

Figure 0.8: It takes more time to recruit a worker with required skills in Croatia than in other countries in the region
Panel A



Panel B



Source: EBRD-World Bank BEEPS 2005, Bank staff calculations

It is expanding firms that are hit by skills shortages the most. Expanding firms, that is those which are increasing employment, need more time to recruit workers with required skills than do stable or contracting firms. For example, expanding firms needed on average over 6 weeks to fill a vacancy for a skilled worker, compared with 3 weeks needed by non-expanding firms (Figure 3.9). This is probably because expanding

Figure 0.9: Expanding firms are particularly affected by the skills shortage



Source: EBRD-World Bank BEEPS 2005, Bank staff calculations

business (the third most frequent obstacle after tax rate and tax administration). Consistently with enterprise’s perception, this report estimates that around 20 percent of the variation of TFP in the manufacturing sector in Croatia can be explained by the quality of the labor force, the largest contributor among fourteen other variables considered.³¹ How could Croatia address the skills gap of its labor force?

B. ADDRESSING THE SKILL GAP: VOCATIONAL TRAINING, TERTIARY EDUCATION AND LIFELONG LEARNING IN CROATIA

Croatia’s skills-gap is related to the limited educational attainments of its labor force: a vocational education and training (VET) system that does not cater to the market’s needs; low, although increasing, tertiary education enrollment rates; and an insufficiently developed life-long learning sector. School life expectancy in 2006 (13.53 years)³² compares unfavorably with the EU-27 average (15.63 years) and other international peers (e.g. 16.69 years in Slovenia). A meager 28 percent of Croatian firms offer formal training for their (permanent) production workers, compared to 70 percent in Slovenia (and 73 percent in Ireland).³³

Educational attainments (years of schooling and the quality of education) are the underlying determinants of the skills of the labor force, and key elements for economic growth. Addressing the full range of educational issues in Croatia would go beyond the scope of this report. Rather, we focus more

³⁰ See Caselli ,F. (2005): Accounting for Cross-Country Income Differences. *In Handbook of Economic Growth*. P.Aghion and S. Durlauf (eds.).

³¹ Escribano et al. (2008). *Op cit*.

³² EDSTAT

³³ 2008 Croatia ICS and World Bank Enterprise Database.

narrowly on vocational and tertiary education as well as life long-learning. Getting these policies right could generate a positive impact on market outcomes and growth in a relatively short period of time.

Vocational education and training (VET)

Main features of the Croatian VET System

The law on secondary education defines three types of secondary education institutions – general secondary schools (gymnasiums), vocational schools and art schools. Vocational schools offer six broad models of regular secondary vocational education (encompassing 206 specific programs), and account for 76 percent of total secondary enrolment places in 2006-2007. They include the following:

- **Four-year vocational programs for technical and other occupations** train students for specific occupations (including the teaching of technical subjects and practical work), but also include a significant quantity of general education subjects, and offer opportunities for the continuation of education at tertiary level;
- **Three-year vocational programs for industry/craft occupations** encompass two groups of programs which train students for more specialized occupations in traditional manufacturing or services. The former is more associated with education for traditional occupations in larger businesses (although there are exceptions), whereas the latter is more strongly associated with the Croatian Chamber of Crafts which provides licensing for the businesses in which practice is performed. According to the types and quantity of practical work, the latter is divided into classical (school-based), dual (practice-focused and workshop-based, with limited attention given to general subjects) and unified model (a ‘balanced’ model introduced in 2003/2004). None of these programs allow vertical mobility and continuation of education;
- **One and two-year vocational programs for acquiring lower qualifications** comprise a few still surviving but outdated programs for auxiliary workers which do not equip them with significant skills. However, provision of these qualifications is sometimes used as an alternative to the dropout of students who are unable to complete three-year programs (CARDS, 2006b);
- **Adapted and special vocational programs** are mostly three-year programs that serve students with special needs.

A mismatch between supply and demand is evident in the VET sector. Many VET programs are not implemented at all, as there is insufficient demand for them from students, whereas others are oversubscribed. The overall distribution of secondary school students in school year 2006/2007 is provided in Table 3.4 below.

The governance mechanisms for the VET system need to be geared towards greater interaction with the labor market and thus the demand side for skills. Currently, these mechanisms are still evolving and will deserve further support and attention over the next years. The appropriate institutions are only now being established, often through EU pre-accession assistance (e.g. CARDS projects which assist in the development of the Agency for Vocational Education, Croatian Employment Service, etc.). The overall governance mechanisms are to be defined by the VET Act, which was adopted in early 2009.

An important step forward has been the establishment of Sector Councils, which contribute to needs analysis in specific vocational sectors, as well as to the development of occupational standards, qualifications and curricula, thus supporting the work of AVET while facilitating the dialogue between employers and the education sector. They comprise representatives of SMEs, crafts, larger enterprises, professional associations, trade unions and educational institutions (including tertiary education institutions). Thirteen sector councils were appointed to steer work on the national qualifications framework until the Act on Vocational Education was adopted. The VET act provides the basis for the foundation of the National VET Council as a national expert body (comprising stakeholders from demand and supply

side) that can oversee the development of a VET strategy and co-ordinate the various contributions (cf. CARDS, 2006a).

Table 0.4: Types of regular secondary education, number of programs and entry quotas, 2006-2007

ISCED	Length (yr)	Secondary education type	Programs offered	Programs implemented	Entry quotas ¹	Share in total quotas, %
3A	4	Grammar schools	8	8	12 691	21.9
		Art programs	42	N/A ²	1 749	3.0
		4 year vocational programs for technical and related vocations	95 ³	76 ^{3,4}	23 531	40.6
		3 year vocational programs for industrial occupations	73	37	5 182	8.9
3C	3	3 year vocational programs for crafts – classical model	12	7	406	0.7
		3 year vocational programs for crafts – unified model	60	52 ⁴	13 560	23.4
	1-2	One and two year vocational programs (lower qualifications)	48	5	45	0.08
	3-4	Adapted and special programs	69	28	782	1.35

Notes:

¹ Only public schools.

² Specialization in musical programs and some design programs that are not specified in enrolment quotas make it impossible to determine the number of programs from published documents and statistical publications.

³ This number does not include changes that ensued due to a change in classification/nomenclature (like construction and architecture technician instead of a larger number of “old” programs in the construction sector), as well as the program for technicians for protection of people and property.

⁴ Two experimental programs are not included in these figures: processor on numerically operated machines and shipwright.

Source: CARDS (2006b), data provided by Ministry of Science, Education and Sports

The funding of VET in Croatia is approached in a rather traditional way with the private sector playing only a minor role. Funds for financing secondary education, including VET, are allocated from the central government budget and from budgets of local and regional administrations. Other sources include school income, donations, subsidies, resources obtained through projects, etc., but their role is currently minor. Systematic efforts to make more effective use of available resources are rarely observed, and incentives to do so are lacking. The largest share of available funds is used for current expenditures (in particularly salaries). The limited funding of VET education from public sources is thus not adequately complemented by supplementary funding mechanisms, such as possible earnings from adult education programs, etc. These financing conditions hamper a faster VET reform, capacity building and more effective interaction with stakeholders and labor markets. VET financing has recently been partially decentralized. Profit generation at the school level is restricted and must be used exclusively for implementation and development of the school’s activities.

According to the VET White Paper, financing of VET in the future should be viewed as the responsibility of several groups. Initial VET (full-time) should be funded by the state (i.e., ministries and counties), while initial VET via apprenticeships can be financed through a combination of state funding and contribution of licensed workshops/workplaces, as in a range of EU countries (Germany, Austria). Continuing VET can be covered through a mix of state, employers, chambers and individuals, whereas VET

(re-)training for the unemployed should be financed through the state and project funding. If these arrangements are implemented, they will require a complex set of incentives at national, regional and sector levels. In the past, not enough attention has been paid to the question of how VET can and should be linked to a rapidly changing labor market.

Quota setting for VET programs should be in accordance with labor market demand and demographic trends, but this is currently rarely the case in Croatia. Quotas are established in a bottom-up way, but a market-oriented implementation of the quota system is hindered by inertia. Heads of VET schools present their quota proposals to the county authorities responsible for education. It is important to note that no funds, human resources or standardized methodologies are planned for needs analysis, research procedures or stakeholder consultation. There are also no readily available indicators upon which such processes could be based. Consequently, school heads mostly rely on previous year quotas, the observed interest for enrolment in the previous school year, and the school resources. This most often leads to a continuation of past arrangements, sometimes deriving from arbitrary historic developments. County offices present consolidated county quotas to MoSES. The Ministry gathers data and consults the Croatian Employment Service (CES). The quotas are finally decided by the Minister.

Unlike the enrolment quotas for gymnasiums and four-year programs, which tend to be lower than demand, quotas in three-year vocational programs exceed the demand, and do so consistently year after year, pointing to the weak connection with labor market demand. In the school year 2006-2007, the quota for industrial and crafts programs was 20 percent higher than the number of enrolled students in the previous school year. Only a relatively small number of large and popular programs is geographically available to most prospective students. The same analysis establishes that, in the case of 4-year programs, 56 percent of enrolment places were allocated to 10 programs with more than 500 students.³⁴ As for 3-year programs, seven of them accounted for 53 percent of enrolment places.³⁵

Students' preference with regard to VET programs in general mirror the changes in the economy. The most popular programs include four-year programs for electro-technical and electrical engineering, economy and trade, construction, road transport, post and telecommunications, graphics and health and three-year personal services (e.g. hairdressing, cosmetics etc.) programs. On the other hand, particularly low interest – more than one third of vacant places - is recorded in some four-year programs (shipbuilding, agriculture, wood processing, textile and police service), as well as in quite a few three-year programs (shipbuilding, metallurgy, agriculture, food, wood processing, construction, marine transport, chemical technology, textile and the processing of leather and glass). It can thus be concluded that the popularity of programs among students roughly reflects the changes in the economy. There is significant interest in service sectors (business and personal alike), high technology and ICT, whereas the least attractive occupations belong to agriculture and traditional manufacturing, both of which have been particularly negatively affected by transition and globalization.

Vocational schools usually provide training on the basis of their own availability of teachers, courses and facilities, and only to a limited extent according to students' choices. Appropriate information on the demand for training and skills has been and still is lacking. Even if practical training is provided within companies, it is often reduced to performing standardized tasks on outdated machines, without adequate tutorial support. Links to local enterprises and organizations are still insufficient. If VET is to contribute more effectively to human resource development, including higher employability, economic actors will need to have a stronger voice in shaping the range of occupations for which training is provided within a

³⁴ These 10 were programs for economists (4005), hotel-tourism technicians (1542), nurses and medical technicians (1344), electro technicians (1343), computer technicians (1249), commercialists (1203), administrative clerks (742), machinery computer technicians (668), tourism-hotel commercialists (613) and electronics technicians (513).

³⁵ The seven programs were for cooks (1455), car mechanics (1306), waiters (1297), hairdressers (1217), carpenters (687), tailors (641), and heating and air-conditioning installers (627).

given sector and in determining skill needs. The latter should be reflected in occupational standards, curricula and qualifications. Significant progress is currently being made through the work of the sector councils.

Effective co-operation of schools with enterprises, regional employment services and other stakeholders could have strongly beneficial effects on the provision of VET in Croatia. This may include stronger involvement of representatives of the business community in governance mechanisms (school boards), advisory roles and ad hoc committees, but also involvement in the teaching and learning process. The involvement of staff from the business sector in practical training should alleviate some of the gaps in teacher competences, which should also be addressed through better in-service training. More project work for students will be needed, including solving of ‘real life’ problems and simulations. This would imply a substantial change in teaching approaches and methodology, as well as in the role and qualifications of teachers.

Is VET effective? Enrolments and labor market outcomes

The general observation that completing education at higher levels results in wage premiums also applies to Croatia. For instance, relative to having an incomplete primary education, VET graduates earn on average 13.3 percent higher wages, whereas those who finish general secondary school achieve a premium of 21.5 percent. The corresponding premiums for 2-year college graduates, university graduates and those with a post-graduate degree were 33.4, 46.3 and 69 percent respectively (World Bank, 2007, data based on Labor Force Survey, second semester, 2003).

In the past, not enough attention has been paid to the question of how VET can and should be linked to a rapidly changing labor market. According to CODEF (2007), there is currently no analytical work which would comprehensively assess the interaction between the education system and the labor market (including the responsiveness of education institutions). However, the mismatch between the two is evident: For instance, at the end of 2006, 35.9% of all unemployed people had graduated from 3-year vocational schools, suggestive of the fact that this track of VET is largely obsolete and in urgent need of reform.

Certain VET programs offer a greater chance of employability. Data on unemployment of graduates of different levels show some initially surprising results regarding employment taken up within 6 months, and thus, possibly employability (Table 3.5). The best performance can be noted in the case of those who finished 3-year VET programs, followed by graduates of 4-year programs. The worst performance can be observed in the case of gymnasium graduates (and this is incidentally also the only case where women outperform men). This is likely to reflect the fact that gymnasiums and even 4-year vocational programs primarily are seen as preparation for tertiary education, rather than for employment.

Table 0.5: Secondary school graduates who were employed within 6 months of registration, 2007

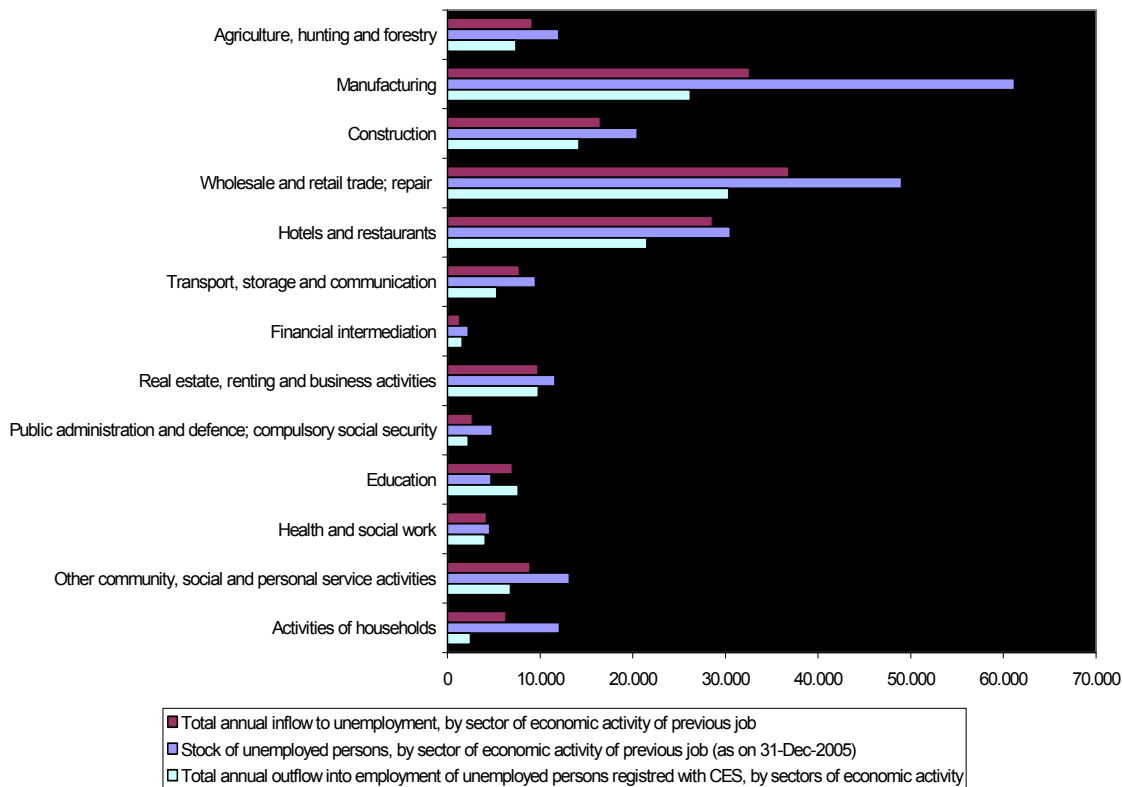
Type of school	Employed within 6 months of registration, percent			
	Total		Younger than 30 years	
	Men	Women	Men	Women
3-yr vocational	40.6	36.0	45.4	37.5
4-yr vocational	36.3	34.9	38.2	36.6
Grammar school	23.8	26.0	25.2	25.9

Source: CES (2007a)

Sectors that rely heavily on employees with VET qualifications have the highest numbers of unemployed. Figure 3.10 shows employment by sectors, total unemployment and the number of newly registered unemployed people according to their previous employment in 2005. In almost all sectors, the number of newly registered unemployed at CES exceeded the number of those who found employment in these sectors; both sets of data are likely to involve an underestimation of the real situation, as registration at CES is voluntary. There are two points worth noting: First, many of the unemployed who previously worked in manufacturing and trade find no employment. Second, the sectors with the highest numbers of

the unemployed are those which rely on employees with VET qualifications. This also confirms that VET programs are not sufficiently linked to the needs of potential employers.

Figure 0.10: Employment by sectors, total unemployment and the number of newly registered unemployed people according to their previous employment, 2005



Source: CARDS (2006b).

The VET system reform needs to address the need both for specific practical skills and for generic skills such as interpersonal and social competences. By strengthening students' ability for further learning, VET programs have to provide the basis for a lifelong learning career of students. Although there is a lack of comprehensive and reliable analyses of skills of Croatian students and employees, several projects have attempted to examine employers' demands, including the knowledge and skill requirements of workers in specific occupations. The perceived skill deficit is greatest with regard to practical skills, which reinforces the necessity to integrate the educational process better with real business needs and professional practice. However, a skill deficit is also regularly discerned in the case of generic or 'soft' skills, such as teamwork, communication, ability to learn, and ability to work independently, which are also viewed as important, but not sufficiently acquired through VET. Focusing on special skills will not be sufficient, as the future needs of the economy and society point to the necessity to acquire a wider set of skills and key competences required for lifelong learning.

Progress so far and Recommendations for further VET Reform

VET system reform was given a prominent position within the scope of overall reforms initiated by the government. This has been reflected in EU policy priorities concerning pre-accession assistance provided to Croatia and available technical assistance projects. The initiatives undertaken have created a favorable environment for a reform which is in progress but whose results will only bear results in the years

to come. From 2005 to 2006, the Agency for Vocational Education and Training (AVET) carried out the CARDS 2002 project on VET modernization and institution building. Within the project, a labor market analysis was conducted, resulting in a reduction of VET sectors from 33 to 14. EU project funds were used to establish several centers of excellence. In 2006, 13 sector councils were established (the exception out of the planned total of 14 being the art sector). The process of restructuring existing VET qualifications resulted in the reduction of the number of programs to 199. This can be seen as a major achievement, as it means that VET students are to be trained for broader occupational fields and will thus be able to respond in a more flexible way to a changing labor market in contrast to a too high degree of specialization in the past.

The next key steps of VET reform in Croatia are going to be related to the development of a National Qualifications Framework in line with EU requirements. This will need to go hand in hand with a profound curriculum reform in professional fields geared towards the needs of the labor market and a modularization of programs in order to ensure more flexibility. AVET has been actively contributing to the development of the Croatian Qualifications Framework (CROQF), which was expected to be completed by the end of 2008 (MoSES, 2007), but has been slightly postponed³⁶. Further, AVET has developed a methodology, which encompasses all processes and implementation mechanisms needed for the development of modular curricula. Based on these standards, specific VET qualifications are going to be defined. They are to reflect functional units of relevant occupational standards, and are to be modular and thus enable implementation of a credit system (ECVET). The revision of qualifications will also address vertical mobility issues.

The activities of AVET target a range of the issues identified above, although additional efforts will be needed to maximize the effects of these measures. In addition, activities at the national level undertaken by AVET are only the first prerequisites of the VET system reform. The reform needs to be taken up and further developed and implemented by local and regional authorities, schools and their stakeholders as well as teachers and students. This may take time and risks being affected by inertia in different parts of the VET system. Furthermore, additional investments in school modernization will be needed, as well as further reform of administration and financing provisions (including further decentralization). It is only then that the reform will be in a position to result in maximum benefits for students, their communities and their future employers.

Effective policymaking needs, first, to be evidence-based and thus rely on systematic data collection and analysis. The Central Bureau of Statistics, AVET and the Ministry of Science, Education and Sports should ensure the availability of relevant information to all concerned parties. This quantitative set of data needs to be complemented by quantitative and qualitative information on employers' requirements in terms of skills, staff profiles needed, and changes in occupations (CARDS, 2006b).

Second, VET should be regulated by a law, which ensures equality of opportunity within VET and the promotion of modern, learner-centred approaches and a commitment to lifelong learning (CARDS, 2006a). The law should apply to training independently from the status of the provider.

Third, governance structures and decision-making processes at national, sector, regional and school levels should be improved in order to make VET more relevant. This includes strengthening existing bodies such as the National VET Council, sector councils, local/regional partnerships, as well as undertaking changes in the composition of the school boards in VET schools by inclusion of representatives of the business community and students and graduates (as advisory members).

Fourth, a comprehensive set of incentives for continuing VET should be designed, suitable for various VET types and arrangements (see above). Introduction of a modular organisation of VET programs and transparent mechanisms for recognition of informal and non-formal education needs to be supported by

³⁶ CROQF is being developed by a committee and an operational team, both of which have been appointed by the Ministry of Science, Education and Sports.

corresponding incentives and funding mechanisms. This is strongly related to the decentralisation of decision making and strengthening of local partnerships.

Higher Education in Croatia

University programs have been re-designed in accordance with the principles of the Bologna process for the reform of higher education in Europe. The structure of the tertiary education system in Croatia has seen important changes in accordance with the new Law on Scientific Activities and Higher Education (initially adopted in 2003, later amended). Tertiary education is conducted at universities and professionally-oriented higher education institutions. University studies are focused on the acquisition and application of both theoretical knowledge and practical competencies. They qualify students for a wide range of activities from further education to research and teaching to employment in business and public sectors. Professional studies are supposed to offer students the necessary knowledge and skills to seek immediate employment or self-employment.

The network of higher education institutions has seen a considerable expansion in recent years. The number of tertiary institutions has increased from 63 registered institutions in 1993 to 111 public and 22 private institutions in 2007 (MoSES, 2007b). This is mainly due to the establishment of non-university institutions (polytechnics and colleges), both in the public and the private sector. An analysis of the present network of higher education institutions (including the distribution of institutions by scientific fields and regions) was conducted in 2006. The underlying idea of the expansion is to connect tertiary education more strongly with labor market needs in smaller urban locations, develop appropriate programs for professional studies, and consequently facilitate economic growth and employment (MoSES, 2007b). In contrast to academically oriented programs, professional studies are conducted primarily at colleges or polytechnics (but might also be organized at universities). Colleges and polytechnic institutes offer tertiary level professional education, and artistic and professional training according to the needs of their local communities. Professional studies last from two to three years, and the respective degree usually requires from 120 to 180 ECTS³⁷ credits.

Private higher education is currently underdeveloped and needs to be expanded. This would provide significant opportunities for making higher education more relevant to labor market needs and increase system efficiency. At public institutions, high costs, partially due to low efficiency and low (or no) fees paid by most Croatian students, result in an under-financing of higher education, with related problems of overcrowded classrooms and inadequate physical conditions. Private social sciences programmes (in business administration, journalism, etc.) are seen as an alternative to public tertiary education. There are no operating universities primarily funded through non-governmental sources, although the Roman Catholic Church has initiated the foundation of such a university. Though the creation of private tertiary education institutions should be encouraged for the sake of quality, diversity and competition, private provision is unlikely to become the key factor in enhancing the overall tertiary education system in the near future. The capability for reform needs to be primarily generated from within the public system and in partnership with policy makers, as well as with current and potential students and the business sector (MoSES, 2007a).

The past decade has seen high increases in enrolments and in the number of university courses (though without outdated courses being terminated at the same pace). However, the increase in the number of students and institutions has not been matched by an adequate increase in the teaching personnel. During the period between 1991 and 2006, the number of enrolled students increased by over 60 percent. The gross enrolment ratio (GER), which denotes the number of students enrolled in the tertiary level of education, regardless of age, as a proportion of the population of official school age students for that level, significantly increased - from 24.6 percent in 1994 to 45.7 in 2006. The gender parity index (GPI) has also increased, from 0.98 in 1994 to 1.21 in 2006, indicating greater female participation in tertiary education.

³⁷ European Credit Transfer and Accumulation System.

Information on the connection between tertiary education and the labor market is scarce. Nonetheless, information on processes and institutional arrangements and available labor market data allow for a range of conclusions. According to MoSES (2007a), the rigidity of the tertiary education system to adapt to the needs of the economy has been subject to much criticism. The establishment of new non-university institutions suggests that these institutions may be more responsive to the needs of the labor market.. The needs of the labor market are still not systematically assessed, whereas setting of the enrolment quotas is burdened by a large degree of inertia. Furthermore, career advisory services are almost non-existent.

Enrolment policies are insufficiently influenced by labor market needs. As Babić, Matković and Šošić (2006) note, the recent growth in the number of students has occurred on the basis of quasi-market principles. Publicly financed programs have maintained a status quo or slightly declined. The increased interest in higher education has been reflected in increased enrolments of fee-paying students as well as part-time students. Croatian universities currently still do not provide career advisory services that would help facilitate the entry of their graduates into the labor market. Such centers should serve as an interface between students/graduates and the regional labor market, providing information and guidance and assisting in the development of skills necessary for successful participation in the labor market. However, given the lack of functional integration of Croatian universities and despite some recent initiatives, such centers have not yet been made operational. Complementary functions to career advisory centers could be provided by entrepreneurship centers, which would provide students with entrepreneurial knowledge, skills and competencies, as well as some incubation facilities. Some functions of such centers are provided by certain university departments (e.g. the Faculty of Electrical Engineering and Computing in Zagreb), but entrepreneurship centers have not been put on the policy agenda yet. However, in the medium term it would be more useful to mainstream innovative thinking and skills for entrepreneurship into higher education studies.

The average and median term for completion of university studies over the last decade has been over 6 years indicating a serious efficiency problem in higher education. Babić, Matković and Šošić (2006) estimated³⁸ that the total completion rate in the mid-1990s (i.e., the proportion of starting students who graduated) was only about 50 percent. In the late 1990s, it reached approximately 55 percent, and has remained at roughly the same level since, which is significantly below the level in most OECD countries. The low completion rate points not only at a waste of public resources but also at a waste of human capital. Enrolling a student in higher education is a promise that the university makes, namely that if the student works reasonably hard towards a degree, the university will provide the resources and conditions to make it possible for the student to graduate during the envisaged time period. Currently, Croatian higher education institutions are not keeping this promise. Given the distinct importance of higher education for economic growth and competitiveness, this has serious implications for Croatian society and the economy.

Higher education in Croatia is currently under-funded as compared to European benchmarks. The share of higher education expenditures in terms of GDP is below 0.9 percent, and it remains well under the EU average (1.3 percent in 2007). Public universities, polytechnic schools and colleges are predominantly financed from the state budget³⁹, with income from tuition fees and to lesser extent R&D complementing state funding. There are, however, no reliable comprehensive data on higher education funding. Bajo (2006) estimated that the budgetary allocation per student varies between HRK 17,000 and HRK 40,000 per annum, whereas higher education institutions' allocation per student varies between HRK 7,000 and HRK 23,000 per annum. Recently, the University of Zagreb reported that it covers almost 50 percent of current expenditures through other sources than state allocation, also claiming that increased financing from the state budget would have enabled the University to invest a larger proportion of that

³⁸ Completion rate has been calculated by comparing the number of persons who graduated from institutions of higher education with the number of students enrolled six years earlier (Babić, Matković and Šošić 2006).

³⁹ The state budget can also be used to co-finance private higher education institutions, but in general that does not happen.

income into research and development (Bjeliš, 2008). However, establishing reliable aggregated data poses challenges, as budgets are established at faculty level and income streams are not always transparent at this level.

The lack of system efficiency is related to another major challenge of the Croatian higher education system, namely, the lack of integration of faculties, in particular at the largest university, the University of Zagreb. Accounting for more than half of the total number of students enrolled in the country, the University of Zagreb has a strong signaling function for the entire education system. Though the Higher Education Law foresees the integration of faculties, this proposal is mired in uncertainty, as there is a pending decision of the Constitutional Court on the question of whether an integrated university is anti-constitutional. Various European evaluations and peer reviews have pointed out that legally autonomous faculties are not only out of step with European developments but also hamper reform progress and responsiveness of the higher education system. Universities that possess no authority over individual faculties have difficulties reforming their governance and management, introducing flexible and performance-based funding systems, nurturing interdisciplinary research, suspending obsolete fields of study and introducing efficiency measures.

Way Forward

Without legal integration of universities, a reform of the funding system of higher education might be less effective and more likely to fail, as the central level of the university will not be able to deploy resources strategically in order to shape the profile of the university and transform it into a modern academic institution in line with good European practice. It has to be noted that Croatia is lagging behind with regard to these crucial issues as compared to some of its neighbors in South-Eastern Europe, where this crucial reform is already under way.

Improving the responsiveness of the educational system to labor market needs requires, among other things, better labor market information. This includes information on the demand for various skills and occupations, and information on the performance of various schools as regards the labor market prospects of their graduates. Specifically, the following information should be collected and widely disseminated to all stakeholders (students, educational and training authorities, jobseekers, vocational counselors):

- Information on occupational trends, including wage rates, employment, unemployment and job vacancies.
- Information on labor market status of graduates of different types of schools, including job placement rates and wage rates.

On the positive side, governance and management of universities have more recently profited from the creation of University Advisory Boards. The participation of employers is foreseen for this type of advisory body. This might open up a significant potential for making higher education more labor market relevant and for introducing efficiency measures at higher education institutions. A university may also have other expert and advisory bodies. The management of some of its operations may be assigned to a managing director or a management board. The main decision-making body, however, remains the Senate which comprises representatives of teaching staff (which have a majority), other employees and students. The University Board members are appointed by the Senate (half of them, with at least one student), central and local government and the Croatian Chamber of Economy. There is no data on the extent to which this external participation already influences the decision making processes.

Additional financial resources will need to be acquired to support reform processes aimed at enhancing the quality of higher education. Also, universities should aim at further diversifying their income streams in line with good European practice. Other major financing challenges include insufficient transparency of resource allocation, challenges posed by an unbalanced education budget (e.g. focus on salaries) and low capability to undergo a systemic change. There is a lack of medium and long-term planning and strategic investment targets, as well as insufficient flexibility to reallocate when necessary.

Further, there are no adequate management information systems on assets owned or used by particular institutions, which could provide a basis for investment strategies and resource allocations. Croatian universities will need to establish full-economic cost approaches in order to compete under EU Framework programs in the future; however, currently not even the preconditions of full-economic cost approaches are met in terms of data collection and transparency. If these issues are not addressed, Croatia will be cut off from an important funding source for research in future.

Indicators and accordingly an incentive system, on which budget allocations are based, need to be further developed. Currently, the Council for Financing Scientific Activity and Higher Education defines the criteria for allocating budget funds for scientific activity and higher education, and proposes them to the National Council for Science and the National Council for Higher Education, which then determine the final criteria. MoSES collects draft budgets from tertiary education and research institutions and makes a draft overall budget. The Council for Financing Science and Higher Education submits it to the National Council for Science and the National Council for Higher Education together with its opinion. These bodies approve the final proposal for the allocation of funds and deliver them to the Minister. This rather complicated process, however, does not guarantee that higher education funding develops into the efficient steering instrument that it has become in countries like the UK or in various German states where transparent funding formulas have been developed which place a greater emphasis on outcome indicators and innovation.

The Bologna Process has the potential to be an important and comprehensive set of reform tools. It will, however, not solve problems of efficiency, funding and governance, if accompanying reform measures are lacking. There are still no comprehensive data on results of the implementation of the Bologna Process in Croatia. Initial information indicates that substantial efforts have been invested in institutional and curricular reform. These efforts have often not been accompanied by appropriate changes in resource allocations (e.g. facilities, lecturers, and additional funds for specific projects), or by procedural and behavioral adaptations to new conditions in some higher education institutions, their lecturers and students. After two years of Bologna implementation, disappointing numbers of students passed all exams and earned 120 ECTS credits; the results vary from 10 percent of engineering students to 79 percent of students in the area of biomedicine⁴⁰.

Lifelong Learning

Lifelong learning has been tackled mostly through adult education policies. This is a rather restrictive approach, as it underestimates the importance of learning-to-learn and related competences in early years and throughout all education levels. The policy focus has been on a social-inclusion approach (which mainly targets those with unsatisfactory initial experience of education and training), coupled with public espousal of lifelong learning (i.e. changing traditional assumptions about the division of life into distinct phases of learning, working and retirement).

Some policy emphasis has been given to retraining of the unemployed (through active labor market policy measures - mostly through projects conducted by the Croatian Employment Service) and recapturing those who dropped out of the education process without completing primary and/or secondary education. Upgrading of competencies of those already employed has largely been left to employers and employees. Other forms of education, which may not have direct economic benefits, but promote quality of life and human well-being (including education for senior citizens), have largely been neglected or left to private initiative. In the medium term, it will be important to move away from the current narrow focus on adult education and develop an overarching lifelong learning approach. This should go hand in hand with a public awareness campaign and development of a lifelong learning strategy for Croatia.

⁴⁰ Based on analysis by Pero Lučini and reported in 'Zakazao novi model: krah Bolonje' by Ivana Kalogjera in *Jutarnji list*, 15 March 2008, pp 4-5.

In 2004, the Strategy for Adult Education and the corresponding Action Plan were adopted by the Government. Their main objectives were to create the legal and professional prerequisites for establishing adult education as an integral part of the education system, to facilitate the development of organizational, human and financial resources, and to address individual learning needs as well as those of the labor market and wider society. Despite a thorough analysis and many well-designed measures, their implementation has been rather slow and partial. The development of institutional prerequisites was continued by the establishment of the Agency for Adult Education (AAE) in 2006. The Adult Education Act, adopted in February 2007 and complemented by adoption of the Act on State Aid to Education and Training later that year, includes implementation of vertical mobility (i.e. integration of adult education into the education system, which should enable persons who dropped out or who wish to continue their education to re-enter the system and receive primary, secondary or tertiary qualifications).

A system of incentives aimed at motivating employers, employees and the unemployed to engage in adult education programs as participants and/or (co-)financiers has recently been developed. There are now several related programs which are in operation or have been introduced recently. Some incentives have also been provided through active labor market policies. Supporting measures to the provision of training by the enterprise sector were provided under the 2007 Act on State Aid to Education and Training, as follows:

- Large employers receive tax credits of up to 50 percent of eligible costs of general education and training and up to 25 percent of eligible costs of specific education and training;
- SMEs' tax credits correspond to 70 percent of costs (for small) and 35 percent (for medium sized enterprises);
- Entrepreneurs which are entitled to regional state aid can increase tax credits for training by up to an 10 additional percentage points;
- Special provisions regulate the education of employees in an unfavorable position (first time job seekers, long-term unemployed, persons with disabilities etc.), whose education costs reduce the tax obligations of their employers by an additional 10 percentage points.

Additional subsidies are provided to entrepreneurs who provide vocational training, and to shipping companies. According to the National Employment Facilitation Plan for 2007, employers receive subsidies for education of their employees (for up to 9 months). When it comes to acquisition of general skills by the newly employed or those at risk of losing their job, the subsidies are up to 70 percent for SMEs and up to 50 percent for large enterprises; they also cover a part of the employee salary equal to the minimal unemployment benefit. In the case of specific skills training, the subsidy is up to 35 percent (SMEs) and up to 25 percent (large enterprises); subsidies also cover a part of the employee salary equal to the minimal unemployment benefit.

Despite the existence of these incentive schemes, only a small minority takes up the opportunities they create. In 2007, just 793 individuals took advantage of the above measures. Under an additional program, the Croatian Employment Service covers the costs of education and training (and provides unemployment benefits) of widely defined target groups of the unemployed – all long-term unemployed above 25 years of age, those below 25 years who have been unemployed for 6 months (or who have registered within 90 days after completing their education), those willing to accept seasonal work or jobs in construction and shipbuilding, and different vulnerable groups or persons with special needs. These measures encompassed a further 2960 participants in 2007.

Croatia needs to strengthen its LLL system, drawing lessons from successful examples in other European economies. The above analysis points to three key directions in which Croatia's LLL system can be enhanced with ensuing long-term benefits for labor productivity and growth: (i) developing a LLL Strategy encompassing all forms of learning (as opposed to be just adult education as is currently the case);

(ii) increasing participation in adult education; (iii) involving employers (as well as students and graduates) in the governance of VET and HE institutions.⁴¹ In addressing these three main challenges, the Croatian Government could draw on lessons from European good practice, as outlined below in Box 3.3.

Box 0.3: European Examples of Good Practice: Finland and Ireland

It could be useful for Croatia to consider the experience of European countries which have embedded lifelong learning principles in a variety of education policies. Finland and Ireland provide two examples for such a development. In Finland, annually 23.1 percent of the working age population participates in lifelong learning measures, which also extend to pensioners. In the state budget about 13 percent of the Ministry of Education's expenses go to adult education, but the majority of training is financed by employers (Tahvainen, 2006). In Ireland, the participation is somewhat lower (7.5 percent) and the policy focus is predominantly directed at the labor market outcomes (cf. EIS, 2008). Further study of recent Slovenian experience with adult education might also be beneficial.

Key lessons from the Finish and Irish experience are the following:

First, access to lifelong learning and competence acquisition should be simple, cost-effective and adapted to individual needs. That is particularly important in the case of people with insufficient or outdated education and training, or those who need to update their vocational qualifications. Finland (MoE-FIN, 1999; Tahvainen, 2006) lowered the threshold to adult education and training by means of individual study programs of reasonable length built on prior learning and experience. Persons already active in working life are given opportunities to study towards competence-based qualifications that have gained approval from the labor market. A system has been developed of competence-based qualifications that are independent of the way in which knowledge and skills have been acquired. The opportunity to build education and training on prior learning has shortened study times in adult education in Finland by more than one third. Information, individual guidance, personal study plans, study guidance and mature students' financial aid have been developed to encourage adults to apply for education and training and to complete their studies. Study times are kept at a reasonable level to prevent the length of study from becoming an obstacle. Furthermore, unemployment benefits are tied to training.

Second, courses and qualifications are organized in a flexible and modular way, which brings them closer to the needs of individual learners. Adults are given opportunities to study for vocational qualifications or specialist qualifications, or parts thereof, and for other studies which improve their employability and their capacity for further learning. Particular attention is given to those who dropped out, including those who discontinued their tertiary education, who are given opportunities to continue their studies. The modular delivery needs to be supplemented with flexible hours and forms of delivery, as well as by ensuring equity of treatment of different groups of students. Open and distance learning can ameliorate some of the geographical and time barriers faced by many potential learners. Supporting institutions have also been developed. The system of public libraries in both Ireland and Finland has provided valuable support to learners. In the Irish case, the libraries have been supporting adult learners through the bridging of information gaps, supporting distance learning, enhancing literacy and ICT skills, providing information resources, materials and study spaces, as well by developing linkages with business, education and training sectors and the community in general (TF-IRL, 2002).

Third, a variety of governance and financing mechanisms is used to facilitate access to lifelong learning and design it in accordance with the needs of employers and employees. Under one model, for instance, training is tailored to the needs of the employer. It is used in cases of recruiting new labor force, development of personnel vocational skills, restructuring or liquidation of a business, as well as in cases when individual employability needs to be improved. This training is planned, implemented, purchased and financed together by the employer and the Labor Administration (Tahvainen, 2006). The Labor Administration usually finances no more than 50 percent of the purchasing costs of the training, which is implemented by authorized education institutions. In a second model, the use of study vouchers has been piloted as a useful mechanism for training which is not initiated and financed by the employer. The use of such instruments is also considered for university-level continuing education. In a third example from Ireland, the pilot Training Networks Program has made a strong contribution to in-company training.

⁴¹ The results of these measures, however, will inevitably take some time to materialize. In such a context, the attraction of highly skilled migrants would be beneficial, especially in sectors in which such workers are in demand. Nevertheless, no overarching migration policy exists.

Some 456 courses (most of them new or significantly upgraded) were delivered to over 2,300 companies and 12,800 participants. The program has had significant impact on encouraging SMEs to invest in training. About 73 percent of the participating companies had less than 50 employees and 38 percent of companies had less than 10 employees (TF-IRL, 2002).

Fourth, in Finland lifelong learning is used not only in relation to labor market needs, but also to enhance civic activity, community education, social dialogue and basic information society skills. Educational services will be increasingly targeted at the retired population in accordance with the principle of lifelong learning.

Despite the high effectiveness of lifelong learning in Finland, it has also been observed that those who already are better educated are most likely to participate in further education. Consequently, the most difficult challenge is reaching the poorly educated and those at the biggest risk of unemployment and social exclusion and including them in lifelong learning. In Ireland, particular attention is given to 'non-traditional learners' including the poorly educated, older, unemployed or economically inactive citizens, as well as those working in small companies and belonging to lower occupational groups

Source: Staff Elaboration.

INCREASING TOTAL FACTOR PRODUCTIVITY

In order to understand the different components of Total Factor Productivity (TFP) in Croatia, the report looks at two different dimensions of efficiency:

- *Allocative efficiency* covers the extent to which the most productive firms account for a relatively larger share of total output).
- *Technical efficiency* concerns the extent to which the best technique available is being used by the existing firms.

These two dimensions are complementary and equally important, but the reallocation of resources (allocative efficiency) is at the core of the process of economic transformation in transition economies. In the case of Croatia, the importance of advancing structural reforms in order to enable the completion of this process of reallocation of resources is at the core of the recommendations of the *2003 Country Economic Memorandum (CEM)* and of the *2006 Living Standards Assessment (LSA)*.

Decomposition of Aggregate Productivity: allocative efficiency and average productivity

This report adopts a cross-sectional decomposition of productivity growth developed by Olley and Pakes (1996) as defined below:

$$P_t = (1/N_t) \sum_i P_{it} + \sum_i \Delta\theta_{it} \Delta P_{it}$$

where N is the number of businesses in the sector and Δ is the operator that represents the cross sectional deviation of the firm-level measure from the industry simple average. The simple interpretation of this decomposition is that aggregate productivity can be decomposed into two terms involving the unweighted average of firm-level productivity plus a cross term that reflects the cross-sectional efficiency of the allocation of activity. The cross term captures allocative efficiency because it reflects the extent to which firms with high productivity have a greater market share. This simple decomposition is very easy to implement and essentially involves measuring the unweighted average productivity vs. the weighted average productivity.

Decomposition of aggregate productivity shows the low contribution of allocative efficiency to aggregate productivity, pointing to a major untapped source of growth in Croatia.⁴² That means that more productive firms do not command a relatively larger share of output in Croatia, as would be expected in a well-functioning market economy. International comparison indicates that the contribution of allocative efficiency is much lower in Croatia than in some comparator countries, such as India and Brazil for example, where an import substitution regime had created a significantly protected economy by the 1980's which was subsequently exposed to greater competition.

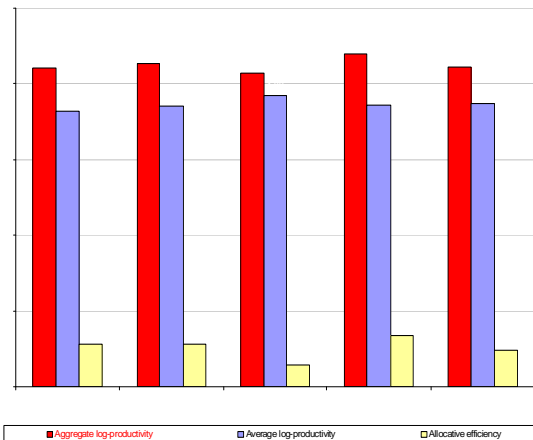
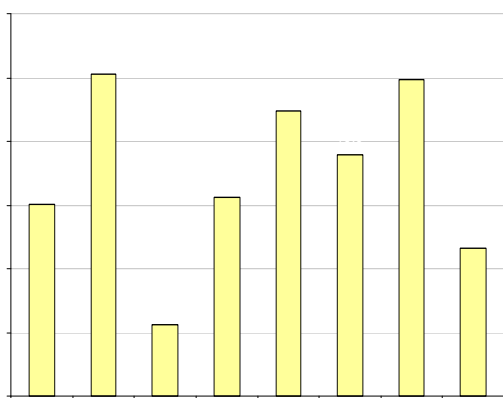
The finding on the low contribution of allocative efficiency in Croatia is found to apply whatever the size and age category of firm, the region, and the industry. This said, some parts of industry show this result to a heightened degree. Thus, the machinery and equipment sector; the size class of medium-sized enterprises; and the *Istra* region present the lowest contributions of allocative efficiency within their respective categories. Another important result is that allocative efficiency appears better in those regions and sectors

⁴² Based on Olley and Pakes decomposition.

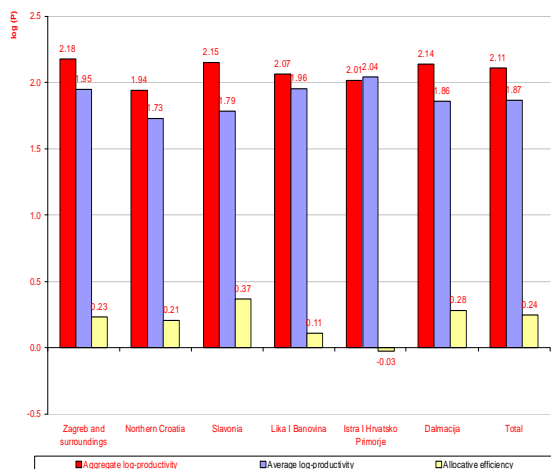
where the average technical efficiency is lower, and vice versa. As a consequence, the effect of the allocation mechanism in aggregate productivity tends to zero as the average technical efficiency increases.

Figure 0.1: Productivity decomposition by industry, region and size: mixed Olley and Pakes

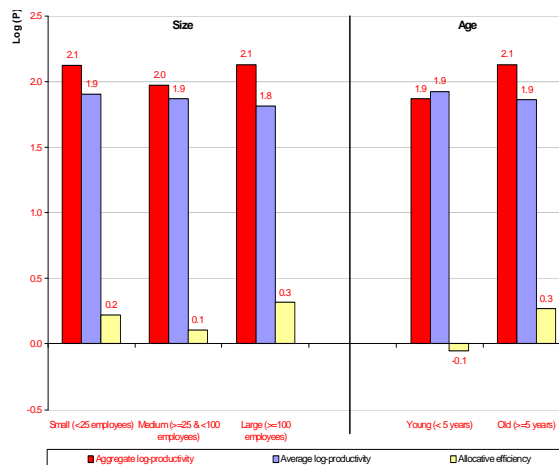
a. *International comparison: share of allocative efficiency in aggregate log-productivity*



c. *Region*



d. *Size and Age*



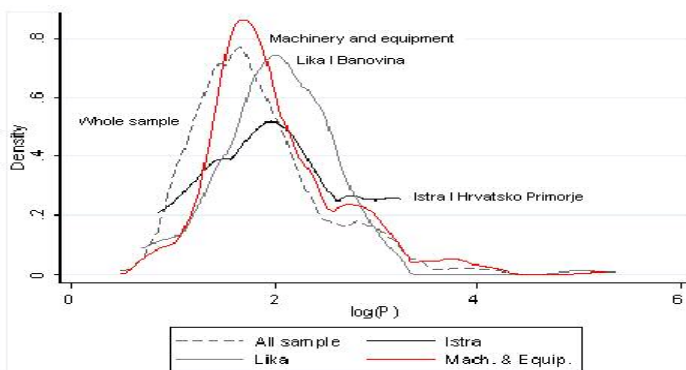
Source: *Escribano et al 2007.*

Empirical evidence suggests that the low contribution of allocative efficiency to aggregate productivity is caused by the fact that higher productivity firms do not necessarily command a higher share of total output. At a purely theoretical level, the result that the effect of the allocation mechanism in aggregate productivity tends to zero as the average technical efficiency increases could be a consequence of two different causes: i) there is homogeneity either in the productivity or in the market share distributions (i.e., all firms exhibit similar levels of technical efficiency and/or market shares); or ii) there are high productivity differences but the output is imperfectly allocated according to the level of efficiency of the firms. In practice in the case of Croatia, the evidence points to the second explanation: the inadequacy of resource allocation (the alternative hypothesis of homogeneity of enterprise productivity is difficult to sustain in a world where large TFP differences are frequently observed even in narrowly defined industries and where market distortions prevent resources from being adequately allocated).⁴³ Note that in those

⁴³See Baily, Hulten and Campbell, 1992; Restuccia and Rogerson, 2007 and Hsieh and Klenow, 2007.

sectors and regions where the average technical efficiency is larger—e.g. machinery and equipment, Lika i Banovina or Istra—, the allocation effect is even worse. As the estimated “kernel” densities of productivity in Figure 0.2 indicate, the average of the productivity distribution in the case of the machinery and equipment, *Lika i Banovina* or *Istra* are all larger than for the case of the whole sample of firms. In addition, as discussed above, there is a marked

Figure 0.2: Kernel estimates of productivity densities



Epachenikov weighted kernel of restricted Solow residual in logs.

Source: staff calculations with ICS data

dispersion of productivities in all the cases, especially in *Istra* and in the machinery and equipment sector.⁴⁴ In the case of young firms specifically, the effect of the allocation of resources is even more marked than in the other cases. Although slightly more efficient on average, the negative allocative efficiency term for young firms reflects that resources are being allocated inefficiently among them—less productive young firms are using more resources than more productive young firms, suggesting clear inefficiencies in the process of entry and exit, as production concentrates in the less efficient young firms.

The corollary of the previous analysis is clear: the creative destruction mechanism which is at the core of the development process has yet to be unleashed in Croatia. The efficiency of the average establishment (i.e., the technical efficiency as we defined it above) matters, but the ability of the markets to allocate resources to more efficient establishments (also known as Schumpeterian competition) would magnify the impact of these average gains in aggregate productivity. The productivity distributions of Figure 0.3 show that there is great heterogeneity in productivity across plants. The productivity distribution is asymmetric and less spread when compared with a standard normal. However, more important is the fact that the productivity distribution in Croatia is ‘*bi-modal*’, with most of the density mass of productive capacity displaying low and average values of productivity—such as those shown in regions A and B in Figure 4.3 below—, and with another smooth and smaller density peak in region C, representing relatively high productivity firms. The remaining density is in regions D and E, comprising a small number of highly productive plants. Therefore, in Croatia low and average productivity firms coexist with a smaller group of highly productive plants. Potentially, this provides an opportunity for raising aggregate productivity by i) bringing the technical efficiency of less productive firms closer to those in regions C, D and E; and ii) reallocating resources across plants (see Figure 0.34).

⁴⁴ Kernel density estimation is a non-parametric way of estimating the probability density function of a random variable..

Figure 0.3: Kernel estimate of log-productivity density

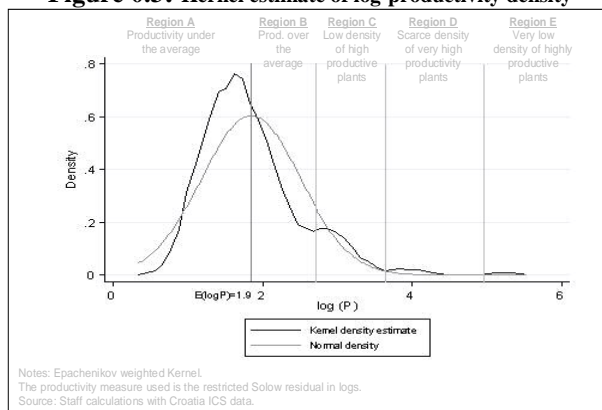
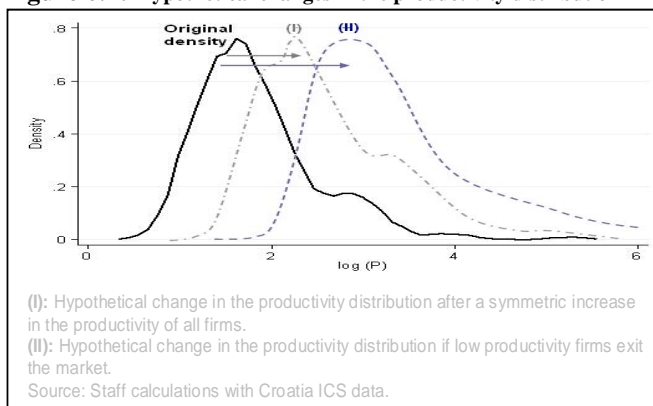


Figure 0.4: Hypothetical changes in the productivity distribution



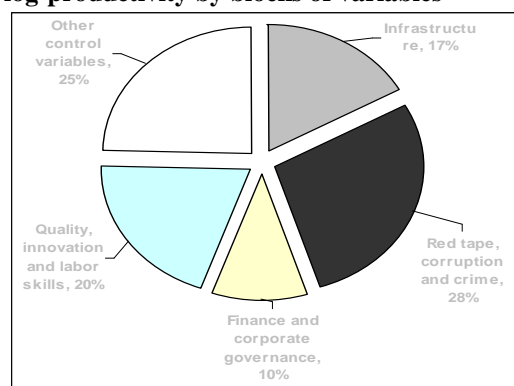
Note: Scenario (I) represents a hypothetical increase in the technical efficiency of all plants, including those in regions A and B. The direct consequence of such an increase is an almost symmetric displacement of productivity density towards the right. In scenario (II), the less productive businesses in regions A and B exit the market, leaving only those from regions C, D and E; the productivity distribution moves towards the right to a greater extent than in scenario (I), and now the lower level of productivity in the population is that of firms from region C. While the increment of aggregate productivity in scenario (I) comes virtually only from the increment of the average productivity, scenario (II) further improves aggregate productivity through a better reallocation of resources. After inefficient plants of region A and B leave the market, the remaining establishments gain market share. Consequently, all those resources released by the exiting firms can now be used by more efficient plants, which translates to welfare gains for the economy as a whole.

Source: Staff Elaboration.

The part of aggregate productivity that is influenced by the investment climate is large and positive in Croatia.

Croatia's "demean log-productivity"⁴⁵ is similar to that of Mexico and South Africa, in terms of the average log-productivity (technical efficiency) and allocative efficiency effects, and that of Brazil in terms of average log-productivity. As compared with other countries, Croatia's investment climate influences *aggregate* log-productivity mainly through *average* log-productivity with an almost negligible effect on the *allocative* efficiency. Out of the total effect of the investment climate on productivity, 87 percent could be attributed to average log-productivity and the remaining 13 percent to the allocation effect.

Figure 0.5: IC absolute weights on aggregate log-productivity by blocks of variables



Source: Escribano et al (2008)

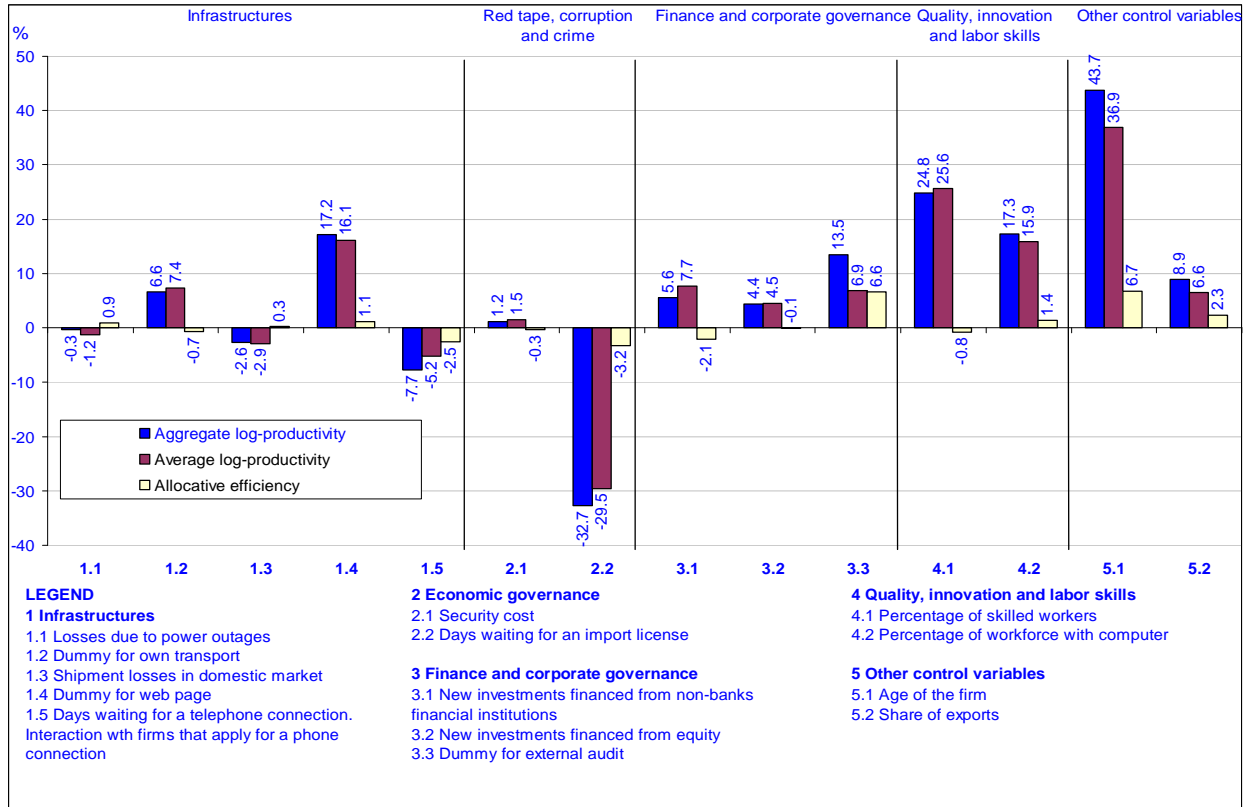
Empirical evidence suggests that (a) red-tape, and (b) skills and technology are the groups of investment climate variables with the largest influence (negative or positive) on aggregate productivity. Jointly, these two groups explain almost 50 percent of the total variation in productivity at firm level. Infrastructure variables account for an additional 17 percent, and finance and corporate governance factors for a further 10 percent (Figure 4.5). Within the main two groups -- "days to obtain import license"; "the share of skilled-workers" and the "share of workers with computers" and "staff with computer" are the most relevant factors. The contribution of infrastructure is spread among five different factors ("availability of web-page"; "availability of own transportation"; "losses to shipment in domestic market"; "days waiting for a phone connection" and "losses due to power outages"). In the case of finance and corporate governance, the main effects on firm-level productivity come from "new investment financed by non-bank financial institutions"; "new investment from equity" and "dummy for external audit" variables.

⁴⁵ Demean log-productivity is defined as the share of productivity explained or influenced by the investment climate (it is measured in logarithm terms).

Important nuances in terms of the channels through which individual investment climate variables affect aggregate productivity were also identified. The contribution of the “days waiting to obtain an import license” to average productivity is -32.7 percent, while this variable’s contribution to allocative efficiency is -3.2 percent, indicating that the negative effect on productivity is slightly biased towards low market-share firms. The contribution of the “share of skilled workers” to average log-productivity is 24.8 percent, with the negative effect on allocative efficiency (-0.8 percent) subtracted from the effect on the average, indicating that the positive effect of skilled workers is shared by all the firms in the sample. The contribution of the variable “workforce with computer” also occurs mainly through the average effect (15.9 percent out of 17.3 of its total contribution). The allocative effect, however, is more important for the variable “dummy for external audit”: having the annual statements reviewed by an external auditor is positively associated with aggregate log-productivity (13.5 percent) but the largest contribution comes from the allocation effect (6.6 percent). That is, as the positive effect of the external audit is mostly concentrated in firms with a large share of sales, the overall effect on aggregate log-productivity is considerably amplified.

Policies to raise aggregate productivity in Croatia should address both factors hindering market dynamism and investment climate factors reducing technical efficiency. By focusing on the investment climate factors with the largest contribution to technical efficiency, policy-making could potentially contribute to raising aggregate productivity in Croatia. The results obtained by this report confirm the existence of large productivity gains to be obtained by improving the use of resources intra-firm, and thus the possibility of raising aggregate productivity without necessarily altering the distribution of total output in favor of more efficient firms (the process of enterprise catch-up to the industry’s “best-practice”). Yet, by simultaneously increasing the share of more efficient firms in total output (allocative efficiency), policy-makers could further augment the magnitude of the impact of such measures. In this sense, increasing aggregate productivity in Croatia would also require addressing the factors that are hampering market dynamism, also known as the process of creative destruction, within Croatia.

Figure 0.6: Investment Climate contributions to aggregate and average log-productivity



Note: Contributions net of any other factor different than IC variables. The contributions to aggregate log-productivity add up to 100. The productivity measure used is the restricted Solow residual, see the appendix on econometric methods for more details.

Source: Escribano et al (2008)

A. IMPROVING ALLOCATIVE EFFICIENCY IN CROATIA

What is hindering allocative efficiency in Croatia?

Incomplete Corporate Restructuring

One factor hindering allocative efficiency in Croatia is the incomplete state of corporate restructuring. This report evaluates recent evidence based on gross job flows in order to assess recent Croatian experience with corporate restructuring. The overall findings support the view that a slowdown in corporate restructuring has been taking place during this decade. Gross job flows show that recent employment growth resulted primarily from a lower rate of job destruction than in the 1990's, with new job creation increasing only slightly. Also, jobs are now churning between more similar enterprises than was the case in the 1990's. Therefore, all the measures used confirm that less corporate restructuring has been taking place during the last decade in comparison to the 1990's, despite the still strong state presence in the economy, which might point to continued scope for restructuring.

As a group, *de novo* private firms have been the only ones adding jobs on balance (Table 4.1). These firms have contributed almost 3 new jobs annually for every 10 of their existing jobs, offsetting net job destruction in all other firms. This growth almost quadrupled the share of *de novo* firms in total employment during the period under observation, as they reached close to half of total employment in reporting firms by 2004. The organic growth of these enterprises was the only source of net additions to the total employment.

Table 0.1: Net job creation by ownership (in %)

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Communal etc.	-3,4	0,1	1,6	-1,0	-1,2	-0,8	-0,1	-1,5	-5,1	0,3	0,5	0,4	0,6
In privatization	-6,2	-9,0	-10,2	-5,5	-8,6	-5,7	-18,5	-3,2	-4,5	-2,3	-1,1	-7,5	1,4
Privatization not started	-3,4	-11,9	-1,3	-4,7	-1,9	-5,0	-5,5	-0,5	-0,1	2,0	-0,5	-0,2	-2,5
De novo	22,2	12,0	11,6	10,3	7,5	2,8	3,8	8,3	8,8	7,8	5,9	5,4	7,4
Privatized	-7,1	-7,8	-7,1	-8,4	-6,2	-7,3	-4,5	-3,8	-1,2	-3,3	-3,0	-2,6	-0,8
Cooperative	-7,4	-7,4	-13,6	-9,2	-8,0	-9,2	-8,9	-7,0	-2,3	0,3	-0,2	1,3	0,6
Mixed – majority pr.	-6,7	-6,2	-11,6	-6,2	-4,7	-6,6	-0,7	-5,7	-1,9	-4,1	-1,7	-1,6	-0,6
Mixed - majority st.	-9,1	-11,2	-10,8	-14,6	-6,4	-5,7	-4,2	-4,9	-5,6	-4,6	-4,4	-1,4	-2,4
<i>Total - state ownership</i>	0,6	-0,9	-1,3	0,0	0,6	-2,1	0,6	2,4	4,4	3,4	3,0	2,9	4,8
<i>Total - private ownership</i>	-6,3	-6,5	-4,9	-6,9	-3,6	-3,2	-2,7	-2,4	-4,9	-0,8	-0,8	-0,3	-0,7
Total	-2,8	-3,3	-2,7	-2,4	-0,8	-2,5	-0,4	1,1	2,1	2,3	2,1	2,2	3,7

Source: Susic (2008). Background paper.

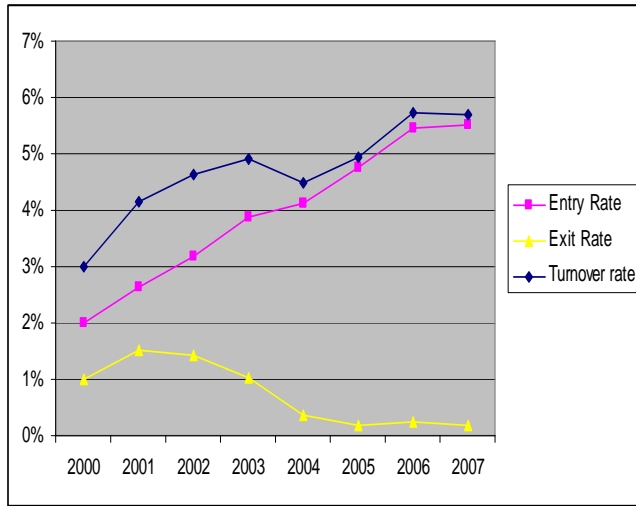
Privatized enterprises have been reducing their employment levels at roughly the same pace as state owned enterprises (SOEs). For each two new jobs added, privatized firms destroyed about five jobs, eroding their employment at a similar pace as that in SOEs. If privatization had any benefits for those enterprises, they would have to be observed in other indicators, such as increased productivity, and not in the magnitude of new jobs added. Attrition of jobs in the government sector was slow during the whole observed period, although the process kept up its momentum until just before the end of the observed period. The decline of total employment was spread over a long period of time due to a slow employment adjustment in the SOEs and privatized enterprises, and the long time needed for the new private sector to create jobs.⁴⁶ We interpret this result as an indication of a lack of market discipline (competition) and appropriate enforcement of ownership and corporate governance. In the next section we will further examine product market regulation in Croatia as well as the corporate governance regime in the country.

Limited market discipline may also be seen in the current rates of firm entry and exit. Croatia's turnover rate has been increasing due to the rising entry rate but is still below the regional average. Firm turnover has increased from 3 percent in 2000 to 5.7 percent in 2007. The increase is accounted for solely by a steady rise in entry rates from 2 percent to 5.5 percent over the same period, as the exit rate decreased from a high point of 1.5 percent in 2001 to 0.2 percent in 2007⁴⁷. The dynamic of Croatia's turnover rate closely resembles that of Greece, but differs greatly from the regional one. Romania, Slovenia, Bulgaria and Turkey are all characterized by a turnover rate of above 10 percent between 2000 and 2007. In 2007, Croatia's turnover rate was 5.7 percent, whereas those of Slovenia, Bulgaria, Romania and Turkey were 13, 15.3, 16 and 18.3 percent, respectively.

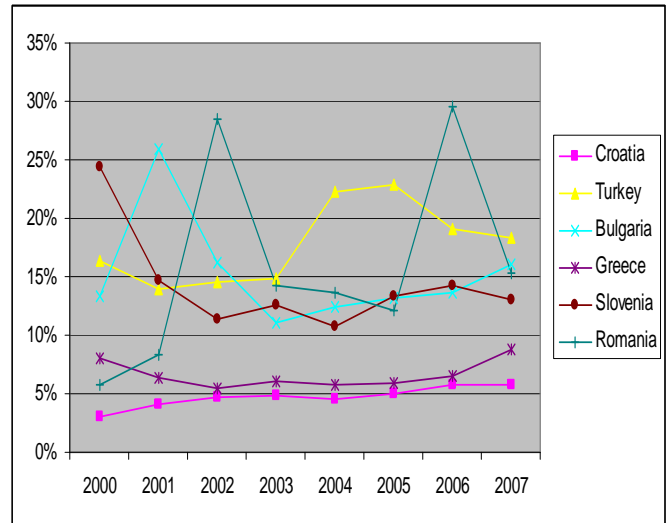
⁴⁶ Šošić V. (2008) Corporate Restructuring in Croatia: Source of Dynamism or major drag of Economic Growth? Background Paper.

⁴⁷ Source: World Bank, Entrepreneurship Survey 2008

Figure 0.7: Firm Turnover in Croatia



Source: Staff Elaboration



Large Agricultural Employment and Low Productivity

Another factor hindering allocative efficiency is the still large share of employment in agriculture. The percentage of the Croatian workforce employed by the agricultural sector is high by European standards. In 2007, agriculture employed over 14 percent of the country’s workforce, in spite of contributing less than 7 percent to the national income. By comparison, services, accounting for 62.6 of gross value added (GVA), employed 56.3 percent of the total workforce, while industry, which accounted for 23.5 percent of the GVA, employed 20.9 percent of the workforce. The share of the workforce involved in agriculture is more than twice the average for countries in Europe and Central Asia, and four times the EU-15 average. Of the EU-27 countries, only Romania and Poland have a higher percentage of the

Figure 0.8: Share of gross value added by agriculture in the national GDP, 2006

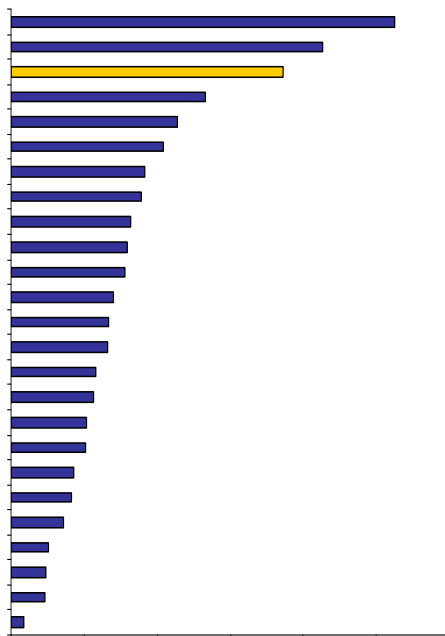
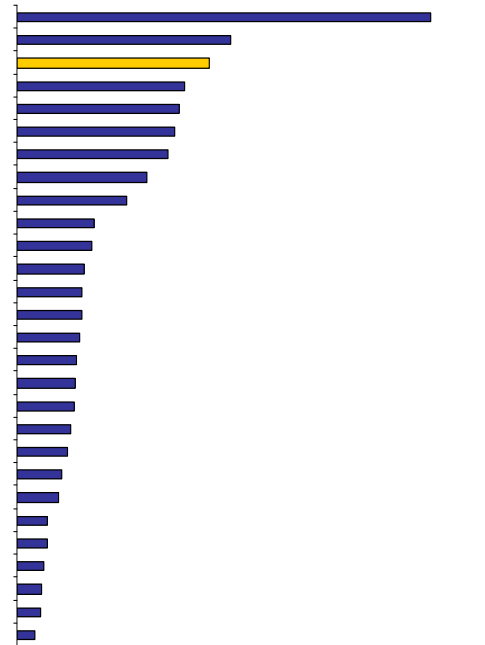


Figure 0.9: Employment in agriculture (percent of total civilian employment), 2006



Source: World Bank, DDP <http://ddp.worldbank.org>, Eurostat (Community Labor Force Survey - LFS).

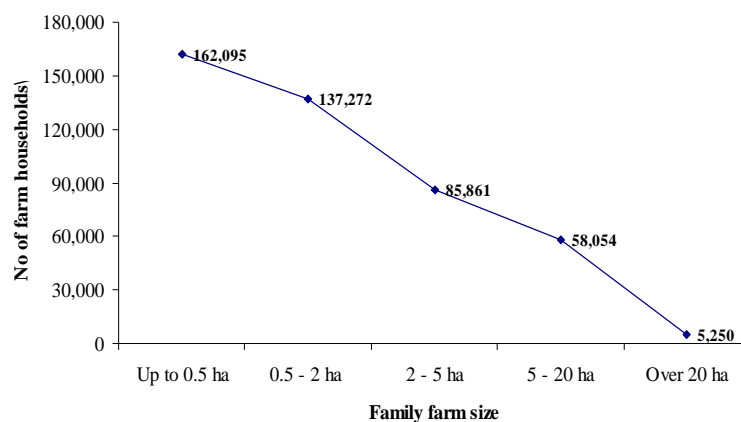
population working in agriculture. It is noteworthy that the United Kingdom, where agricultural land accounts for 70.1 percent of the total land, in excess of Croatia's 48.2 percent, has only 1.4 of its total civilian workforce working in agriculture⁴⁸.

Agriculture plays a more important part in the economy of Croatia than in EU-member countries. In 2007, agriculture accounted for over 7 percent of Croatian GDP, close to the average for the (Eastern) Europe and Central Asian region. By comparison, within the EU-27 it contributed only 3.1 percent to national income, and only 1.9 percent within EU-15 countries. Of the EU-27 countries, only Romania and Bulgaria have larger agricultural sectors, making up 10.5 and 8.5 percent of their national GDP, respectively. Croatia is more agrarian than the group of upper middle income countries, where agriculture accounts for 5.7 percent of GDP on average.

Yet Croatia's agricultural production is less efficient than those of the OECD and EU-15 countries. In 2005, the value added per agricultural worker in Croatia was 10,929 USD (constant 2000 USD). Croatia's performance on this indicator was better than the average for the upper middle income countries, the (Eastern) European and Central Asian countries, and the recent EU members. However, it lagged far behind the EU-15 countries (with the exception of Greece and Portugal), and the OECD countries, which reported an average value added per agricultural worker of 29,275 and 29,223 USD respectively.

Low agricultural productivity in Croatia is to a considerable degree due to highly fragmented land ownership. The 449,000 farm households in Croatia, which between them own 80 percent of all the privately-owned utilized farm land, have an average holding size of just 1.9 ha. The remaining utilized land belongs to some 1,364 commercial farms, which cultivate on average 159 ha of land each⁴⁹. Only 1 percent of family farms are larger than 20 ha in size. Most private farmers are restricted to subsistence agriculture and cannot participate in the commercial production necessary to compete in today's globalizing world. This leads to migration and the abandonment of farmland, especially in areas distant to markets. Inheritance laws are a major reason behind the high fragmentation of private land ownership. Croatian inheritance laws do not contain restrictions on splitting up farms between heirs, even if the ensuing land plots thereby become economically unviable. In EU-27, the countries with the highest per worker productivity, such as France, Denmark, Sweden and Luxembourg, are characterized by a less fragmented pattern of land ownership⁵⁰.

Figure 0.10: Distribution of family farms according to size of agricultural land



Source: CBS, Agricultural Census, 2003

http://www.dzs.hr/Eng/censuses/Agriculture2003/census_agr_tabl.html

A large portion of the agricultural land still remains in state hands and there are large portions of unutilized land. Out of a total 2.7 million ha of agricultural land, 0.89 million ha (33 percent of the total)

⁴⁸ World Bank Statistics, DDP

⁴⁹ CBS, Agricultural Census, 2003 http://www.dzs.hr/Eng/censuses/Agriculture2003/census_agr_tabl.html

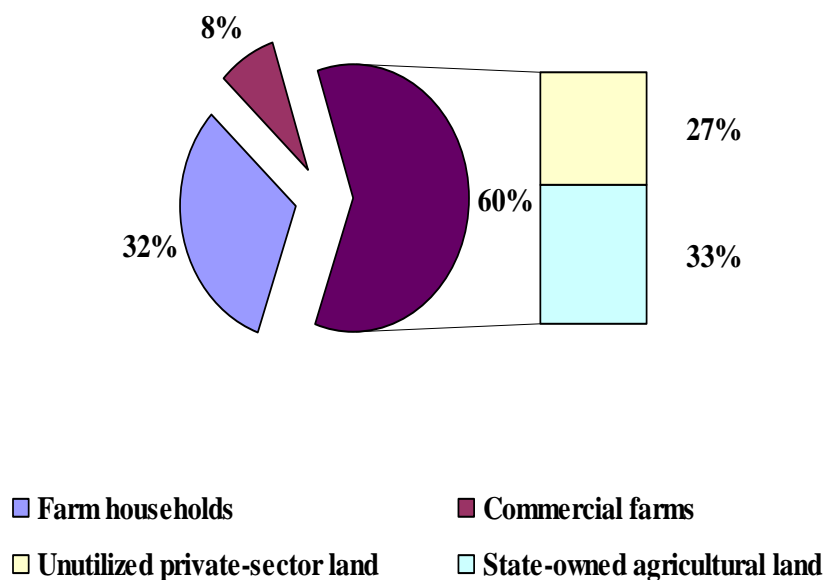
⁵⁰ Eurostat

are state-owned and 1.81 million ha (the remaining 67 percent) are privately-owned. The slow process of disposal of state owned agricultural land is one of the causes of the existence of large areas of uncultivated state-owned agricultural land. Of the private agricultural land, only 1.07 million ha (or 59 percent) are farmed, while the rest 41 percent are unutilized.

Strong fragmentation of land *ownership* does not have to be a major problem for a country as long as land *utilization* can be highly concentrated, e.g., through active land rental markets. Slovakia, for example, has very fragmented land *ownership* (with an average parcel size of 0.45 ha and 12-15 co-owners for each parcel), but it has one of the least fragmented patterns of *use* of the land, due to the existence of well-functioning land rental markets. More than 90 percent of the agricultural land in Slovakia is used through lease agreements, normally on mid- or long-term contracts, and leasing makes it possible for much of the land to be farmed in big consolidated parcels⁵¹.

⁵¹ Morten Hartvigsen, "Land Consolidation in Central and Eastern European Countries", "Shaping the Change", XXIII FIG Congress, Munich Germany, October 8-13, 2006

Figure 0.11: Structure of agricultural land ownership in Croatia



Source: Ministry of Agriculture, Forestry and Water Management, “IPARD Programme 2007-2013: Agriculture and Rural Development Plan”, December 2007

Low productivity in agriculture in Croatia is also due to limited investment in capital. The predominant role played by small family-owned farms in Croatia’s agricultural sector is not conducive to high profit margins and capital investments. At the same, there is little investment undertaken by the commercial farms. Family farms hold 82 percent of the livestock, own 99 percent of all tractors and account for approximately 95 percent of the total workforce in agriculture. Croatia’s stock of agricultural machinery is very limited when compared to the EU-15, OECD and even other upper middle income countries. At 29 tractors per 100 sq km of arable land, Croatia is far behind even Romania and Bulgaria, which have, respectively, 180 and 95 tractors per 100 sq km.

Croatia’s agrarian structure, with its high degree of land fragmentation and its small average farm size, is unsuitable for today’s globalized international economy. With more mechanized agriculture, there is a positive relationship between farm size and productivity, which counteracts the supervision cost advantage of small farms⁵². There are several reasons why larger farms tend to be more productive than smallholders. Imperfections in credit and insurance markets prevent small farmers from adopting more productive capital-intensive techniques or higher-value products. Large farms have lower costs when transacting with the outside world in procuring inputs, marketing produce and accessing credit⁵³. Furthermore, with agro-processors and supermarkets increasingly mediating access to consumers, economies of scale in production enable large farms to meet the supermarkets’ strict standards for quality, consistency and timeliness of supply, traceability and credibility, as well as their expectations for suppliers to adjust rapidly to changing consumer demands⁵⁴.

⁵² Klaus Deininger, “Land Policies for Growth and Poverty reduction”, World Bank Policy Research Report, 2003

⁵³ Peter Hazell, Colin Poulton, Steve Wiggins and Andrew Dorward, “ The future of small farms: synthesis paper”, November 2006, part of a series of contributions by Rimisp-Latin American Center for Rural Development (www.rimisp.org) to the preparation of the World Development Report 2008 “Agriculture for Development”

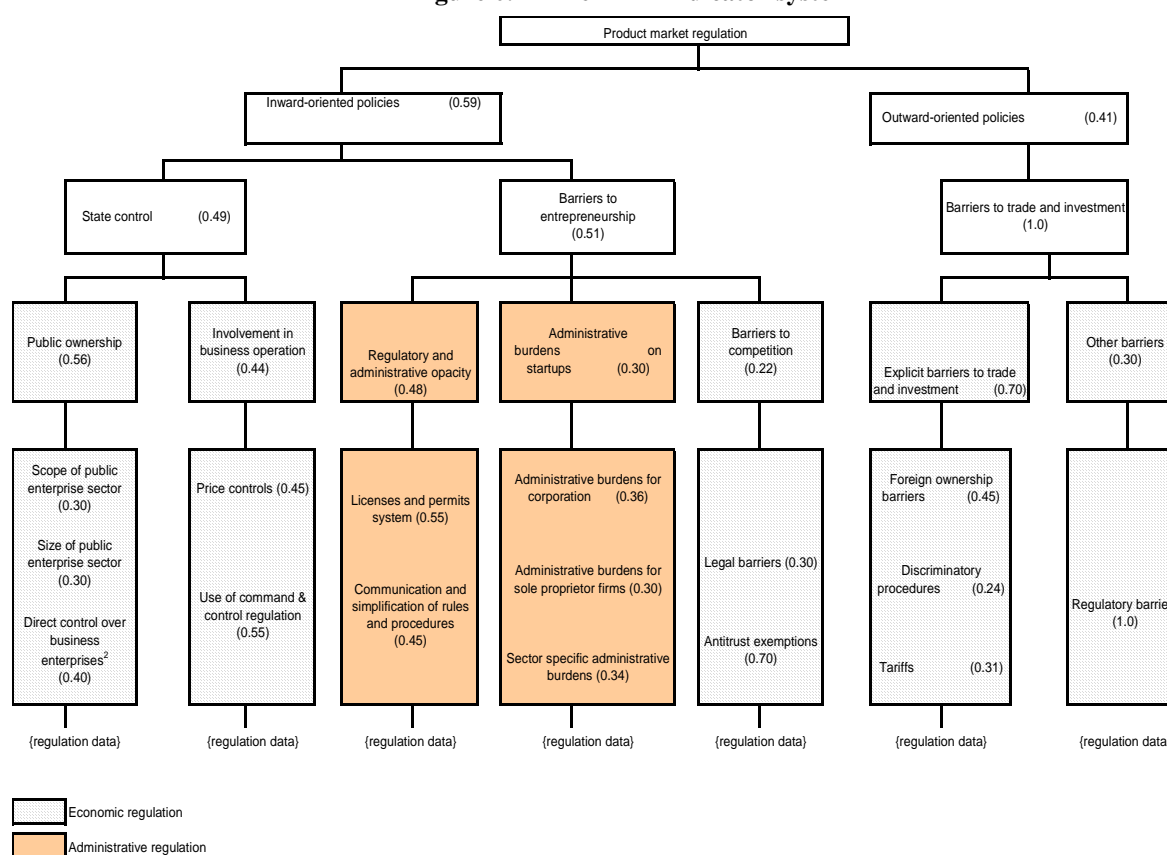
⁵⁴ World Bank, 2008 World Development Report, “Agriculture for Development”

How can Croatia induce better allocative efficiency?

Improving Product Market Regulations

Overall, this report finds that product market policies in Croatia are among the most restrictive compared to OECD economies. The report uses the OECD indicator of product market regulation (PMR),⁵⁵ which offers a structured approach to benchmark the Croatian regulatory environment and is therefore employed here as a blueprint to guide the assessment.⁵⁶ The indicator varies from 0 to 6 (less to more restrictive) and its composition is presented in Figure 4.12 below. Croatia falls into the group of “relatively restrictive” countries, which includes France, Greece, Italy and the Czech Republic. As the PMR for these other countries reflects their situation as of 2003, and given the OECD countries’ recent trend of sustained improvement in their regulatory environment, it is likely that the position of Croatia today relative to OECD countries may be worse than the one pictured in this report.

Figure 0.12 The PMR indicator system



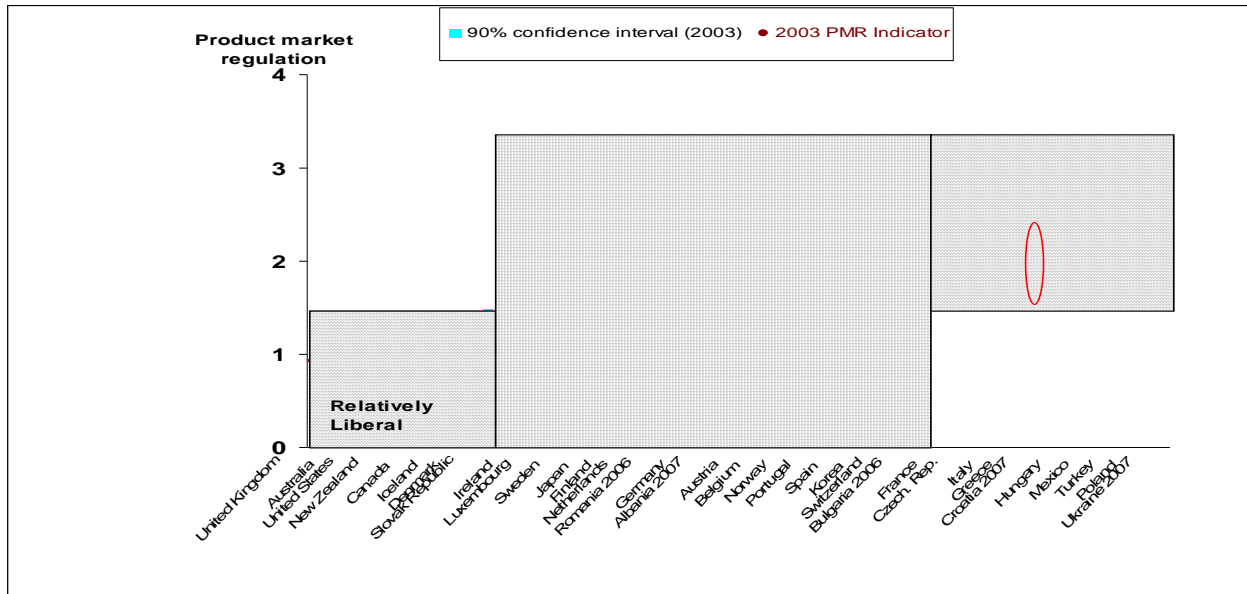
1. The numbers in brackets indicate the weight given to each lower level indicator in the calculation of the higher level indicator immediately above it. The weights were derived by applying principal components analysis to the set of indicators in each of the main regulatory domains (state control, barriers to entrepreneurship, barriers to trade and investment, economic regulation and administrative regulation). The same approach was used to derive the weights used to calculate the indicators of inward and outward-oriented policies and the overall PMR indicator. The principal components analysis was based on the original 1998 data.

2. Two indicators from the 1998 version of the PMR indicators ('Special voting rights' and 'Control of public enterprise by legislative bodies') have been combined into this indicator.
 Source: Conway et al. (2005)

⁵⁵ See Conway, Janod and Nicoletti (2005).

⁵⁶ See De Rosa et al. (2008) *Barriers to Competition in Croatia: The Role of Government Regulation*, background paper to this report.

Figure 0.13: Product market regulation in Croatia (2008)



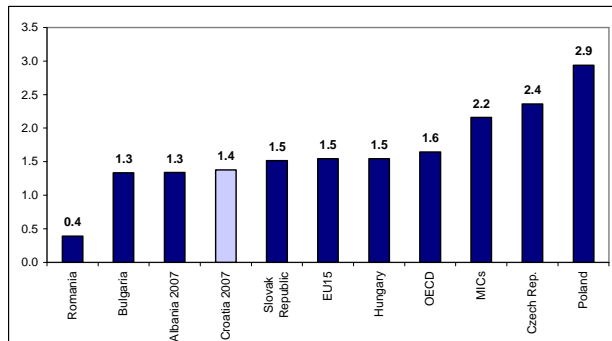
Source: Staff Elaboration

Croatia performs relatively well in administrative regulation, relative to comparator countries. This includes reporting, information and application procedures, and the burden on business start-ups, implied by both economy-wide and sector-level requirements.

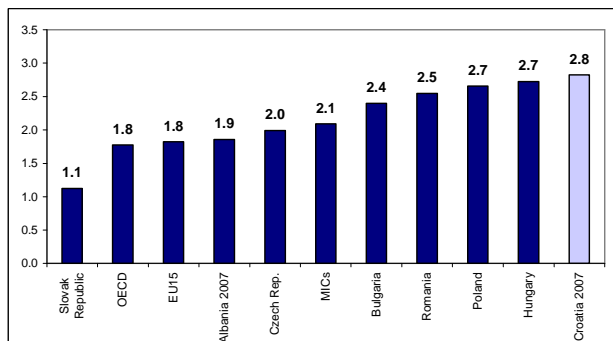
On the other hand, in terms of economic regulation, Croatia’s performance is the worst in the sample. Areas of concern include domestic regulatory provisions affecting private governance and product market competition (such as state control and legal barriers to entry in competitive markets).

Figure 0.14 : Economic and administrative regulation

(a) Administrative regulation



(b) Economic regulation



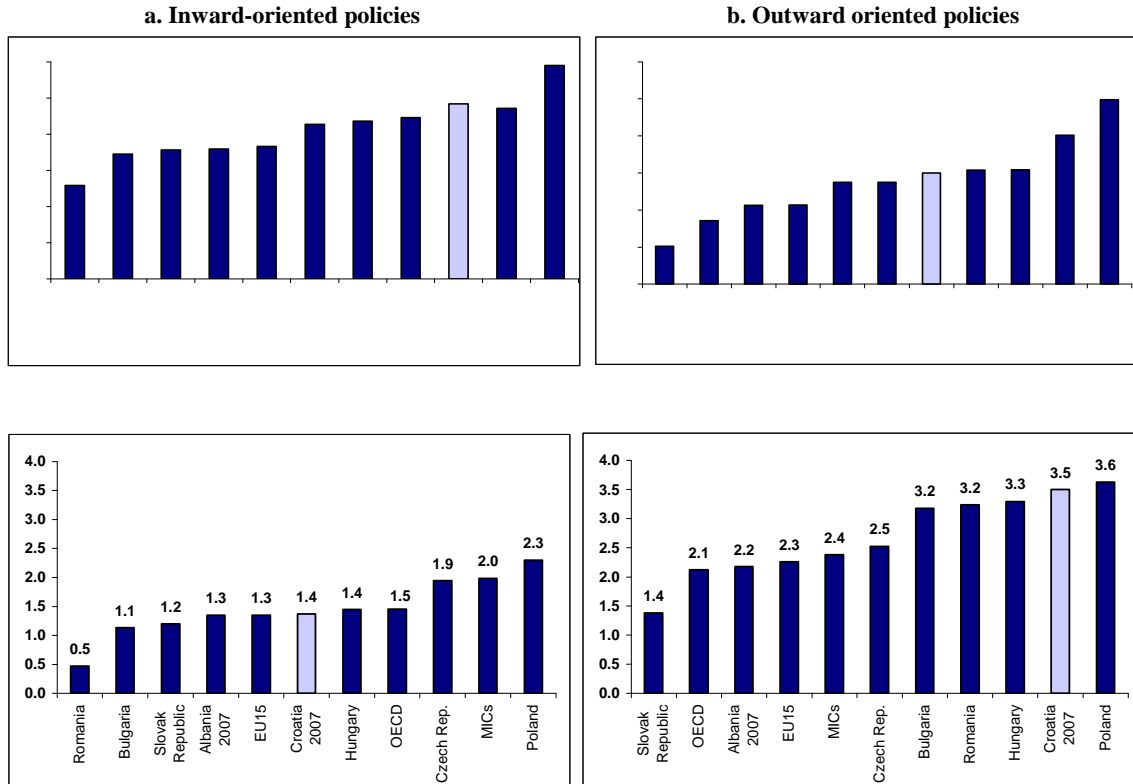
Source: Staff Elaboration

Croatia performs less liberally than most comparators in both “inward” and “outward” policies, though the difference is more striking for the inward policies. Inward policies are defined to include policies and regulations that determine the degree of state control and barriers to entrepreneurship, while outward policies reflect policies and regulations that affect barriers to trade and foreign investment. Croatia’s average scores are, however, lower (less restrictive of competition) for outward-oriented policies than for inward-oriented ones. The explanation is that, as a reflection of its international commitments, more progress has been achieved in liberalization in the areas of international trade and foreign direct investment (outward-oriented policies), relative to those that are more likely to be determined by discretionary domestic policies.

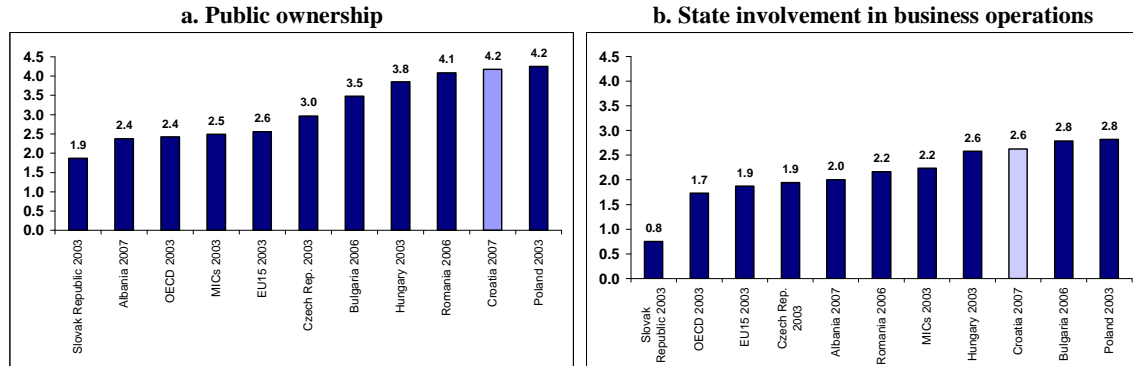
Croatia's PMR index of restrictions is higher for inward-oriented policies due to a combination of factors:

- (i) **First and most importantly, the high index for state control.** This in turn is caused by a high value of the index for the *size of the public enterprise sector* (public ownership) and that for the *state involvement in business operation* (the extent to which the state controls strategic decisions of public enterprises), both among the highest in the sample of comparator countries. In addition, although price controls have been substantially reduced during the first-generation of reforms, the use of command and control regulation (instead of incentive based regulation) is still the norm; and
- (ii) **Second, a value for barriers to entrepreneurship that, if not among the highest, is far from the best performers,** further contributing to a high PMR. An important contributor to this result is the existence of *barriers to competition* (legal requirements to enter a market and antitrust exemptions).

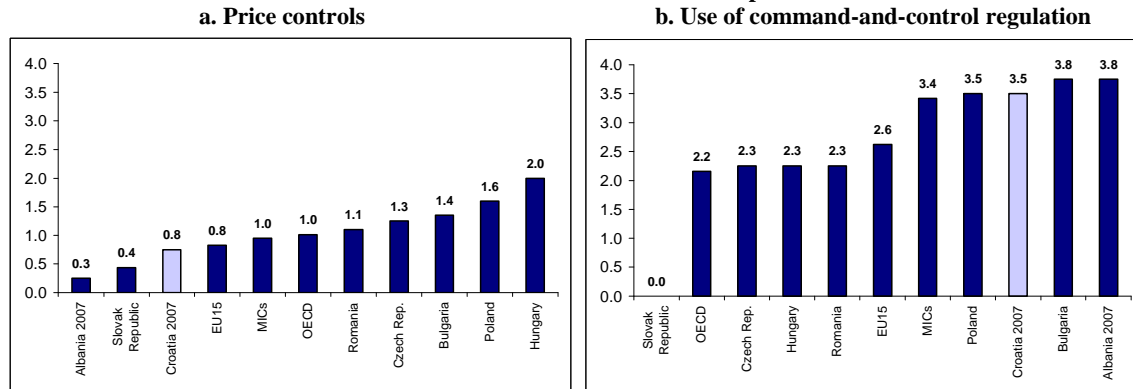
Figure 0.15: Decomposing the PMR
Inward and outward oriented policies



State Control: Public ownership and state involvement in business operation



State involvement in business operations

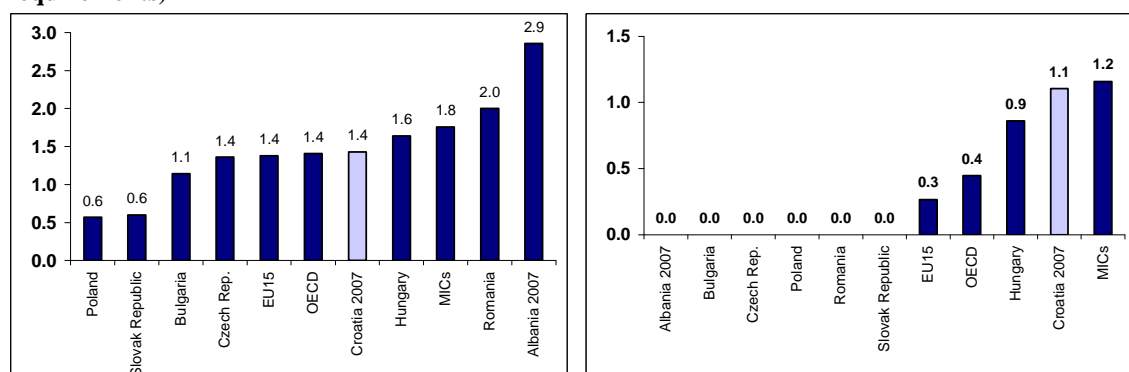


Source: Staff Elaboration.

Croatia scores worse than the EU-15 average in 2003 in terms of barriers to competition (as measured by legal barriers to enter a business – e.g. licenses and permits – and antitrust exemptions), whereas it outperforms other MICs. Croatia’s score is around the EU-15 and OECD averages in terms of other legal barriers to competition, such as explicit legal limitations on the number of competitors allowed in certain business sectors. Croatia still maintains some legal restrictions to entry in network and utilities sectors (transport infrastructure; collection, purification and distribution of water; electricity generation, transmission, distribution and supply; and gas production, transmission, distribution and supply), which are fairly standard among other OECD and EU countries. Less typical of other countries are barriers to competition in the insurance and financial sector, beyond those imposed by prudential regulatory requirements. We will further explore the barriers to competition in the service sector.

Figure 0.16: Barriers to Competition

a. Legal barriers (licenses and permit requirements) **b. Antitrust exemptions**



Source: Staff Elaboration

Product Market Regulation in Non-manufacturing Sectors

Regulation of non-manufacturing sectors in Croatia is pervasive and has important knock-on effects for the rest of the economy. Non-manufacturing sectors represent around two thirds of economic activity across OECD countries. Over the past two decades, they have proven to be the sectors contributing the largest share of growth in terms of both productivity and employment in many OECD countries. Non-manufacturing sectors are also the area in which government regulation is now concentrated. This reflects the fact that manufacturing sectors have usually been the object of generalized de-regulation and liberalization associated with free trade agreements, such as those associated with membership of the World Trade Organization (WTO) and, even more so, as a consequence of the adoption of norms from the *acquis communautaire* in countries that are members of the EU or on the path to accession. Final and intermediate consumers of non-manufacturing products across the economy have to bear the costs of heavy regulation in non-manufacturing sectors, with consequences for consumer welfare and efficiency of economic organization.

The OECD indicators of regulation in the energy, transport and communication sectors (ETCR) provide a framework for benchmarking the regulation of Croatian non-manufacturing sectors against EU and other OECD countries.⁵⁷ The OECD ETCR indicator system for regulation in non-manufacturing sectors is structured around precise criteria. The overarching criterion for assessing regulations is their effect on competition where competition is viable. The ETCR indicators assess regulation in electricity, gas, telecoms, post, air transport, rail transport and road freight. Sectoral indicators

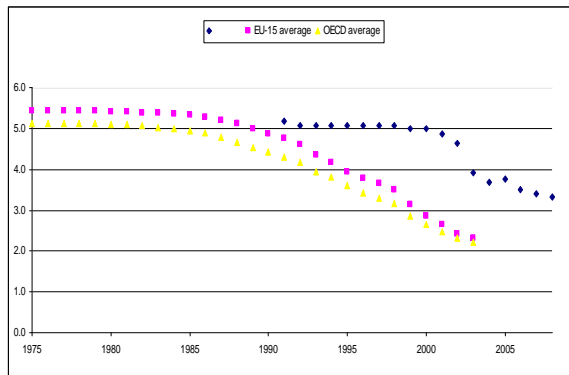
⁵⁷ See Annex to background paper by De Rosa et al. (2008) for a detailed description of the methodology of ETCR indicators based on Conway and Nicoletti (2006).

summarize information on the restrictiveness of regulation in four main areas: state control, barriers to entry, state involvement in business operations and, in some cases, market structure. The resulting ETCR indicators cover the 1975-2003 period in 21 OECD countries and – together with the retail distribution and professional services indicators covered in the PMR for 1998 and 2003 in 30 OECD countries – map the restrictiveness of regulation in non-manufacturing sectors.

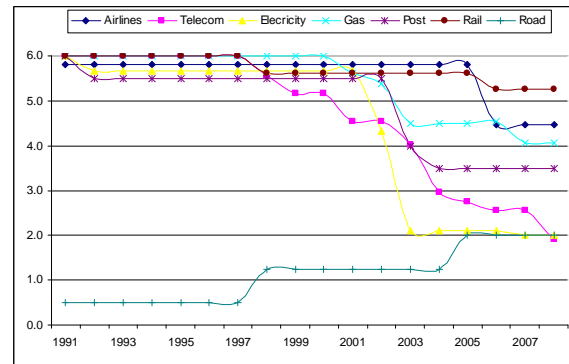
Regulation in energy, transportation and telecommunications is more restrictive in Croatia than in EU and other OECD countries. The aggregate ETCR indicator reveals that regulation of non-manufacturing sectors in Croatia is more restrictive of competition than either the OECD or the EU-15 averages. However, Croatia appears to have made considerable progress since independence to make competition viable in these sectors. Most of these efforts are associated with Croatia’s progressive compliance with the provisions of the *acquis* relating to these sectors, which has led to convergence in regulatory frameworks. Convergence in regulation with the EU has occurred most rapidly in the electricity and telecoms sectors.

Figure 0.17: The ETCR Indicator for Croatia

a. Aggregate ETCR



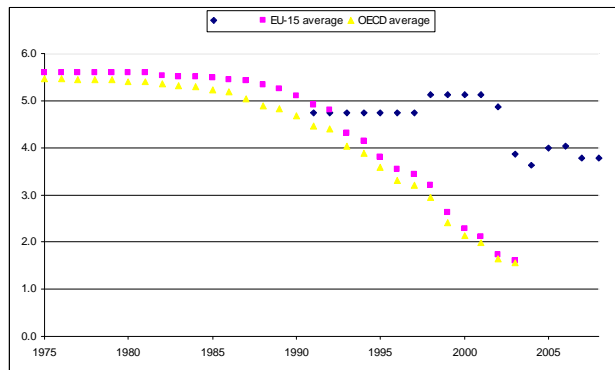
b. Disaggregated ETCR



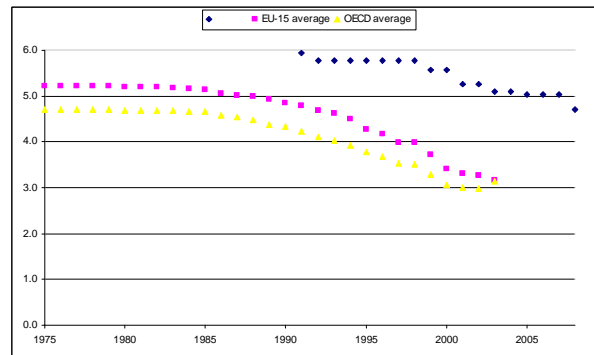
The gap in regulatory restrictiveness with the EU is large for both barriers to entry and public ownership. The ETCR can be decomposed into its various components, thus allowing one to trace the restrictiveness of regulation to its sources. The dimensions considered are tailored to each sector and show that, for both barriers to entry and the extent of public ownership, the regulatory framework in Croatia is more restrictive of competition than the EU and OECD averages.

Figure 0.18 : Barriers to Entry and Public Ownership

a. Entry Barriers



b. Public Ownership



Product market policies that are more conducive to competition would have a significant impact on Croatia's convergence to higher income levels. Conway et al. (2006) show that the ETCR is highly correlated with the overall restrictiveness of a country's regulatory environment across OECD countries. This allows using the ETCR in regression analysis as a proxy for the degree to which overall product market policies restrict competition. *Simulations based on regression analysis conducted for Croatia indicate that a reduction of the regulatory burden as represented by the ETCR indicator to the less restrictive level of the EU-15 average would be associated with an increase in the level of GDP per capita of between 1.35 percent and 2.77 percent.* As argued by Conway et al. (2006), restrictive product market regulation negatively affects income convergence by slowing the process of adjustment through which positive productivity shocks diffuse across borders and new technologies are incorporated into the production process. Furthermore, Conway et al (2006) show that the gains from further product market reform are more significant the more distant a country is from the productivity frontier. For a country like Croatia, which is far from the world productivity frontier, progressive integration with the EU promises to multiply and amplify exogenous shocks, thus highlighting the importance of a more competitive regulatory environment for continued convergence.

This report also estimates the impact on Croatia's GDP of the completion of the internal market for services.

This is one of the Lisbon Agenda targets (namely, the application of the 'country of origin' principle for services, such that a service provider who complies with the regulation of the country of origin should no longer be hampered by regulation in the destination country). *The report calculates that Croatia's output would rise by 0.8 percent by 2025 (1.6 percent by 2040).* Given the differences between Croatia and main OECD economies reported in this section, this estimate could be a first approximation of the economic dividends that Croatia could obtain by further aligning its regulatory environment in the service sector to the OECD policies.

Complementary Measures Improving Entry and Exit conditions

The time to register a business in Croatia is lengthy when compared to best practice and to other countries in the region. To establish a limited liability company, an entrepreneur has to complete 8 procedures which take 40 days and cost the equivalent of 11.5 percent of the GNI per capita. By contrast, in New Zealand, the best performing country in business registration, an entrepreneur can start his business activities within 1 day. In Denmark and Turkey it takes an average of 6 days to complete the business registration process. The duration of business registration in Croatia is lengthier not only by comparison to best practice, but also by comparison to the averages for the OECD and Europe and Central Asia countries of 13.4 and 22.6 days, respectively. It is the inclusion in the Commercial Court Registry and the municipal certificate that account for the lengthiest procedures in Croatia. It is noteworthy that, in most OECD and EU countries, business registration is an administrative process usually completed at the business registry. Moreover, it is also important to note that in top performers, such as Australia and Ireland, the receipt of a certificate of minimum requirements is not required.

Figure 0.19 : Simulation of the effect of ETCR on GDP

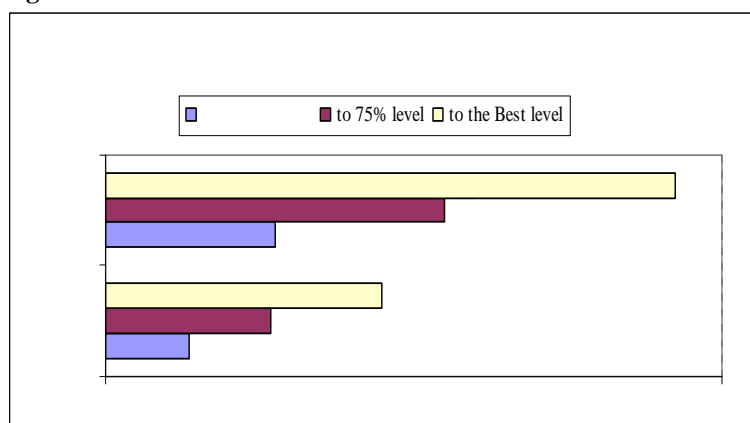
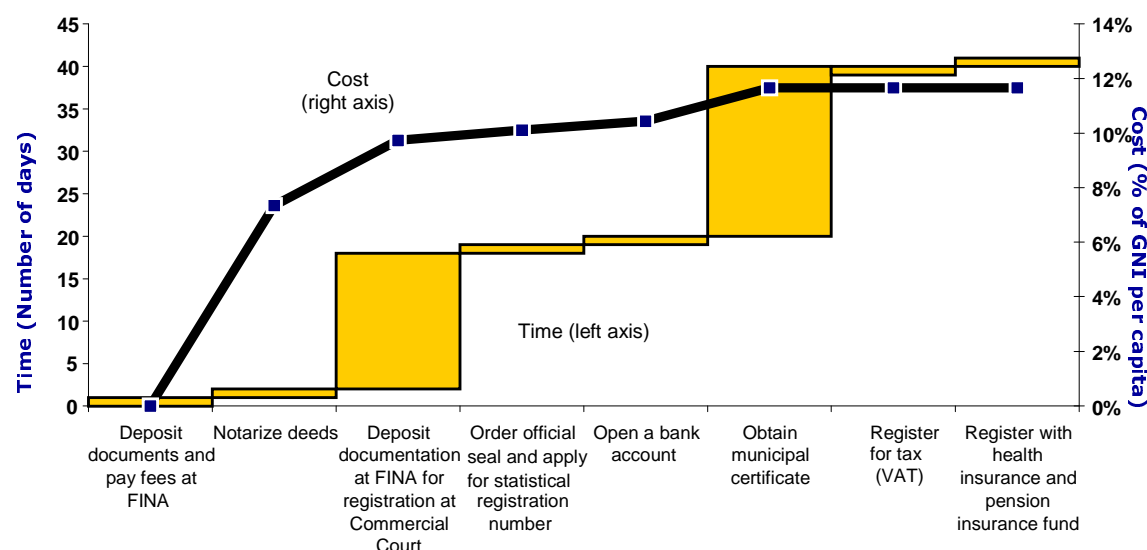


Figure 0.20 The process for starting a business in Croatia



Source: World Bank, *Doing Business 2009 Starting a Business Indicator*, www.doingbusiness.org.

The cost of starting a business in Croatia, relative to per capita income, though representative of the region, is more than twice the OECD average. The entire process of registering a business in Croatia costs on average HRK6,350 or 11.5 percent of income per capita, above the 8.6 percent of GNI per capita figure for the Europe and Central Asia region and 4.9 percent for the average OECD country. In New Zealand and Ireland (the best performing countries in business registration in, respectively, the world and the EU), the cost is 0.4 and 0.3 percent of per capita GNI respectively, while in Denmark an entrepreneur is not supposed to incur any expense to register a company. Notarizing the memorandum of association places a burden of HRK 4000 on Croatian entrepreneurs⁵⁸. It accounts for 63 percent of the total cost of registration. Standard incorporation documents, as introduced recently in Estonia or Slovakia⁵⁹, would ensure legality without visiting notaries, while also easing the workload at the registry, preventing errors and speeding up processing. In over 75 countries of the world, Ireland and New Zealand included, there is no minimum capital requirement for forming a new firm, while in Croatia this minimum amounts to 16.6 percent of income per capita. In reality, the minimum capital requirement does not protect creditors and imposes an extra barrier to registering a company, and thus to formal entrepreneurial activity.

The Government has started addressing the problem of inefficient business registration through the creation of one-stop shops. In 2005, the Government launched the One-Stop Shop “HITRO.HR” program (www.hitro.hr) designed to improve the efficiency and transparency of government services and to transform Croatia into an information society⁶⁰. The adoption of the Ordinance on the Formulation of Operations executed by a Financial Agency in the implementation of the One-Stop Shop (Official Gazette Issue 98/05) led to the consolidation of the procedures for establishing a limited liability company and a craft business at the HITRO counters run by the Croatian Financial Agency (FINA) in 24 locations throughout the country. Now entrepreneurs can choose the name of their company, deposit the minimum capital requirement, notarize the memorandum of association, submit all the required documents for

⁵⁸ For a step by step account of business registration in Croatia visit: http://www.hitro.hr/eng/establishing-company/kako_e.htm

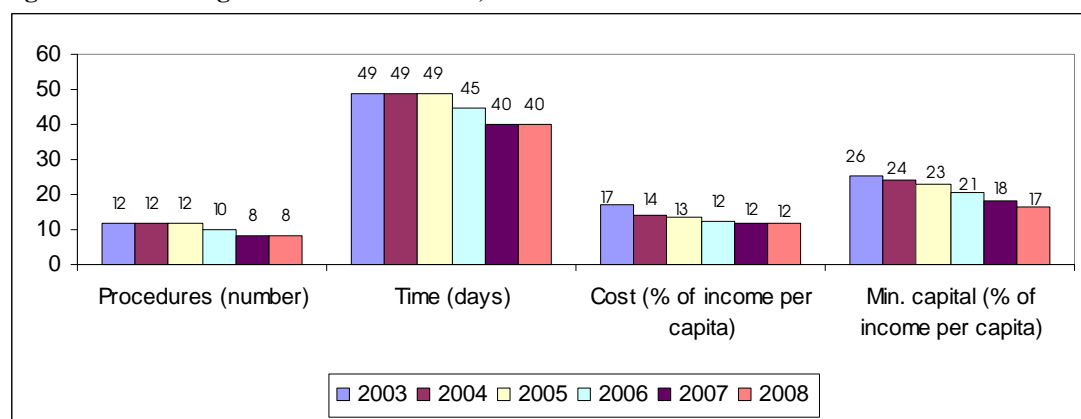
⁵⁹ World Bank, *Doing Business 2009*, www.doingbusiness.org

⁶⁰ Central State Administrative Office for Public Administration, Central State Administrative Office for e-Croatia, “One Stop Shop Program Strategy” and “Implementation plan for the One Stop Shop Program”, Zagreb, December 2004

inclusion into the Commercial Court Registry, open a bank account, order a company seal and register with the Croatian Pension Insurance Institute (HZMO) and the Croatian Health Insurance Institute (HZZO) at one of the HTRO counters. The e-Government initiative also placed all the information on business registration on the HITRO web-site and made possible the registration of a craft establishment online.

The simplification of business registration has led to a decrease in the time and cost of starting a business, thus accelerating business entry. The ongoing reforms have led to a decrease in the cost of starting a business from the high of 16.9 percent of income per capita in 2003 to 11.5 percent in 2008. Furthermore, 4 procedures and 9 days were cut from the process and the paid in minimum capital was reduced from 25.5 to 16.6 percent of income per capita during the same period. Reflecting these changes, the number of new business registrations increased from 7,097 in 2004 to 11,055 in 2007. The entry rate increased from 4.1 percent in 2004 to 5.5 percent in 2007, while the growth in the stock of businesses increased from 3.9 percent year-on-year in 2004 to 5.6 percent year-on-year in 2007⁶¹. If this improvement in entrepreneurial activity is sustained, it could lead to greater economic development and formal sector participation⁶².

Figure 0.21 Starting a Business in Croatia, 2003-2008



Source: World Bank, Doing Business 2009 Starting a Business Indicator, www.doingbusiness.org

Efficient procedures to close a business can increase firm turnover. Efficient closing procedures assure that an inactive or insolvent business can be dissolved in a reasonable time, while assuring creditors of the highest possible recovery rate in case of default. The faster it is to close a business and the higher the total value of proceeds received by creditors and other stakeholders during the liquidation process, the greater is the subsequent access to finance, and thus the greater business entry and higher productivity.

The bankruptcy process in Croatia, while representative of the region, is lengthier than in OECD countries. In Croatia, the bankruptcy proceedings of a limited liability company typically last 3.1 years, which is the same as the average for the transition economies. However, in OECD economies it takes only 1.7 years. In Ireland, the country with the fastest bankruptcy system in place, the process lasts an average of 0.4 years. One of the reasons for the slow process of closing a business in Croatia lies in the reliance on the courts for the resolution of bankruptcy cases and the huge backlog of unresolved cases.

The cost of closing a business is higher than the average for OECD countries. In order to close a business, entrepreneurs in Croatia have to forego 15 percent of the estate's value to cover court fees, lawyers and accountants, just above the regional average of 13.7 percent. In OECD, the associated costs amount to 7.5 percent of the value of the estate.

⁶¹ Based on year-end figures.

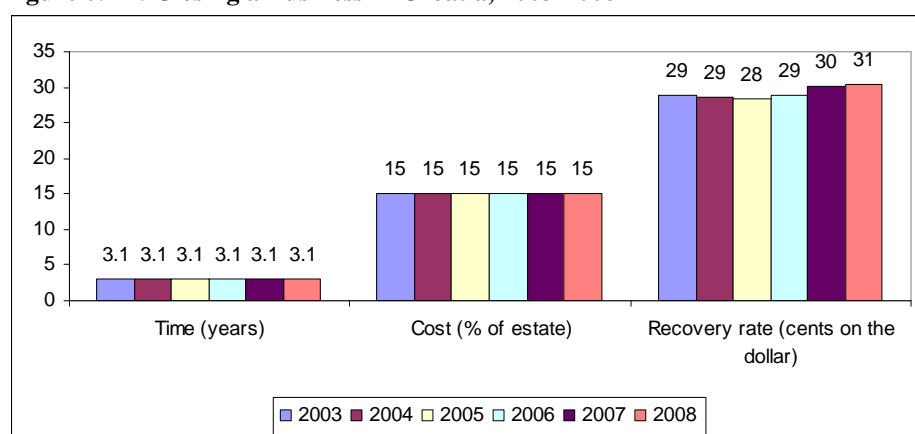
⁶² Leora Klapper, Raphael Amit, Mauro F. Guillen and Juan Manuel Quesada, "Entrepreneurship and Firm Formation Across Countries", World Bank [Policy Research working paper ; no. WPS 4313](#)

The recovery rate for creditors from a bankruptcy in Croatia is low by comparison to best practice and developed economies. The recovery rate represents the amount that creditors recoup through bankruptcy or insolvency proceedings. The average recovery rate in Japan and the OECD economies as a whole, expressed as cents on the dollar, is more than twice the recovery value in Croatia, at 92.5 cents on the dollar (Japan) and 68.6 cents (OECD average), versus 30.5 cents on the dollar in Croatia.

The government has embarked on a comprehensive bankruptcy reform agenda. The build-up of inter-enterprise arrears in the 1990s and the negative impact of “walking dead” firms in the dynamism of the enterprise sector prompted the government to undertake a series of reforms to improve the functioning of the courts and facilitate bankruptcy proceedings. As a result, the 2006 amendments to the Bankruptcy Law passed in 2006⁶³ equalized the rights of all creditors, enabled the bankruptcy manager to review all the claims and to give creditors’ an overview of all the liabilities. They also introduced professional requirements for bankruptcy trustees and a 1.5-year-from-the-first-hearing statutory time limit for bankruptcy cases.

However, these legislative reforms have not yet translated into a more efficient bankruptcy process. The time to go through insolvency has stagnated at 3.1 years since 2003. The cost of closing a business has not decreased from the 15 percent of the insolvent estate value prevalent in 2003. The implementation of the 1996 amendments to the Bankruptcy Law, along with the broader reform of the judiciary, is likely to facilitate and shorten bankruptcy proceedings in Croatia. The launch of the web-site “Judges’ Web,”⁶⁴ used by the commercial courts to post information on decisions in bankruptcy cases and announcements of asset sales, is also likely to increase the recovery rate and the proceeds to secured and unsecured creditors.

Figure 0.22 : Closing a Business in Croatia, 2003-2008



Source: World Bank, Doing Business 2009 Starting a Business Indicator, www.doingbusiness.org

B. AVERAGE PRODUCTIVITY

The Impact of the Investment Climate on Average TFP

The Investment Climate Survey data also permits an econometric estimation of the impact of different investment climate (IC) variables to productivity that can help guide policy reforms. While Investment Climate Surveys are quite useful in identifying major issues and bottlenecks as perceived by firms, the data can also be used to estimate empirically the statistical *contribution* (positive or negative) of different investment climate (IC) variables to different measures of firm productivity. Following several other similar studies in the Bank, this report applies the Escribano-Guasch methodology to identify the main

⁶³ World Bank, Implementation and Results Completion Report on a loan to the Republic of Croatia for a Court and Bankruptcy Administration Project”, June 29th, 2007

⁶⁴ http://www.sudacka-mreza.hr/stecaj/en/stecaj_sm.aspx?el=doc&doc=owebu

investment climate variables correlated with TFP. Since there is no single salient measure of productivity, the main advantage of the chosen methodology is that several productivity measures may be used to get reliable estimates of the elasticities of productivity with respect to different investment climate variables. Several measures of productivity are used (Solow residuals, Cobb-Douglas and Translog production functions) at different aggregation levels (aggregate and by industry). The estimated IC elasticities and semi-elasticities are shown to be robust to the 6 productivity measures used. For simplicity, the results summarized below are based on the Solow residuals (average productivity).

Main results can be summarized as follows:

- ③ Less than 15 variables (out of more than 120 considered in the ICS database) were selected as the main potential correlates of aggregate productivity, providing a first mapping of the priority areas for productivity-oriented reforms;
- ③ Individually, the three most important contributors to average (and also aggregate) productivity were:
 - ③ *Days waiting for an import license*: The elasticity (-0.178) of the “days waiting for an import license” variable implies that, if the number of days a firm finds it has to wait for import licenses is higher by 1 percent, the firm’s productivity is found to be lower by 0.178 percent. In the figure, this variable, a measure of the bureaucracy that firms have to deal with, shows the highest individual contribution to firm-level productivity (21.6 out of 100);
 - ③ *Percentage of skilled workers*: Increasing by 10 percent the percentage of a firm’s skilled workers, the firm’s productivity can increase by 3-4 percent. This variable has the second highest individual contribution to variations in firm-level productivity (15.1 out of 100);
 - ③ *Percentage of workforce with computer*: Increasing by 10 percent the percentage of workforce with computer, the firm’s productivity can increase by 5 -6 percent, which corresponds to the third highest individual contribution (9.8 out of 100).

In addition, as grouped factors, results show:

- ③ *Skills and computer use* together to be the most relevant (positive) contributor to TFP in Croatia (almost 25 out of 100);
- ③ *Red tape* (essentially time to clear customs) as the second more important (negative) contributor to TFP;
- ③ *Infrastructure variables* (notably own transportation, web page and days waiting for a phone connection) are individually the fifth, sixth and ninth most important components, bringing the infrastructure total as the second most important area of reform;
- ③ *The set of corporate governance/access to finance* variables has a total contribution close to 10 percent for TFP.

Figure 0.23 : Relative ICA effects on average productivity (mixed decomposition)

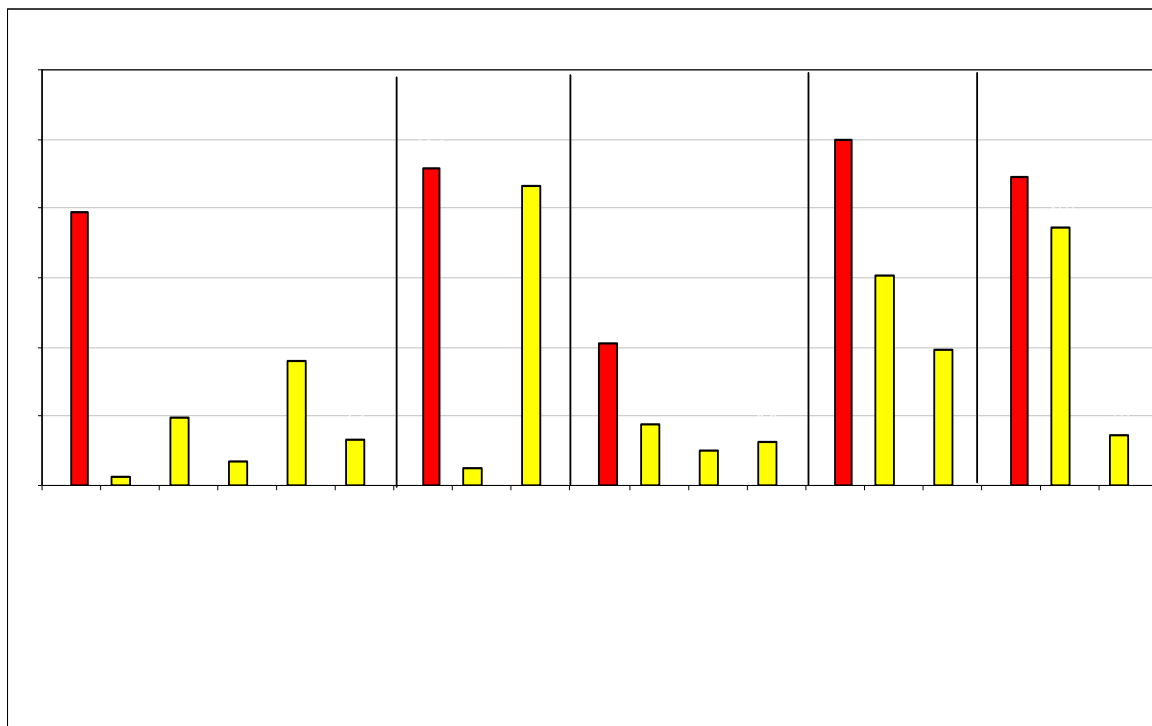


Figure 0.24: Workers Using Computer across Croatian regions and Countries

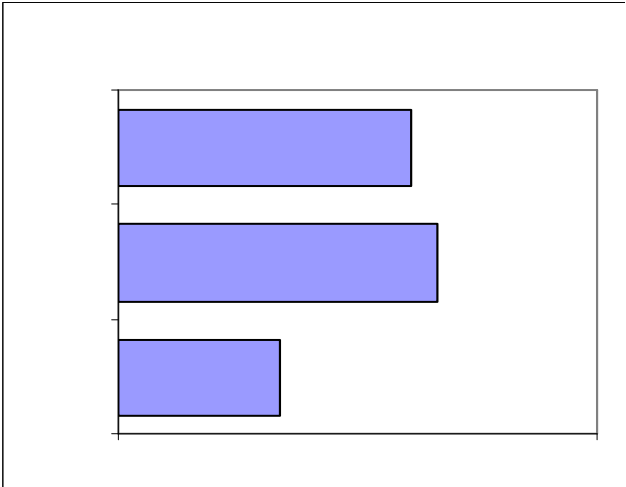
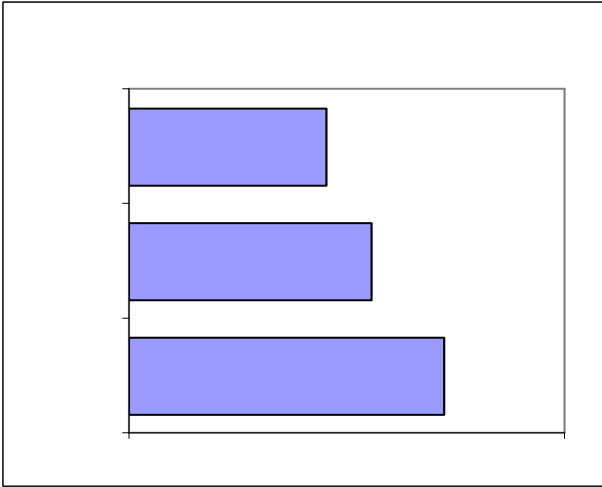
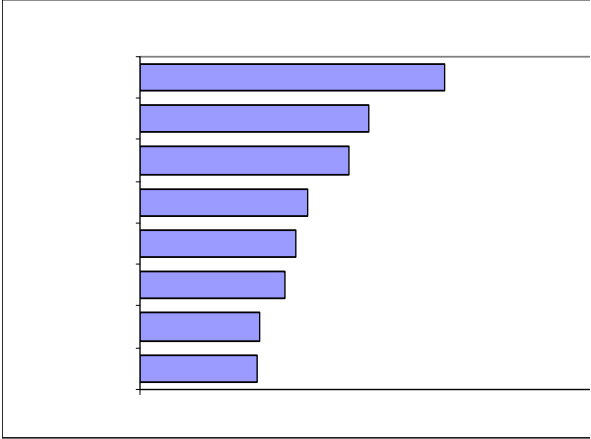
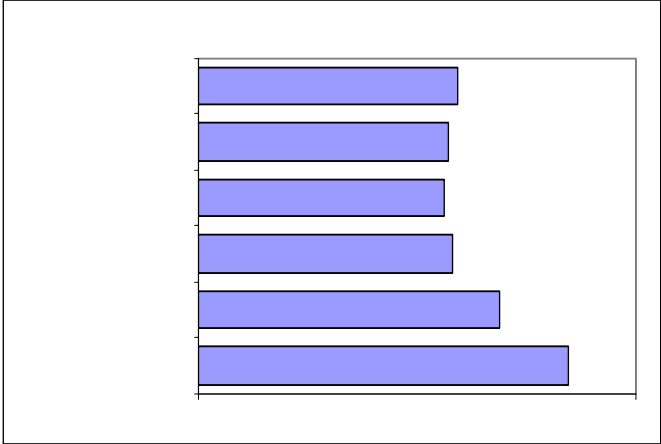
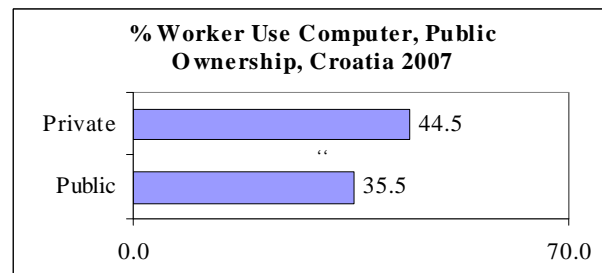
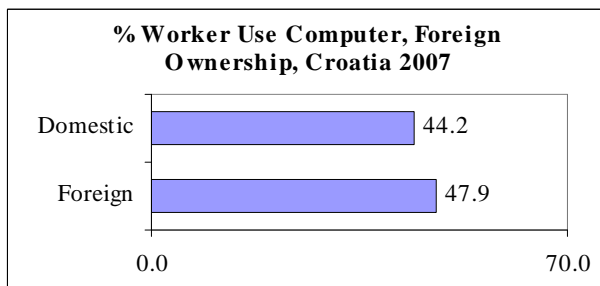
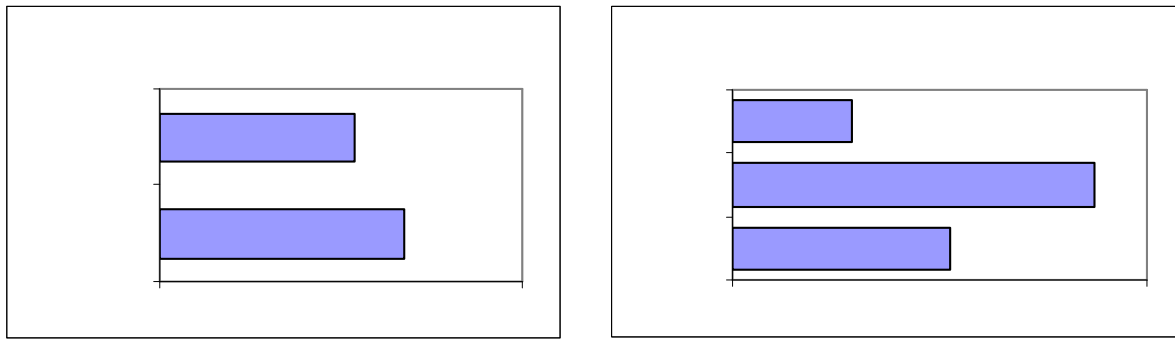


Figure 0.26: Workers Using Computer, Exporters and Sectors, 2007



Source: World Bank, Croatia ICS 2007

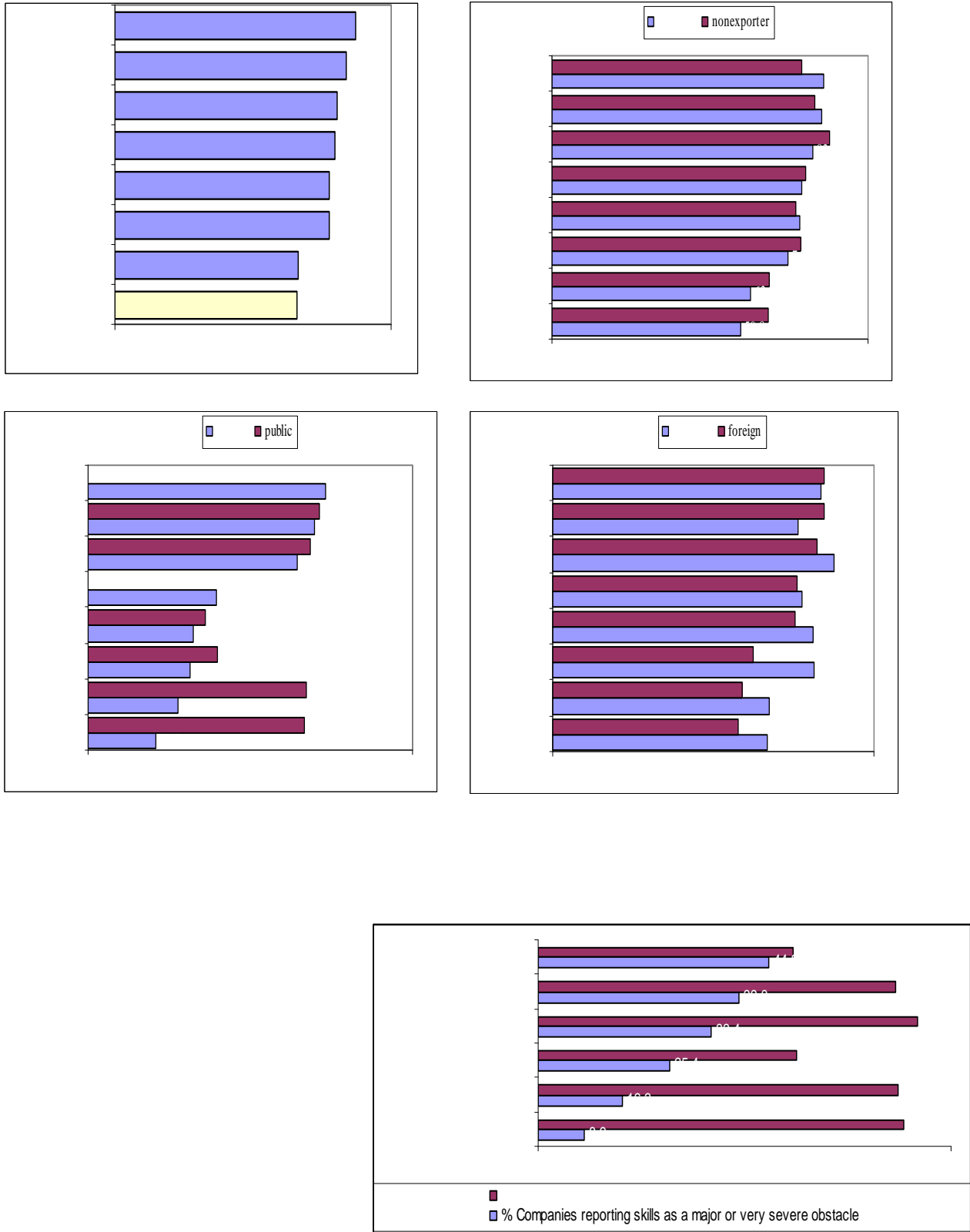
Skilled Labor

Increasing the percentage of skilled workers in the economy would increase Croatia’s economic growth. An econometric assessment of the impact of various investment climate assessment variables on productivity reveals that the percentage of skilled workers in the economy is one of the three most important contributors to average and thus to aggregate productivity. This finding suggests that the country is faced with a serious skill shortage which will have to be addressed by policymakers if higher sustained growth is to be achieved.

The Croatian economy employs a smaller percentage of skilled production workers than its neighbors or even other economies in the region. At the end of fiscal year 2006, Croatian companies had on their payroll an average of 66.1 percent of skilled production workers (both employees and managers). This figure does not compare favorably with other upper-middle-income economies, such as Romania or Turkey, which even at the end of fiscal year 2004 employed 83.6 percent and 77.5 percent of skilled workers, respectively. Nor does it compare well with the structure of the workforce in higher income economies, such as South Korea or neighboring Slovenia, where the percentage of skilled workforce reaches 87 percent and 79.8 percent, respectively.

The vast majority of skilled production workers are employed by non-exporting, public, domestic and large companies, which also tend to have lower productivity. Unlike in other fast growing Eastern European economies, such as Romania, Bulgaria and Turkey, Croatia’s skilled workforce is concentrated in non-exporting firms. Unlike high-income economies such as Slovenia and Ireland, the majority of Croatia’s workforce, namely 67.4 percent, is employed by publicly-owned companies. Domestically-owned companies in Croatia have a larger percentage of skilled employees amongst their ranks than foreign-owned firms, and large and middle-sized companies have more skilled workers than small firms.

Figure 0.28: Skilled production permanent workers, country comparison and company type



Source: World Bank, 2007 Croatia ICS

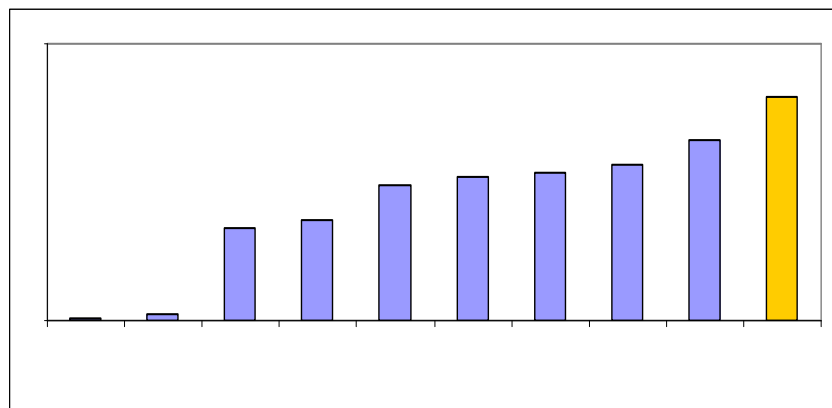
or even when compared to other upper middle income economies. The proportion of companies that report it as a major or severe obstacle to their development is higher in Croatia than in comparator economies for every firm age group. Alarming, the companies that are most affected by the shortage of skilled labor are the young ones, that have been in existence for 5 years or less, with 46 percent of all young companies feeling constrained by the shortage of adequately-trained labor (as compared to 28.2 percent of middle-aged companies and 22.7 percent of old companies reporting the same problem). Given that young companies tend to have the highest productivity, a policy targeted at addressing the skills issue would contribute to increased average and aggregate productivity.

The shortage of skilled labor is felt most keenly in Dalmacija, Zagreb and its surroundings, and in Lika i Banovina. Companies based in Dalmacija and Istra i Hrvatsko Primorje employ the least proportion of skilled workers, 49.3 and 50.0 percent, respectively. Dalmacija is also the region with the highest percentage of companies that report the lack of skilled labor as the most important obstacle to the development of their business. It is noteworthy that, although companies based in Zagreb and its surroundings and in Lika i Banovina have some of the highest proportions of skilled workers on their payroll in the country, they nevertheless are amongst the companies that report being most constrained by the shortage of adequately trained labor. This finding suggests that a lot of highly productive firms are based in these two regions. Policies targeted towards alleviating the problem of shortage of skilled labor might especially target the three regions which appear to be suffering the worst shortages.

Customs

Trading across borders in Croatia is more difficult than in European and neighboring countries. Croatia ranks 97th on the Doing Business Trading Across Borders indicator, which measures the ease of trading a standard dry-cargo, 20-foot, full container load by ocean transport. In spite of Croatia having access to the sea, the country makes it more difficult for its traders to export or import than neighboring Slovenia (78th), landlocked Hungary (68th), Macedonia, FYR (64th), Serbia (62nd) or Romania (40th) (fig.4.14).

Figure 0.30 : Ease of trading across borders 2008



In Croatia, companies spend 4 days in customs clearance and technical controls in order to be able to export their goods. Data on the rate of the physical inspection, and the number of border agencies involved for exports and for imports, suggest that Croatian traders could benefit from a lower rate of physical inspection by the border authorities (currently at 0.12 percent), as well as from a better coordination between the activities of border agencies (since the customs clearance per se is close in duration to that of the best performing countries in this aspect of trade logistics). In Canada, Singapore and Denmark, for example, the rate of physical inspection is 0.03 percent or below.

It is the preparation of all the documents that takes longest and imposes the highest cost on traders crossing the borders. A breakdown of the costs and time it takes to export or import a dry-cargo, 20-foot, full container load from or to Croatia, shows that entrepreneurs engaged in international trade are required to spend 8-9 days and between USD 360-500, or over 30 percent of all the costs, on preparing the necessary documents for export or import. These figures are in stark contrast to the 2 days and USD140 incurred by Danish traders or the 3-4 day and USD150-185 document preparation process in Canada. In Singapore, the

best practice economy for trading across borders, Singaporean merchants spend 1 day and USD88-105 on the same processes.

Croatian traders have to complete more documents than their counterparts in European and neighboring countries. Though the number of documents for exports and imports decreased from 9 in 2005 to 7 in 2008 for exports, and from 15 to 8 for imports⁶⁵, the regulatory burden placed on Croatian traders is higher than is typical in EU-15, OECD and ECA countries. For instance, in Canada, traders are required to present only 3 documents to export (the lowest number of documents for export in the world) and 4 documents to import. In Singapore, the best practice economy for trading across borders, there are only 4 documents that are required to be presented for both export and import. Croatia, unlike the best performers in the world and the EU, requires (aside from the standard, best-practice documents for export and import such as the bill of lading, the commercial invoice, the customs export/import declaration and the packing list) four additional documents. These are the cargo release order, the certificate of origin, the terminal handling receipts and the pre-shipment clean report of findings.

Border processing improved markedly over the past eight years. Customs and other border agencies engaged in a systemic modernization of their organization with support from the World Bank, the European Commission and several donors. Computer systems were upgraded, electronic transfer of data introduced, procedures streamlined, and border agency staff strengthened. About 80 percent of respondents to the Logistics Performance questionnaire indicated that border agency performance is now better to much better than in 2004. Similar strong progress was recorded in the period 2000 to 2004.

Table 0.2: Breaking down the time and cost of trading across borders

<i>Procedures</i>	Croatia		Singapore		Denmark		Canada	
	Duration (days)	US\$ Cost	Duration (days)	US\$ Cost	Duration (days)	US\$ Cost	Duration (days)	US\$ Cost
Export Procedures								
Documents preparation	8	500	1	105	2	140	3	150
Customs clearance and technical control	4	50	1	31	1	75	1	35
Ports and terminal handling	5	281	1	180	1	191	1	600
Inland transportation and handling	3	450	2	140	1	275	2	875
Totals:	20	1281	5	456	5	681	7	1660
Import Procedures								
Documents preparation	9	360	1	88	2	140	4	185
Customs clearance and technical control	2	50	1	31	1	75	1	75
Ports and terminal handling	3	281	1	180	1	191	2	650
Inland transportation and handling	2	450	0	140	1	275	4	875
Totals:	16	1141	3	439	5	681	11	1785

Source: World Bank, Doing Business 2009

⁶⁵ World Bank, Doing Business 2009

Infrastructure

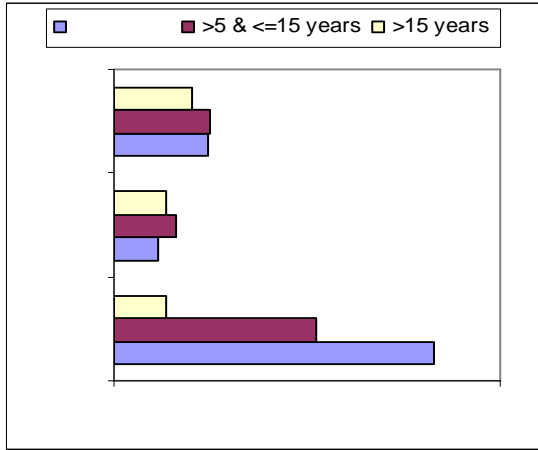
While the contribution of “web-use” to firm-level variations in TFP in Croatia is among the five strongest impacts found by this study, only 55 percent of Croatian firms reported using the Web for interactions with suppliers and clients in 2007, as compared to 63 in Romania and more than 88 percent in Slovenia in 2005. On a different aspect of infrastructure, the time to obtain a telephone connection seems to negatively affect firm productivity. With telecommunication regulations converging towards EU standards, better enforcement may be crucial for the development of more efficient services. For a Croatian firm to have its “own transportation” is associated statistically with higher firm-level TFP, but heavy reliance on own transportation is associated with lower productivity (as indicated by the negative correlation obtained in a separate set of regressions that jointly studied both ownership and use of a firm’s own means of transportation). One plausible interpretation for these two results is that outsourcing logistics, a world-wide trend, is also a better alternative in Croatia, but not having its own-transportation may reduce a firm’s productivity (possibly due to interruptions in the provision of logistics services).⁶⁶

The underdevelopment of the logistics sector and of alternative means of transportation create a barrier to the growth and operations especially of young firms, firms based in Dalmacia and Istra i Hrvatsko Primorje and firms in the textile industry. Close to 25 percent of young firms (aged less than 5 years) report transport as a major or very severe obstacle to their current operations and to their future development. Firms with operations in Dalmacija and Istra i Hrvatsko Primorje are more affected by inadequacies in the transport sector than firms in Lika i Banovina or Zagreb and its surroundings. Publicly-owned companies are more severely constrained by the current situation in the transport sector than privately-owned companies, while companies in the textile sector report significant problems with transport more often than firms in other sectors.

⁶⁶ Indeed, less than 8 percent of firms considered transportation services a severe or very severe obstacle to the expansion of their business in Croatia. Yet, 77 percent of all Croatian manufacturers relied on their own transport by 2007.

Figure 0.31: Percent of companies that report transport as a major or very severe obstacle to their current operations

By company age



By region

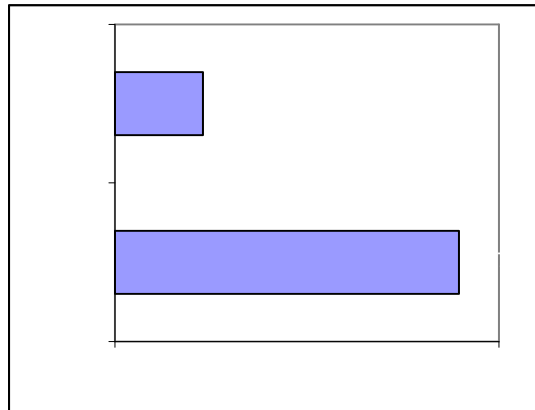
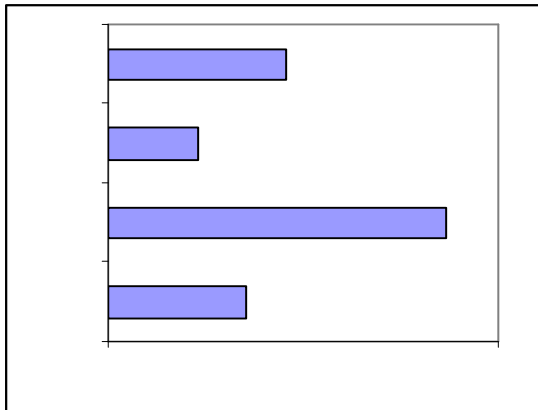
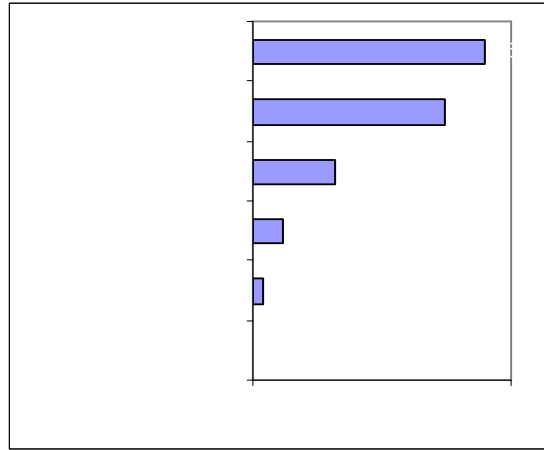
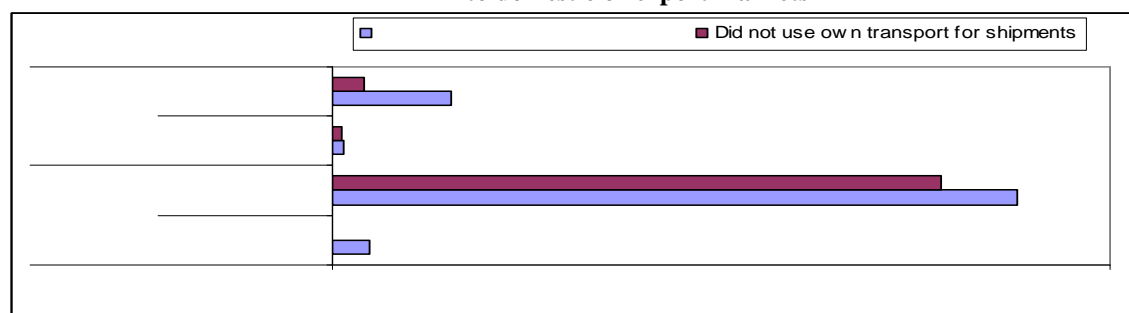


Table 0.3: The logistics environment in Croatia and comparator economies

Country	LPI rank	Logistics competence	Tracking & tracing	Timeliness
Germany	3	4.21	4.12	4.33
Austria	5	4.13	3.97	4.44
Turkey	34	3.29	3.27	3.38
Hungary	35	3.07	3	3.69
Slovenia	37	3.09	2.91	3.73
Romania	51	2.86	2.86	3.18
Bulgaria	55	2.86	3.14	3.56
Upper middle income	na	2.8	2.83	3.31
Croatia	63	2.83	2.46	3.45
Europe & Central Asia	na	2.53	2.55	3.04

Source: World Bank, LPI, www.worldbank.org/lpi

Figure 0.32: Percent of the consignment value of products lost due to breakage, spoilage or theft while in transit to domestic or export markets



Source: World Bank, 2007 Croatia ICS

There is also a lack of viable alternatives for carrying freight to the markets. The dominance of road transport in carrying freight is evident. It accounted for 51 percent of the tonnage of goods carried in 2006, with the shares of sea freight and the rail system at only 27 and 12 percent respectively⁶⁸. Port and airport charges as well as rail transport rates are perceived to be high and greater than the costs for transporting by land. Poor infrastructure and limited transport and trade services increase logistics costs, rendering otherwise competitive products uncompetitive, and thus adversely affecting firm and economic activity.

⁶⁸ Ministry of the Sea, Tourism, Transport and Development of Croatia, “Transport operational programme 2007-2009; Instrument for pre-accession assistance”, September 2007

Box 0.1: The Effect of having own Transportation on Firm Productivity

According to the econometric analysis of IC determinants of productivity, having one's own transportation to make shipments to customers is associated with higher firm-level productivity. The robust IC semi-elasticity of this variable ranges between 0.1 and 0.21, implying that firms having their own transportation are associated on average with 10%-21% higher productivity than other firms. This effect, observed in other countries like Mexico, Pakistan and India, is at odds with the global trend to outsource transportation services. Yet, out of 328 firms for which we have information on transportation, 266 -- 81.1% of the total -- reported having their "own transport". How are we to explain this puzzle?

First, note that the perception of the quality of the provision of transport services does not seem to be a determinant of the firm's decision to have its own transport. As Exhibit 1 show, the percentage of firms using own transport is only slightly higher within those considering the private transport system as a "severe obstacle" than those considering it as "not a serious obstacle". Furthermore, the percentage of firms considering transport as a severe obstacle is very low in Croatia (only 8.3%). Second, the share of firms with own transport tends to be higher among those operating mainly in domestic and local markets. As Exhibit 1 also shows, almost 90% of firms operating mainly in local or national markets have their own transport, while the percentage of firms operating (mainly) in international markets having it is reduced to 60%. This seems to indicate that the perception about the quality of private transport system is not a determinant of the firms' decision to invest in its own transport but that, rather, what is important is the characteristics of the markets in which firms operate.

So far we know that having own transport is associated with higher levels of productivity, but a good question is: are those firms that use their own transport for *all (or almost all)* their products more productive? Table 1 shows that the semi-elasticity of having own transport with respect to productivity is positive, but that the higher the percentage of products shipped by using own transport, the lower is the positive effect of investing in own transportation. This is a very interesting result: it suggests that there is a threshold from which using own transport is associated with a negative effect on productivity, and therefore replacing the private system is not the optimal decision on average.

Table 2 presents the results of a brief empirical investigation of the determinants of having "own transport" and using it. The results show that firms that (a) have lower market-shares; (b) are oriented to domestic and local markets; and (c) are relatively older are more likely to have "own transport". Neither productivity, nor the perception on the quality of the private transport system, nor the firm's shipment losses are significant covariates of the decision of having own transport. Note also that the determinants of using own transport (once a firm has it) are almost the same (second column of Table 3) with one caveat: shipment losses appear to have a significant effect.

In sum: (i) a considerable percentage of firms in Croatia have own transport (81%); but (ii) only 8% of firms consider the private transport system as a severe obstacle for economic performance; and (iii) those firms using own transport to a greater extent (more than 70% of products) operate in local markets and have a low market-share. Evidence seems to point therefore to the fact that "own transportation" is an alternative for firms which are not served by the private sector due to their domestic/local orientation, a case of missing markets. Regional and industry specific characteristics, to the extent that these imply additional (region or industry) specific investments for the private provider of transport service, may further hinder the provision of these services. It is hard to say to what extent this situation is related to the incomplete reforms in the transport sector (notably railways) – which form the backbone of the logistics sector -- or rather is an indication of the stage of development of this service in Croatia.

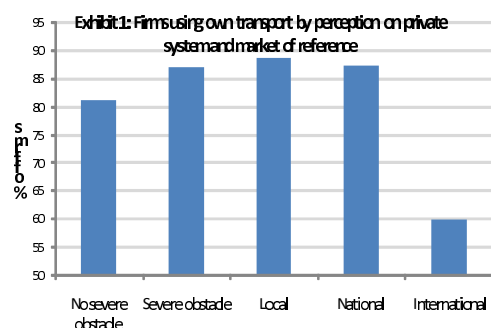


Table 1: the effect of using own transport on productivity

Dep var: productivity	(1)	(2)
Dummy for own transport	0.371**	0.267*
Products using own transport	[0.170] -0.004*	[0.167] -0.003
Observations	[0.002] 372	[0.002] 370
R-squared	0.06	0.17

specification (1) Includes a set of size/sector/region dummies, (2) also includes a set of other IC variables to control for observable fixed effects.

Robust and cluster standard errors in brackets.

Table 2: The determinants of investing in own transport and using it

	Have own transport	Use own transport
Productivity	0.03	-2.94
Market share	-8.92*	-451.2
Shipment losses	0.07	6.59*
Transport is a severe obstacle	-0.001	2.99
Firms op. in local market	0.22**	23.24**
Firms op. in national market	0.22***	17.32**
FDI received	-0.11*	-17.76***
Age	0.05*	1.74
Observations	303	302
R-squared	0.28	0.33

both specifications include a set of IC variables to control for observable fixed effects.

Source: Staff Elaboration

Access to finance

The 2008 ICS shows access to finance as a Top 10 “major obstacle” for the expansion of business in Croatia. About 17 percent of the firms surveyed through the ICS cited “access to finance” as a major obstacle. Counter-intuitively, these results do not vary much by firm size: 18 percent of the small firms surveyed and 13 percent of the large firms surveyed cite “access to finance” as a top 10 obstacle. While the extent to which credit is viewed as a constraint might be viewed as surprising given the significant expansion of credit in the country and the liquidity levels in the financial sector, it is noteworthy that these numbers are below both ECA and Upper Middle Income (UMI) averages for the proportion of firms reporting credit constraints.

Of the total firms surveyed in Croatia, 71 percent have a loan or an existing line of credit, as opposed to 20 percent of the firms in Bulgaria or 54 percent in Turkey. This helps explain the lower percentage of firms in Croatia that cite “access to finance as a major obstacle”. Disaggregating by the size of the firm, a lower percentage of smaller firms (firms with less than 50 employees) has an existing loan/ line of credit (58 percent) as opposed to 77 percent in medium (greater than 50 and less than 250 employees) and 79 percent in large (greater than 250 employees) firms.

Figure 0.33: Share of firms with loans, by country

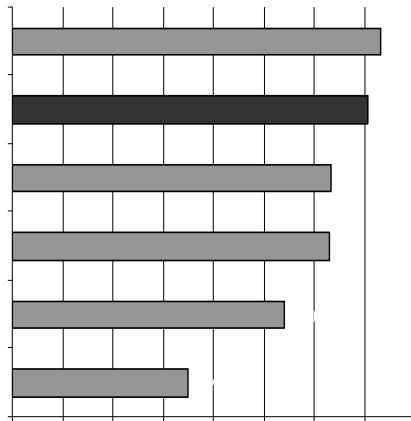
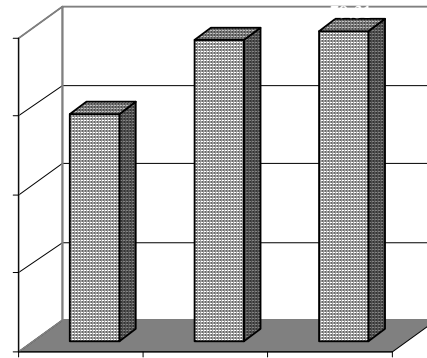


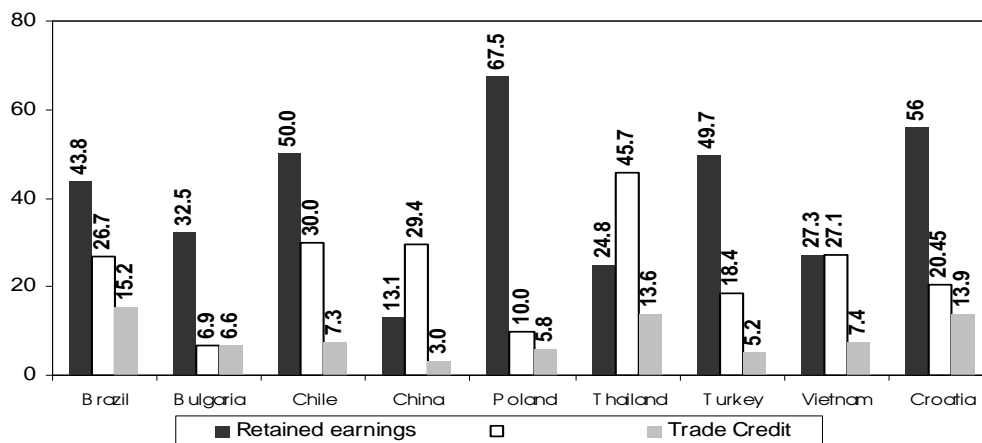
Figure 0.34: Share of firms with loans, by firm size in Croatia



■

- Foreign firms are on average granted 3.8 years to pay off their loans and domestic firms are granted a year more (4.8 years). Exporting firms were on average granted 4 years, while non exporting firms were granted 5 years.

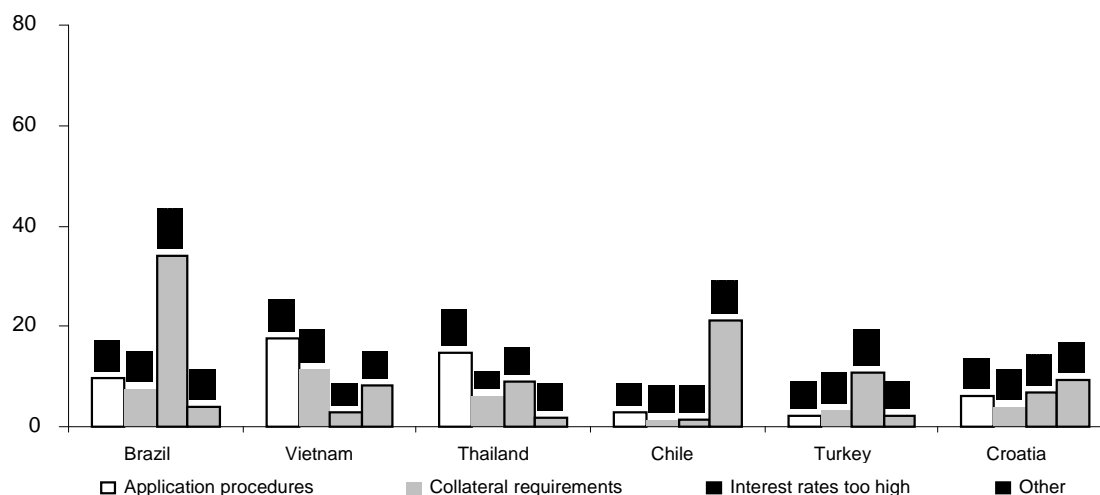
Figure 0.35: Main sources of finance for working capital needs, international comparison, percentage values



Source: Investment Climate Surveys

Non-borrowing Firms. In 2006, 56 percent of the firms that had not applied for loans declared that they did not need loans. However, there were various reasons cited by the remaining 44 percent that did not apply for a loan. Of the total firms sampled, 6 percent thought that the interest rates were too high, another 6 percent felt that the application procedures were too complicated and 4 percent found collateral requirements to be unattainable. These rates are higher than those observed in Turkey, and Chile.

Figure 0.36: Top Reasons for firms not applying for loans, international comparison



Source: Investment Climate Surveys

Limited use of movable collateral. Some 87 percent of the firms in Croatia declared that the banks required collateral in order to access financing. A higher percentage of domestic firms required collateral as compared to foreign firms. Also a higher proportion of exporting firms required collateral, which may be a reflection of the higher loan amounts that they need to borrow. Land and buildings make up from 50 to 75 percent of firms' collateral. Other assets such as machinery, vehicles, and equipment account for around 15 to 20 percent; personal assets of the owner account for 12 to 20 percent and accounts receivable account for 4 to 9 percent depending on the firm type. Foreign owned firms and exporting firms have a larger

proportion of their total collateral in machinery and equipment, indicative of the fact that banks are more willing to accept machinery and equipment from these firms as suitable collateral. It may also reflect the fact that foreign firms are less likely to own land.

Conclusions. While access to finance does not seem to be a critical problem throughout the enterprise sector as a whole, 20 percent of the firms sampled appear to be financially constrained. More than half of the funds for investment in Croatian firms are internally generated. The main reasons for firms not applying for loans are: high interest rates, complicated application procedures, and unattainable collateral requirements. There is limited use of movable collateral: non-movable collateral such as land and buildings (together with owners' personal assets) accounts for 80 percent of the firms' total collateral.

As addressing access to credit does not seem, on this evidence, to be an area where substantial reserves of productivity gains could be unleashed, the study's results in terms of the contribution of "new investments from non-banks" and "new investments financed from equity" may be evidence that equity and other type of non-banking financing (e.g. capital markets) are more efficient than banks in allocating resources to firms with higher productivity levels. One corollary of this interpretation would be to reinforce the importance of developing non-banking financial institutions for productivity growth in Croatia.

TRADE AND INNOVATION

A. LEVERAGING THE GLOBAL ECONOMY: THE ROLE OF INTERNATIONAL TRADE

One of the regularities found in the study of 80 recent episodes of sustained growth accelerations is the existence of an open trade regime.⁶⁹ Given the rising rates of expansion of international trade over recent decades, inbound technology transfer and global demand are two important complements to high domestic demand. The former rapidly increases the potential output of Croatia's economy, while the latter permits much more rapid growth with exports as the driving force.⁷⁰

Indeed, a recent study estimates the impact of real openness on aggregate productivity to be 1.23 on average.⁷¹ Moving Croatia's trade openness to a level equivalent to 75 percent of the way up the current distribution of countries ranked in descending order of openness (Croatia is currently close to the median of the distribution of the sample of countries included in the regression) *would be estimated to raise its real per capita income by 0.26-0.36 percent*. How can Croatia achieve trade integration on a larger scale and better leverage the benefits of the global economy in terms of growth acceleration?

Deepening Trade Integration

Croatia's trade integration may be lower than normally considered. Croatia's trade integration in nominal terms, corresponding to 105 percent of GDP, is comparable to several OECD economies, such as Greece, Portugal and Spain. Trade openness in Croatia declines by half, however, if the measure of *real* openness, is considered. The importance of the *real* trade openness measure, following the *Balassa-Samuelson* hypothesis,⁷² is not purely methodological: the magnitude of the impact of trade on Croatia's productivity depends on the volume of trade relative to the size of the economy.

⁶⁹ See Hausmann et al (2005). *op cit*.

⁷⁰ El-Erian, M. and Michael Spence (2008): *Growth Strategies and Dynamics: Insights from Country Experiences*. World Bank Working Paper Series No.6. Commission on Growth and Development. Washington DC.

⁷¹ Empirical research has been struggling with issues of reverse causality (from productivity to trade) and omitted variables (whether estimates of the productivity gains due to trade may actually be capturing the role of institutions and geography) in order to establish the impact of trade integration on specialization. More recently, controlling for institutional and geographic factors, Alcalá and Ciccone (2004) estimate the elasticity of the effects of trade expansion on aggregate productivity at 1.23. See Alcalá, F. and Ciccone, A. 2004. "Trade and Productivity". *The Quarterly Review of Economics*, vol. 119 (2).

⁷² The Balassa –Samuelson hypothesis refers to the fact that productivity gains from trade are greater in manufacturing than in the non-tradable services sector, implying a rise in the relative price of services. This, in turn, would lead to an underestimation of (nominal) openness ((X+M)/GDP) in developed economies which motivates the use of PPP-adjusted variables. See Alcalá and Ciccone (2004), *op.cit*.

Figure 0.1: Trade Integration in 2005

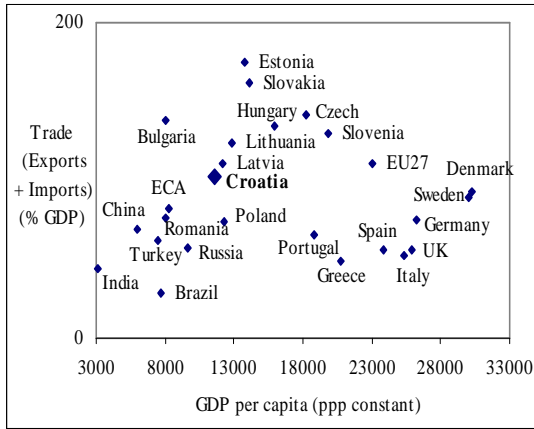
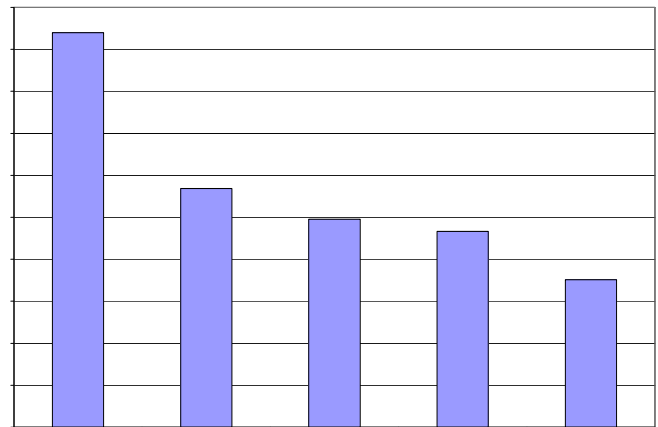
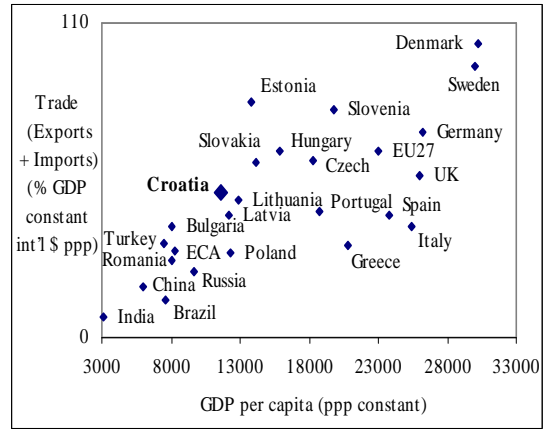


Figure 0.2: Real Openness in 2005

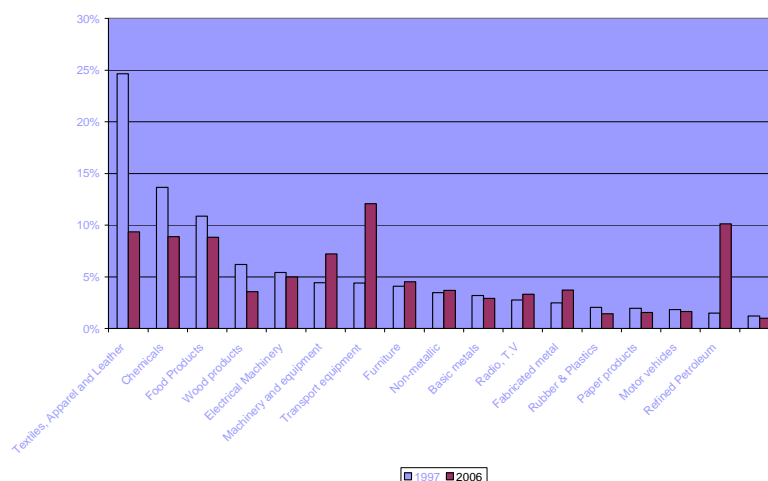


exports appears consistent with the natural adjustment of the structure of the EU-8 economies towards their comparative advantage, encouraged by the adoption of an open trade regime: EU-8 exports of goods, for example, are on average more capital intensive than those from other countries in the ECA region., as illustrated by the specialization of the Slovak and Czech Republics in the automotive and auto-parts segments, relatively to textiles and footwear.

Croatia's current export structure does, however, contrasts with what existed a decade ago. In 1997, textiles, apparel and leather; chemicals; food products; and wood products accounted for 55.4 percent of total exports.

Since then, the share of these product groups has dropped to 30.6 percent. In 2007, Croatia's main export products consisted of transport equipment, mainly ships and boats (12 percent), refined petroleum (10 percent), textiles and apparel (9 percent), chemicals (9 percent), food products (9 percent), machinery and equipment (7 percent) and electrical machinery (5 percent). The biggest export market share decline was in textiles where the share dropped from 25 percent to 9 percent.

Figure 0.4: Croatia's main exports, 1997 & 2006



Source: CBS

Given that the bulk of these products are labor intensive, the decline suggests that Croatia has not been able to maintain its competitiveness in labor intensive sectors as it opened its economy, suggesting that its comparative advantage could be in more highly-skilled labor intensive sectors.

Table 0.1: Product Concentration of Croatia's Exports

	Concentration Index of Exports				No. of Products Exported (in sitc 3-digit)				Share of 3 Largest Products in Exports (%)				Share of 10 Largest Products in Exports (%)			
	1996	2000	2003	2005	1996	2000	2003	2005	1996	2000	2003	2005	1996	2000	2003	2005
Albania	0.200	0.266	0.269	0.232	77	87	103	119	33.1	33.5	33.9	33.2	56.7	54.4	57.2	58.9
Bih	0.149	0.204	0.182	0.144	129	166	159	182	21.8	33.0	26.8	24.8	39.0	55.2	50.2	47.1
Bulgaria	0.087	0.125	0.101	0.107	213	210	207	210	13.3	15.4	13.2	13.5	27.5	30.4	26.0	26.5
Croatia	0.115	0.140	0.118	0.130	206	207	212	214	10.7	11.9	9.7	8.6	26.0	29.0	25.1	24.0
Macedonia	0.128	0.163	0.165	0.174	152	161	161	168	18.0	19.5	24.0	26.7	36.0	46.5	51.4	52.1
Romania	0.120	0.116	0.117	0.109	198	201	210	214	12.7	13.0	16.3	15.3	32.0	30.5	35.2	32.4
SaM	0.090	0.094	0.090	0.095	207	196	202	205	27.9	17.4	18.9	14.9	42.0	34.9	36.4	32.9
SEE-5	0.136	0.173	0.165	0.155	154	163	167	178	10.0	11.2	10.6	8.5	22.8	23.4	24.2	21.7
SEE-7	0.127	0.158	0.149	0.142	169	175	179	187	8.9	9.4	11.8	10.2	22.6	24.5	26.6	23.8
EU-8	0.085	0.140	0.132	0.131	212	213	216	221	7.8	13.5	15.0	15.1	17.7	26.2	27.7	29.2
Slovak Republic	0.073	0.151	0.175	0.150	207	219	222	224	13.2	22.0	31.6	23.9	26.5	36.7	45.1	39.9
Slovenia	0.102	0.105	0.108	0.111	215	209	212	218	16.2	18.7	18.6	18.9	28.7	32.1	32.4	33.4
Tunisia	0.225	0.197	0.170	0.176	182	177	193	188	29.2	27.1	25.6	24.7	50.6	51.1	49.8	50.8
Turkey	0.106	0.093	0.090	0.093	223	224	226	221	14.1	13.5	13.5	16.5	30.5	30.6	33.6	34.8

Source : "Escaping the Middle Income Trap" World Bank (2007) Computations based on UN COMTRADE Statistics

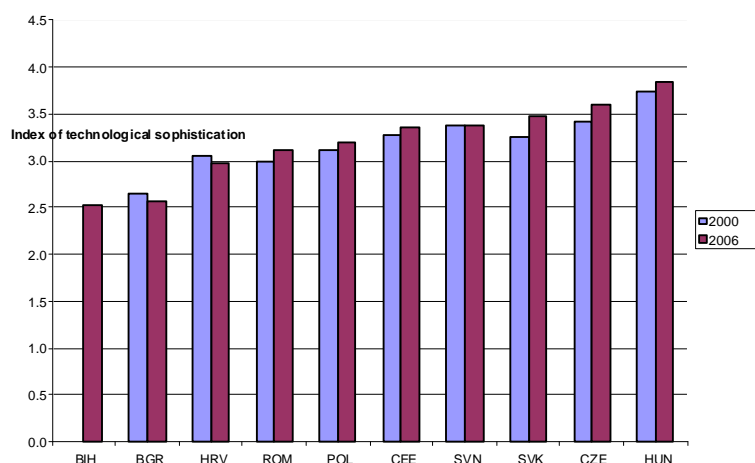
Nonetheless, the data do not show a significant rise in the share of exports with high skill-intensity. With the exception of transport equipment, most of the lost export shares in Croatia were absorbed by the refined petroleum sector (1.5 to 10.1 percent), i.e. resource based exports. The rise in the shares of transport equipment (4.4 to 12.1 percent) cannot be attributed to the efficient re-allocation of resources that an open trade policy engenders, since the large part of the transport equipment exported, ships and boats, benefits from protection compared to other products, including large state subsidies.

The technological composition of exports in Croatia is lower than in most CEE countries. With the exception of Bulgaria, and Bosnia Herzegovina, the technological sophistication of exports in Croatia is lower than that in most CEE countries.

Furthermore, unlike all other CEE countries that have experienced an increase in the degree of technological sophistication of their exports (except Bulgaria), there has been a marginal *decline* in the level of technological sophistication of Croatia's exports. Tariff liberalization is not sufficient to engender efficient resource allocation. Liberalizing a country's tariff regime without creating the conditions for factors to move to more productive sectors can thus limit the restructuring of the economy. Specifically, inefficient sectors in the economy may decline or require subsidies to keep afloat, but more productive sectors may not be able to absorb an optimal amount of resources from the declining sectors. The relatively sluggish response of Croatian exports, despite a relatively liberal tariff regime, hints at incomplete adjustment and restructuring in the economy, arising from rigidities in factor and product markets.

In the case of the exportable sector, adjustment could be further hindered by the need for firms to retool for new products and markets. The fact that some 50 percent of Croatia's exports are to neighboring countries reflects the importance of distance, language and history (natural barriers) to Croatia's export performance. In other words, a sizeable share of Croatia's exports benefits from natural barriers facing competitors, though it also benefits from preferential access to the markets of neighbors under various preferential trade agreements (SAA, CEFTA). More broadly, the role of new exporters and new markets in the country's export performance in recent years was impressive by the standards of ECA and UMIC's countries, and compensated for the steep decline and/or the extinction of sales of some older export products to current markets. It is worth noting that expanding exports of existing products in existing markets (growth at the "intensive" margin) had greater weight in export expansion than diversification into new products and/or new geographic markets (growth at the "extensive" margin). The contribution to export growth in Croatia from expansion at the intensive margin has nonetheless been limited by

Figure 0.5: Degree of technological sophistication of Croatia's exports are below those of most CEE's



Source: Eurostat

Table 0.2: Decomposition of Export Growth 1995 to 2004, percent

	Croatia	UMI	ECA
Increase in Exports of Existing Products to Current Markets	113.6	102.6	89.8
Decrease in Exports of Existing Products to Current Markets	-72.7	-19.8	-14.7
Extinction of Exports of Existing Products to Current Markets	-24.1	-6.6	-7.3
Intensive Margin	16.8	76.2	67.8
New Exports of Existing Products to New Markets	69.6	22.7	29.8
New Exports of New Products to Existing Markets	13.6	1.1	2.4
New Exports of New Products to New Markets	0	0	0
Extensive Margin	83.2	23.8	32.2

Source: Staff Calculations based on: Brenton, P and R. Newfarmer (2007) 'Watching More Than the Discovery Channel: Export Cycles and Diversification in Development', Policy Research Working Paper 4302, World Bank

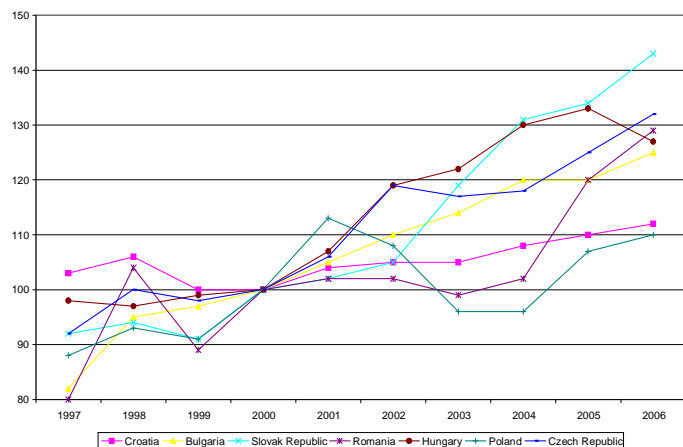
comparison to its peers, essentially due to a significant contraction and extinction of some exports of existing products in current markets. This suggests that allowing export expansion (at the intensive margin), once existing obstacles are removed, may be an additional source of productivity gains and economic growth in Croatia.

Overall, estimates using “gravity models” show that Croatia is exporting below its potential. Gravity models have been widely used in the trade literature to determine the trade potential of countries vis-à-vis their actual export levels. In recent years a number of studies using gravity models have included Croatia and other CEE countries. Though using different explanatory variables and time periods, all the models find that Croatia is exporting well below its predicted potential, controlling for size, distance, language, free trade agreements and the real exchange rate. An ECB study finds that, whereas Romania, Bulgaria, Hungary and the Czech Republic have reached or in some cases exceeded their predicted trade potential in the Euro area, Croatia’s exports are significantly below its predicted potential (by some 60 percent).

Factors Hindering Export Performance in Croatia

Does the macroeconomic framework support the exportable sector of the Croatian economy? We consider this issue by examining two key variables that affect relative prices: the real exchange rate and the tariff regime. Compared to other CEE countries, changes in Croatia’s exchange rate do not appear to have created a disincentive to the export sector. We use the measure of real effective exchange rate (REER) as one indicator of the price incentive framework for exports, given that an over-appreciated exchange rate can serve as a disincentive to exporting. Beyond this, *volatility* in the real effective exchange rate can signal macroeconomic instability, which could blur the price incentive framework and thereby impede resource allocation to the exportable sector. Compared to the base year of 2000, the appreciation of Croatia’s REER has been within the average of CEE countries (albeit less than Poland), except for 2005 and 2006 when it appreciated less than most countries. REER volatility also appears to have been moderate. In addition, and as discussed in the labor and skills section, unit labor costs have slightly declined in recent years. Hence the evolution of the real effective exchange rate for Croatia seems to be in line with that of other CEE countries.

Figure 0.6: Trends in Real Effective Exchange Rates in CEE’s 1997-2006



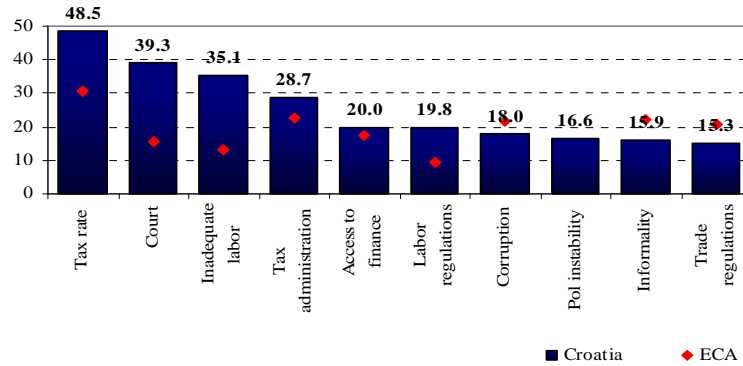
Source: World Development Indicators

Microeconomic Factors

The perception of Croatian exporters of the obstacles to the expansion of their businesses does not seem to differ significantly from the perceptions of firms in the rest of the economy. There are only two nuances: first, (a) access to finance and (b) the judicial system (courts) become more relevant for exporters (in comparison to non-exporters). Second, “trade regulations” are cited among the top 10 factors. While it is not clear how this question was interpreted during the survey interviews, we tentatively interpret this result as evidence of administrative/regulatory bottlenecks for trade (possibly customs-related). Overall,

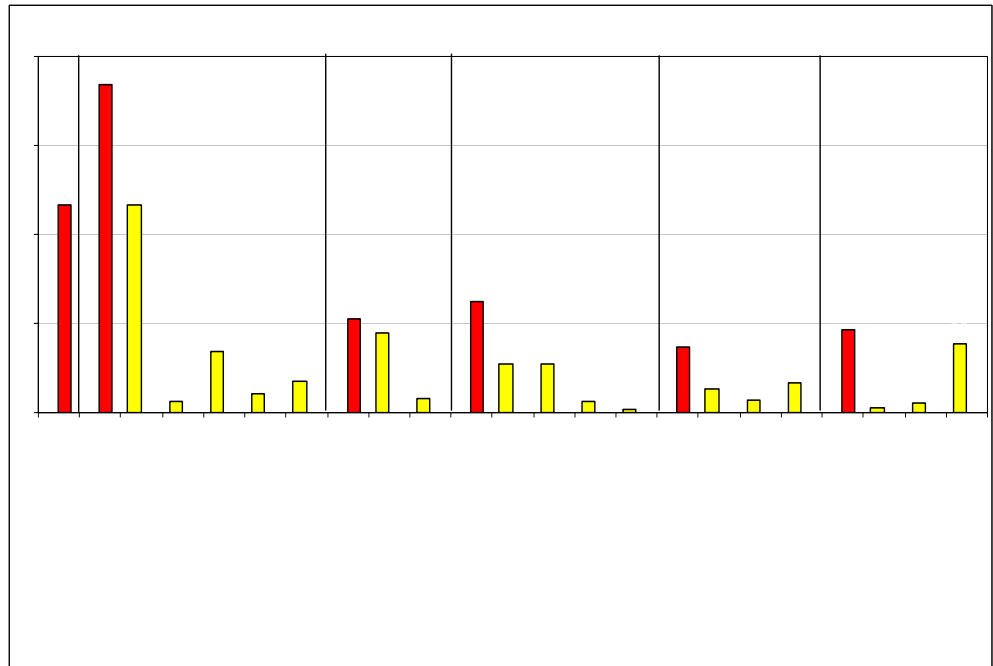
the areas in which Croatia seems to perform relatively worse than its regional peers (tax rates; courts and inadequacy of labor) are all covered by the previous sections. To help us to further analyze the issue, we look at econometric evidence.

Figure 0.7: Top 10 obstacles for the Expansion of Business in Croatia: Exporting Firms
 Percentage of Exporting firms Identifying a Problem as a “ Major” or “Very Severe” Obstacle



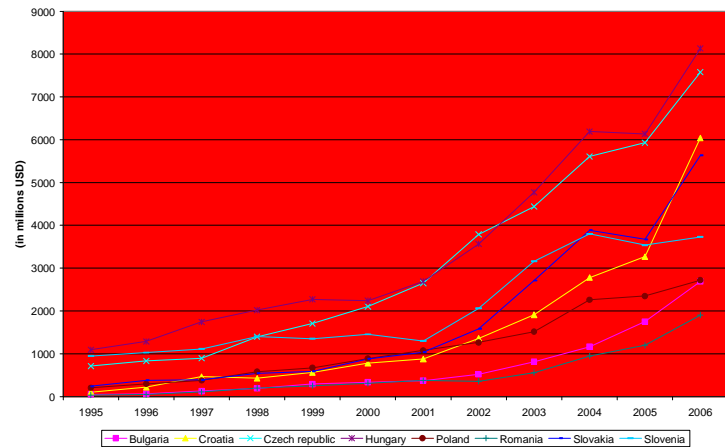
Source: 2008 Croatia ICS-Staff Elaboration

Figure 0.8: Relative ICA effects on the probability of exporting



The econometric evidence generated by this report corroborates the perceptions of entrepreneurs with the following nuances. Two results are worth noting. Firstly is the relevance of productivity, which explains almost a quarter of the probability to export (and with an elasticity of almost 0.29). Apart from TFP, the other four most important factors are: (i) days to clear customs for exports; (ii) availability of own transportation; (iii) criminal losses; and (iv) foreign ownership. While the significance of criminal losses may be difficult to interpret in this context, the interpretation of two out of the three remaining factors (customs and foreign ownership) appears reasonably straightforward and consistent with our expectations. The relevance of “own transport” is obviously contradictory with the worldwide trend of outsourcing transport services. We tentatively interpret it as an indication of the inefficiency of the transport services provided to exporters. In the remaining of this section we will address (i) the patterns of FDI; (ii) the trade related services and (iii) the logistics sector in Croatia.

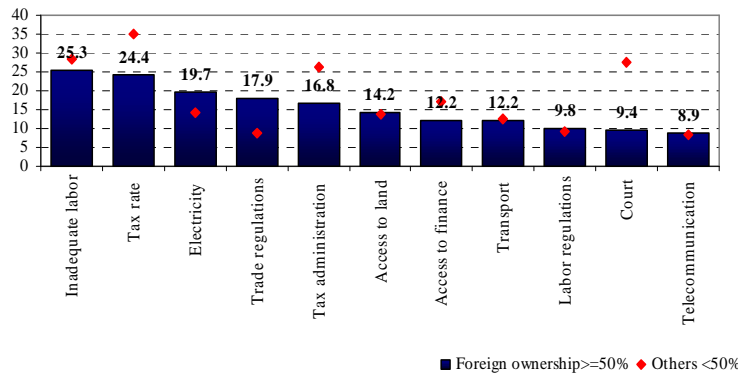
Figure 0.10: FDI stock per capita



Source: IMF

Figure 0.9: Top 10 obstacles for the Expansion of Business in Croatia: Foreign-Owned Firms

Percentage of Foreign-owned firms Identifying a Problem as a “Major” or “Very Severe” Obstacle



Source: 2008 Croatia ICS-Staff Elaboration

⁷⁴ Over 50 percent of global trade is driven by activities of multinational companies. There are several interdependent channels through which foreign direct investment flows increase exports. These include: an increase in the host countries’ productive capacity via increased capital investments; transfer of new technologies; providing better information about export markets and linkages to international production systems; and upgrading the technical and managerial skills of the host countries’ workforce to better compete in a global economy. Besides these direct effects, FDI flows can have spillover effects on productivity and export competitiveness of local firms. Kutan and Vuksic find that FDI inflows increased exports in CEEs via an increase in the domestic supply capacity, superior technology, and better information about foreign markets.

FDI inflows into Croatia have picked up in recent years. From an average of \$510 million between 1995-2000, FDI inflows to Croatia have risen to an average of \$1.9 billion over the 2001-2006 period.. Compared to fast export growth CEE countries such as Hungary, Poland, Czech Republic, as well as Slovakia and Romania, one could partly attribute Croatia's lower export performance to its inability to attract sufficient quantities of FDI. However, this does not fully explain it since, even though Croatia attracts a higher FDI stock than Bulgaria, a larger country, Bulgaria's export growth is still superior to Croatia. Indeed, per capita FDI stock levels have been higher in Croatia than in Poland, Bulgaria and Romania (since 2002) and Slovakia and Slovenia (since 2005) pointing to the importance of other considerations beyond the stock of FDI. We next explore the composition of FDI.

However, FDI inflows into Croatia's manufacturing sector have been limited. Compared to other CEE's that have experienced faster export growth (e.g. Hungary, Bulgaria, Slovakia etc), FDI flows to the manufacturing sector in Croatia, particularly to greenfield investments, have been limited. In 2006, only 20 percent of Croatia's total FDI flowed to the manufacturing sector, compared to 36-39 percent in Hungary, Romania, Czech Republic and Slovenia. Similarly, in per capita foreign direct investment terms, the manufacturing sector in Croatia received \$20 per head in Croatia compared with \$130 in Bulgaria. However, in the services sector, which has been the major recipient of FDI inflows in Croatia, the average per capita FDI flows have been \$55 in Croatia and \$58 in Bulgaria.

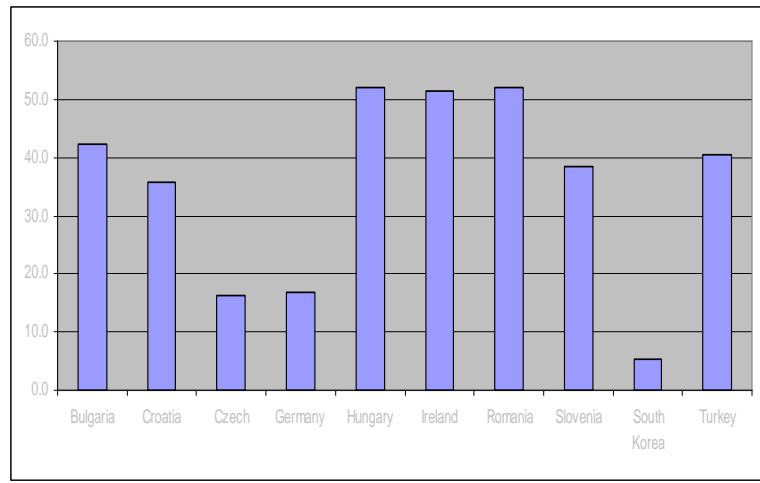
What factors are hindering FDI into the manufacturing sector in Croatia? To help us address this question we will use the responses of the foreign owned-enterprises to the 2008 Croatia Investment Climate Survey and tentatively interpret them as reflecting the perception of foreign investors. The comparison with the ECA average response is also helpful if one interpret the results as the perceived conditions in countries that compete with Croatia for FDI. Following this proposed interpretation, we find Croatia to be perceived worse than alternative locations particularly in the areas of electricity and trade regulations. Inadequacies in the fields of labor, tax rates and administration are also considered amongst the top 10 obstacles for the expansion of business.

Whether taxation is affecting FDI into the export-oriented sector merits further analysis. One of the main constraints that Croatian entrepreneurs are quick to point to is the high tax rate. At 20 percent, Croatia's corporate income taxes (CIT) are higher than those in Bulgaria (15 percent), Romania (16 percent), Hungary (16 percent), Poland (19 percent), Latvia (15 percent) and Lithuania (15 percent). However, at the same time the *effective* CIT rate in Croatia is lower than the nominal rate due to various tax deductions and exemptions offered to entrepreneurs. Furthermore, there are various state-level taxes and non-tax charges and fees that add to the burden of taxation. Unit labor costs and corporate tax burdens are commonly recognized to be among the most significant determinants of greenfield investments in CEE's.

Power Outages in Croatia

Power outages in Croatia remain more pervasive than in OECD countries. According to the results of the most recent World Bank firm-level survey, 29.1 percent of the respondent enterprises reported having experienced power outages during fiscal year 2006. This figure shows a slight improvement relative to the situation in 2004, when over a third of the enterprises had been affected by power shortages. Though representative of the Europe and Central Asia region, Croatia is likely to continue underperforming in the area of electricity supply when compared to Germany and South Korea, say, where less than 19 percent and circa 5 percent of the firms respectively were affected by power outages in 2004.

Figure 0.11: percent of Firms that Experienced Power Outages

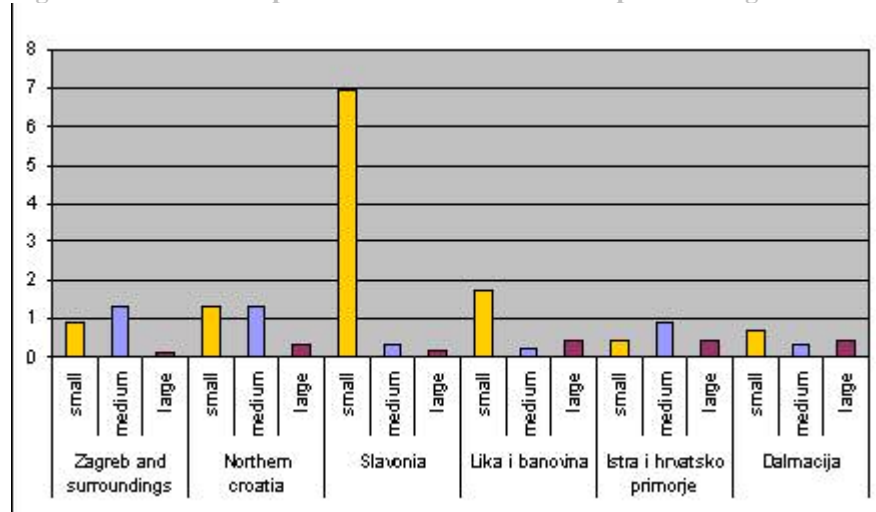


Source: World Bank, BEEPS 2005

Power outages are most severe in Slavonia and Dalmacija. Overall, there were on average 2.19 power outages per typical month with an average duration of 2.33 hours. The average weighted duration of power outages in a typical month in fiscal year 2006 was 6.6 hours, with a high of 8.1 hours in Dalmacija and a low of 2.2 hours in Istra i Hrvatsko Primorje. In Slavonia and Dalmacija, over 50 percent of the firms interviewed had experienced a power shortage in a typical month.

Losses due to power outages are highest among small enterprises, especially those in Slavonia. The average loss due to power outages stood at 1.19 percent of annual sales. Small enterprises lost 2.13 percent of annual sales due to power outages, as compared to the 0.46 percent of losses incurred by medium-sized enterprises and the 0.26 percent of losses on the part of the large companies. Small firms based in Slavonia incur the highest losses, some 6.94 percent of annual sales. There are two possible and complementary explanations for the higher losses incurred by these companies. One is that these firms tend to have a higher productivity than the rest and thus a power surge in the case of these companies has a higher opportunity cost than for the other firms. A second explanation revolves around their limited ownership of power generators. The types of firms that incur the highest losses tend to have the lowest percentage ownership of own generators.

Figure 0.12 : Loss as a percent of annual sales due to power outages



Source: World Bank, Croatia ICS 2007

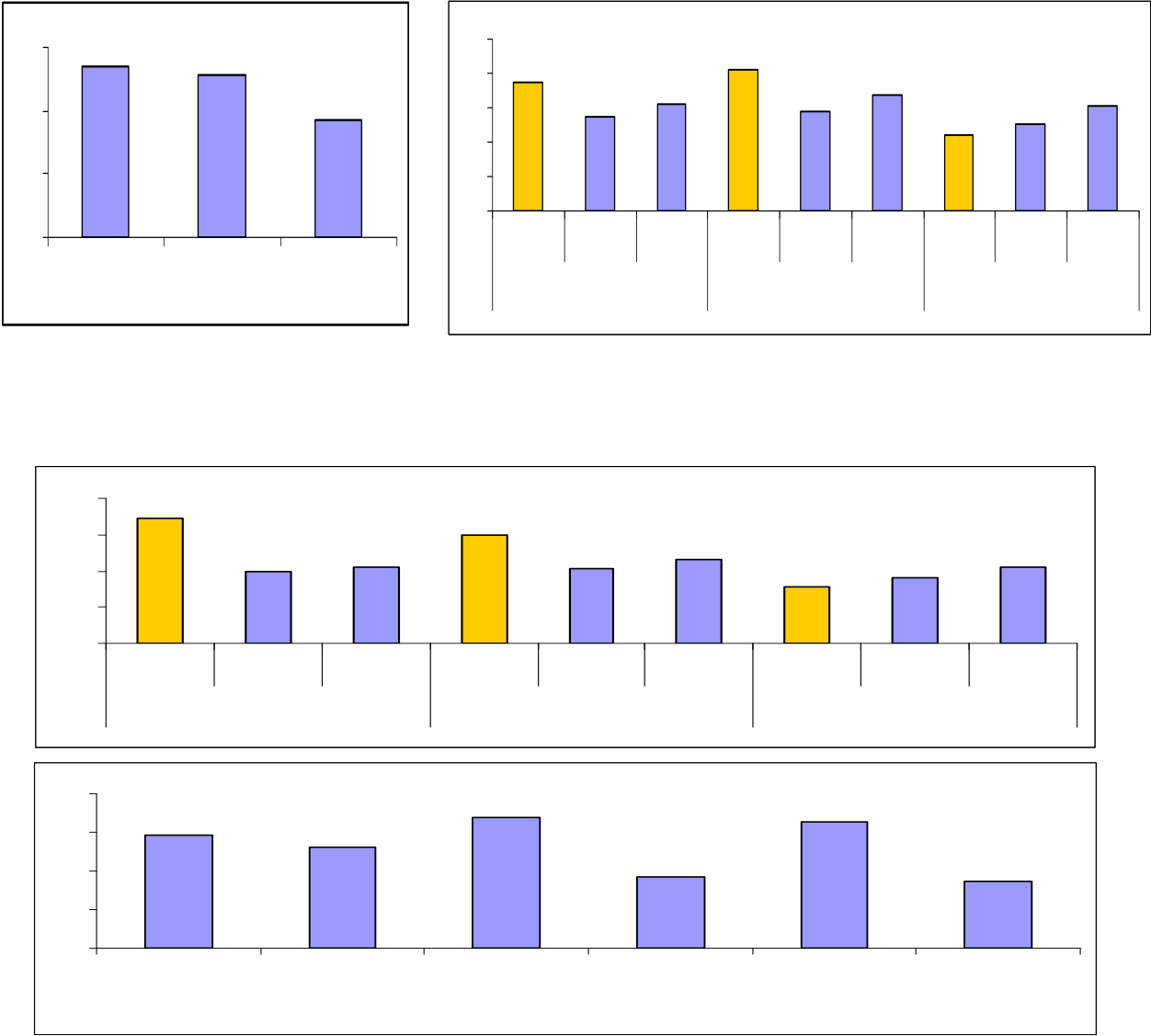
Middle-aged firms and those in the manufacturing sector are also seriously affected by power outages. Companies that have been in operation for more than 5 years but less than 15 years lost an average 1.36 percent of annual sales because of power outages, relatively more than the younger enterprises (0.24 percent of annual sales) or the older enterprises (0.54 percent of annual sales). Only 5.8 percent of the middle-aged firms had their own generator, which is in stark contrast with the 27.1 percent of ownership among older companies. Analyzing the various industries, it is firms in the manufacturing sector that are impacted negatively the most by power outages. On average, they lose 1.84 percent of their annual sales because of power outages, which is more than twice the figure for the services industry. Looking at ownership, firms that are domestically-owned are affected the greatest by power outages, losing 1.21 percent of their annual sales. Foreign-owned firms only lose 0.05 percent of their sales. Private firms also lose more than public firms (and have a lower percentage of generator ownership).

Paying Taxes

Compliance with tax requirements has distortionary effects on firm activity. Taxes provide one of the main sources of government revenue needed to cover the costs of providing public services. Yet, taxes also affect the incentives of firms to invest productively by weakening the link between effort and reward, and by increasing the cost of inputs used in the production process, thus reducing job growth. High tax rates and high formal and informal costs of compliance with tax requirements can distort competition in the domestic market by driving small firms into the informal economy and by creating incentives for large firms to negotiate various tax privileges and to avoid taxes through sophisticated legal means, thus placing the greatest burden on medium-sized enterprises. In order to minimize the distortionary effects of taxation on firms, it is important for an economy to have a wide tax base so as to allow for a lower level of corporate, income and VAT taxes, to have in place an efficient tax administration, and to keep the costs of compliance with tax requirements at a minimum.

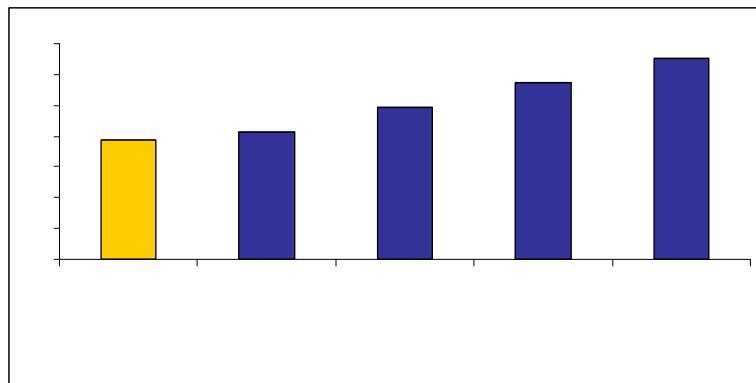
The tax rate and the tax administration are among the top 10 obstacles to business activity in Croatia. Of the total number of firms interviewed by the World Bank, 34.4 percent identified the tax rate (and 25.7 percent the tax administration) as a major or very severe obstacle to their growth. Attitudes towards the tax regime and the tax administration tend to be more negative among small and medium-sized firms, as well as among young firms (those in operation for less than 5 years). The perceptions were widely shared by entrepreneurs from across the country, with the exception of businesses located in Dalmacija who took a more sanguine view on both counts.

Figure 0.13: Tax rate as a major or very severe obstacle to business operation and growth, by firm size and age



Croatia’s VAT taxes, at 22 percent of value added, are amongst the highest in Europe and the second highest among the upper middle income economies. In Europe, only some of the Scandinavian countries exceed Croatia in terms of their VAT rate (Denmark, Norway, Sweden have VAT rates of 25 percent and Iceland a rate of 24.5 percent). Payroll taxes in Croatia, meanwhile, are higher than the average for EU-15,

Figure 0.15: Employers’ labor contributions in Croatia and comparator economies, % of profit



www.doingbusiness.org

and just below the average for the new member states. Most of the burden of the high payroll taxes is assessed to employees. Employers’ share of social contributions payments amounts to 17.2 percent of gross salaries, or to 19.4 percent of profit, the lowest when compared to the other upper middle income economies (at 20.5 percent of profit), to OECD countries (at 24.5 percent of profit) or to their European counterparts (at 28.6 percent of EU-15, or 32.5 percent of EU-10). The high payroll tax burden faced by employees helps account for the high gross wages in Croatia,⁷⁷

which detract from the country’s competitiveness and lowers domestic companies’ profits.

Paying taxes in Croatia has been made much more efficient over recent years, but there is still room for improvement compared to EU-15. Businesses must make 28 payments for full compliance with the tax system (and spend an estimated 196 hours on the tax compliance system). This is twice the number of payments compared to the EU-15 average. By comparison, Irish firms (the best practice economy in Europe for paying taxes) are required to make 9 payments and devote only an estimated 76 hours to the process. The shorter time requirement is due in part to the Irish online filing system. E-filing and e-payment of taxes, recently introduced in Croatia (see below), are reducing companies’ interaction with the tax officers and also reduces the formal and informal cost of paying taxes. According to Transparency International, the Croatian Tax Revenue Authorities are viewed by Croatian citizens and businesses as being prone to bribe-taking in the course of their activities⁷⁸. Respondents to the question “To what extent do you perceive the following sectors in this country to be affected by corruption? (1: not at all corrupt; 5:extremely corrupt) evaluated the Croatian Tax Revenue Authorities at 3.4. This is better than the Central European average of 3.6 but not as good as the Western European Average of 2.9.

⁷⁷ Jan Rutkowski, “Does strict employment protection discourage job creation? Evidence from Croatia”, World Bank Policy Research Paper 3104, World Bank, August 2003

⁷⁸ Transparency International, “Global Corruption Barometer 2007”.

Table 0.3: Benchmarking Paying Taxes in Croatia

Paying taxes	Payments (#)	Time (hours)
Croatia (Zagreb)	28	196
EU best practice (Ireland)	9	76
ECA	46	452
EU-10	28	358
EU-15	14	190
OECD	17	240
United Arab Emirates	14	12
Bulgaria	17	616
Romania	96	202
Czech Republic	12	930
Hungary	24	340
Poland	41	418
Slovak Republic	31	344
Turkey	15	223

Source: World Bank, Doing Business 2008, www.doingbusiness.org

The e-Government reform has simplified paying taxes. Launched in 2004, the e-Croatia initiative aims to improve the efficiency of the public administration by introducing information and communication technology in its activities. The e-Tax and e-Regos system, introduced in 2006, are an integral part of this initiative. E-Tax currently allows all taxpayers to file online their VAT declarations for a certain accounting period, thus reducing the indirect costs of complying with the tax regime. E-Regos facilitates the entrepreneur's payment of the mandatory social contributions. As a result of the ongoing tax reform process and of the introduction of online services, the firms' process for full compliance with the tax requirements has been facilitated. Whereas in 2005 medium-sized enterprises had to make 39 payments to comply with all the tax requirements, by mid-2007 this had been reduced to 28 compulsory payments⁷⁹.

The Revenue Administration Modernization Project is currently being implemented with the support of the World Bank. The objective of the Revenue Administration Modernization Project in Croatia, launched in June 2007, is to achieve further improvements in efficiency, taxpayer services, and tax compliance through capacity-building and systems improvement in the Croatian Tax Administration (CTA)⁸⁰. The project will focus on reorganizing and improving the functionality of the CTA's tax offices in Zagreb, and on building the skills, capacity and integrity of officials, employees and taxpayers through various training activities. It will also assist the Government with modernizing business processes, by improving the efficiency and the effectiveness of the CTA.

The following measures are recommended to reduce Croatia's tax and tax compliance burden on the private sector:

- **Broaden the tax base to reduce the tax burden on current market players.** This would require a multi-pronged approach combining facilitating business entry and exit as well as improving tax compliance for the large companies and reducing informality;
- **Revise the existing tax exemptions and deductions for companies.** Tax incentives increase administration costs and attract speculative capital while rarely achieving offsetting economic benefits;
- **Consider extending the simplified tax regime to all small businesses in all industries.** Croatia's current simplified tax regime benefits taxpayers in a very limited set of industries. It would be important to consider extending this regime to all taxpayers in all industries whose turnover is

⁷⁹ World Bank, Doing Business 2008, www.doingbusiness.org

⁸⁰ World Bank, Press Release, June 28th 2007

below a certain level, and calculating the tax liability as a fixed percentage of turnover. This would allow businesses to get into the practice of keeping basic records on their sales, which will prepare them to eventually migrate to the formal tax system as their operations expand. The lump-sum payment approach could be reserved for only the very smallest taxpayers;

- **Improve the efficiency of the tax administration in Zagreb, Slavonia and Istra i hrvatsko primorje.** These are the areas with the most cumbersome tax administration according to the firms interviewed. The lessons learnt from the Revenue Administration Modernization Project now under implementation in Croatia could be utilized in improving the efficiency in the other regions;
- **Introduce e-filing and electronic payment for all corporate taxes and for social contributions.** The introduction of e-VAT and e-Regos decreased not only the formal but also the informal costs of complying with these requirements. Allowing firms to file and pay all their taxes online would further reduce the compliance costs for firms operating in Croatia;
- **Simplify the tax administration by introducing audits based on risk analysis;**
- **Establish a dialogue with the private sector when introducing changes in the tax regime.** Since firms, especially small and medium-sized ones, can be affected substantially by changes in the tax legislation, it is important to consult with them when changing the legislation.

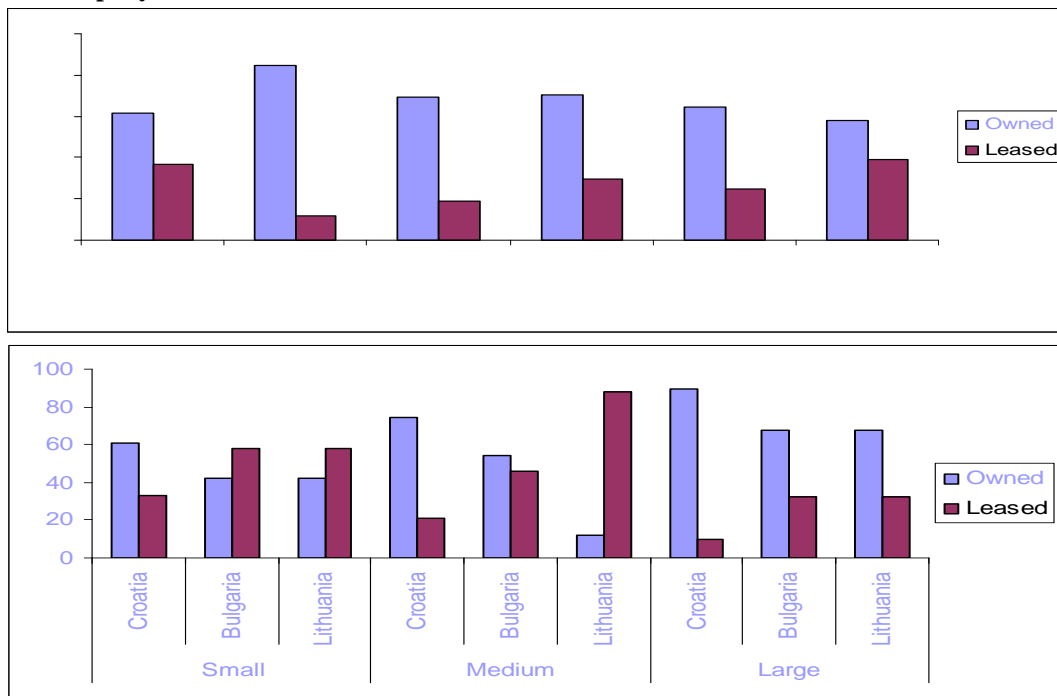
Access to Land

Access to land is fundamental to the development of any economy. Formal property ownership enables entrepreneurs to gain access to capital by using their land or buildings as collateral for bank loans. This allows entrepreneurs to start or expand their businesses through further investment, thus creating more jobs and giving an impetus to economic growth. For these reasons, an efficient property registration system, that enables the transfer of title from sellers to buyers in a reasonable amount of time and at a reasonable cost, is of considerable importance.

Access to land is one of the top 10 obstacles to Croatian firms' operations and growth. Some 3.6 percent of the firms interviewed by the World Bank in 2007 identified access to land as a major or severe obstacle to their operations and growth prospects. It is mostly the firms based in Dalmacija, Istra i hrvatsko primorje and Lika i Banovina that report being most constrained in their activities by lack of access to land. These firms tend to own a lower percentage of the land that they occupy than their counterparts in Northern Croatia.

The burden of access to land is heaviest on the small firms (those with less than 20 employees) and young enterprises (less than 5 years). Small firms in Croatia own only 61 percent of the land that they occupy, in contrast to the 75 and 89 percent of the land owned by the medium-sized (less than 100 employees) and large (above 100 employees) enterprises. Furthermore, companies that have been in operations for less than 5 years also report leasing a greater proportion of the land that they occupy than companies that have a history of 5 years and above. It is mostly these young companies that identify access to land as one of the major or severe obstacles to their operation and growth. Although small and young companies in Croatia own a greater percentage of the land that they occupy than companies with similar characteristics in Lithuania or Bulgaria, they nevertheless perceive access to land as a greater obstacle to their operation and growth than their counterparts in other Eastern European and Central Asian countries and other upper middle income economies.

Figure 0.16: Land occupied by the respondent firms that is either owned or leased, by region and company size

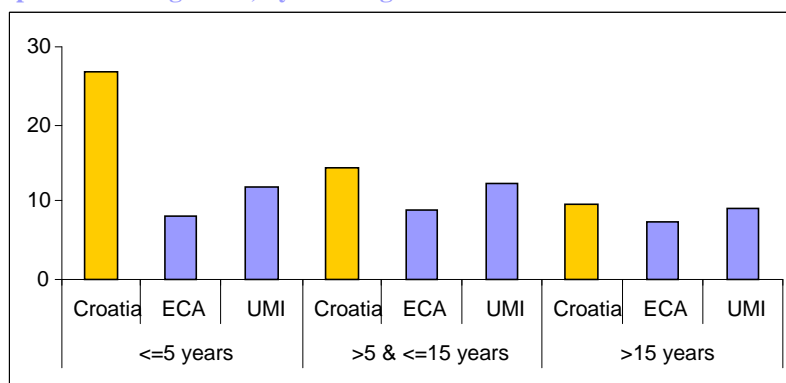


Source: World Bank, Croatia 2007 Investment Climate Survey, Bulgaria 2007 and Lithuania 2004

Companies owned by foreign citizens, companies or organizations own a lower share of the land they occupy than domestically-owned companies. Foreign-owned companies with operations in Croatia own 43 percent of the land that they occupy, in contrast to the 70 percent land ownership among firms owned by Croatian individuals, companies or organizations. It is also noteworthy that the manufacturing sector leases a greater percentage of the land it uses than the services, construction and transport sectors.

Lack of secure property rights has been one of the major obstacles to land access in Croatia. The difficulty of ascertaining the ownership of land and property, and of purchasing land (especially large plots) in a way that establishes clear legal title, is a regular complaint of many entrepreneurs. The Land Registries constitute the only legal record of land ownership in Croatia and they provide the certificate of ownership essential for preemption of other ownership claims on the land,

Figure 0.17: Access to land as a major or severe obstacle to their operation and growth, by firms age



Source: World Bank, 2007 ICA

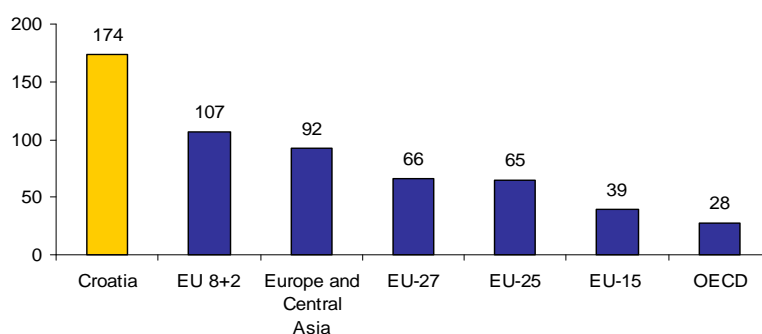
submission as part of the building permit application and ownership evidence for use as collateral. However, the land registries and the cadastre⁸¹ systems were poorly maintained in Croatia up until 1996, which has resulted in significant discrepancies between the official records and the actual state of title on the ground. At the turn of the century, data defining property in the municipal court registries typically differed in as many as 50 percent of the cases from those in the cadastre offices⁸². The challenge of tracking ownership has been made more difficult because of the fact that inheritance laws have led to a situation in which some properties can have dozens of legal owners, some of whom are long since deceased and others of whom have emigrated and cannot be found. Moreover, it was made more difficult by the common practice of transferring land without registration in order to avoid transfer taxes or, in earlier times, substantial inheritance taxes. These unreliable systems increase the time and uncertainty of transactions when property is sold or used as collateral in secured lending, and hinder the expansion of real estate markets.

Registering property in Croatia is very inefficient by comparison to OECD, EU-15 and other countries in the region. In order for a business that has purchased land and a building to transfer the property title so that it can use the property for expanding its business, as collateral in taking new loans or, if necessary, to sell to another business, it needs to go through 5 procedures, which last on average 174 days and account for 5 percent of the property value. Both the time that the buyer has to spend waiting for the property title and the costs incurred are very high when compared not only to best practice but also to regional averages. In New Zealand, the best practice economy for property registration, it takes only 2 days to register a property and a minimum payment of 0.1 percent of the property value. Even in Lithuania, another transition economy, the process of property registration only lasts 3 days and the associated expenses amount to 0.7 percent of the property value. On average in ECA it takes 92 days to transfer a title of ownership, while in the OECD countries, the 5 necessary procedures last 28 days.

The lengthiest procedure in the process of land acquisition is the registration of the property title transfer at the municipal court. It can last up to 140 days if deposited at the Zagreb municipal court⁸³. The main reason for the long duration is the existence of land registry case backlogs at the municipal courts. One of the causes of the backlog is the time required to resolve the mismatches between the data in the land registry found at the municipal courts and the cadastre registers and maps maintained by the cadastre offices.

To address the bottlenecks at the municipal courts, the government has embarked upon an extensive reform program. The Real Property Registration and Cadastre Project, funded by the World Bank, the EU's CARDS program, and the Croatian government, was initiated in 2002 with the aim of accelerating registration of property rights especially in respect of sales and mortgages, and creating an efficient system for the clarification of land ownership across Croatia. The main

Figure 0.18: Property registration (days) in Croatia and comparator economies, 2008



Source: World Bank, Doing Business Project, www.doingbusiness.org

⁸¹ The cadastre is an information system consisting of two parts: a series of maps or plans showing the size and location of all land parcels, together with text records that describe the attributes of the land. It is distinguished from a land registration system in that the latter is exclusively concerned with ownership.

⁸² World Bank, Project Appraisal Document on a proposed loan to the Republic of Croatia for a real property registration and cadastre project, August 1st, 2002

⁸³ There is not similar data available for other municipalities in Croatia.

components of the project include streamlining the cadastre and real property registration systems and the associated transaction processes and harmonizing the data between the two systems and ensuring that they match with reality by undertaking cadastre re-survey where necessary and land book registration correction and renewal in a systematic manner in selected areas of the country.

The recent reforms have translated into a faster registration process. The digitalization of land records and the launch in May 2005 of the on-line service for digital land registry (e-izvadak.pravosudje.hr) have speeded up the process of registering property. Though the number of procedures and the cost of registration have remained unchanged in the period 2004-2007, the time needed to transfer the property title over a plot of land and the associated building from one business to another was reduced drastically from 956 days in 2004-05 to 174 days in 2007. Property registration in Croatia remains slow by comparison to the EU-10 countries, other European and Central Asia countries, EU-27 and OECD economies. With the recent reforms that transformed property registration from a judicial process into a more administrative one⁸⁴, though, a further reduction in the time to register property is expected.

The following measures are recommended to achieve further improvements in property registration and thus access to land:

- **Eliminate the transfer tax and introduce fixed fees on property transfer.** Currently in Croatia the buyer of a plot of land must pay a real property transfer tax that amounts to 5 percent of the property value. This high transfer cost has in the past discouraged the formalization of titles and encouraged below-market property value declarations. It is noteworthy that there is no real estate transfer tax in Poland, while Slovakia abolished it altogether.
- **Take all the procedures for registering property out of the courts.** To secure property ownership, the entrepreneur must register the title transfer at the municipal court, as it is the depository of the land registry. It is only the court's final legal decision about the transfer that has legal standing. However, this is rather inefficient given the backlog of cases at the courts and the fact that it detracts from the judges' time for dispute resolution.
- **Unify the land registry and the cadastre and create a property registration one-stop shop.** This reform would ensure accuracy of the data and would greatly speed up the property registration process by making it easier to detect overlapping titles. In fact, the government is indeed envisaging the creation of a unified registry, known as the Joint Information System (JIS). The recent reforms that make property registration a more administrative process are a step in the right direction. It is important that the government does not lose the reform momentum and continues taking the necessary steps to ensure that the reform is indeed launched in June 2009 as initially planned.
- **Make the registry electronic.** In Croatia currently one can only check the status of the plot of land online. Croatia should go one step further and allow the entrepreneur to submit all the documents online. This would not only speed up the property registration process but will also reduce the incidence of informal payments.

Licenses and Permits

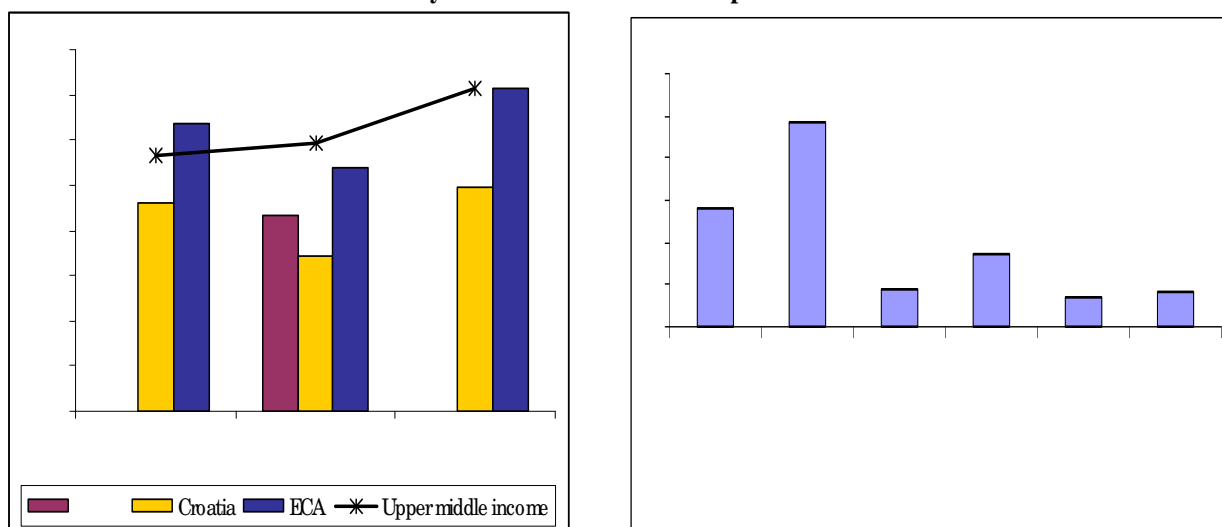
The business licensing and permits regime remains an important concern for firms operating in Croatia. Of the managers polled by the World Bank in 2007, 9.9 percent identified licenses and permits as a major or severe obstacle to their firms' operations, which represented a deterioration in perceptions since 2005. Firms operating in Croatia are more critical of the licensing environment than their counterparts in OECD countries. The licensing environment is perceived as more of a hurdle in Northern Croatia and in Zagreb and its surroundings than in the rest of the country.

⁸⁴ Recent changes in the 2005 entrust the Land Registry clerks with the authority to decide on property registration applications. The judges are only required to rule on appeals. Source: <http://www.doingbusiness.org/ExploreTopics/RegisteringProperty/Details.aspx?economyid=52>

Certificates of Compliance with the Minimum Technical Requirements are needed to start and continue operating in the hospitality, commercial, tourism and transport sectors of the economy. Once included in the Commercial Court Registry, businesses and crafts that intend to offer hospitality, commercial, tourist and/or transport services are required to obtain a certificate from the competent administrative body (County Office for Economic Affairs) evidencing compliance with technical, health, environmental and other legal requirements for the performance of this activity, or activities⁸⁵.

Obtaining the operating license is costly and time consuming. It takes an average of 26.5 days to obtain an operating license in Croatia, in contrast to 3.4 days in Morocco, or 21.2 days in Albania. In order to apply for the certificate of compliance, businesses intending to perform one of the above-mentioned activities must obtain clearances from various other institutions such as the power supply authority and the sanitary inspectorate, which again takes time and inflicts a cost on the start-up. The cost of receiving the operating license includes the HRK 70 fee for the revenue stamp and the HRK 350 official fee.

Figure 0.19: Percentage of companies perceiving the business licensing and permits environment as a major or very severe obstacle to their operations

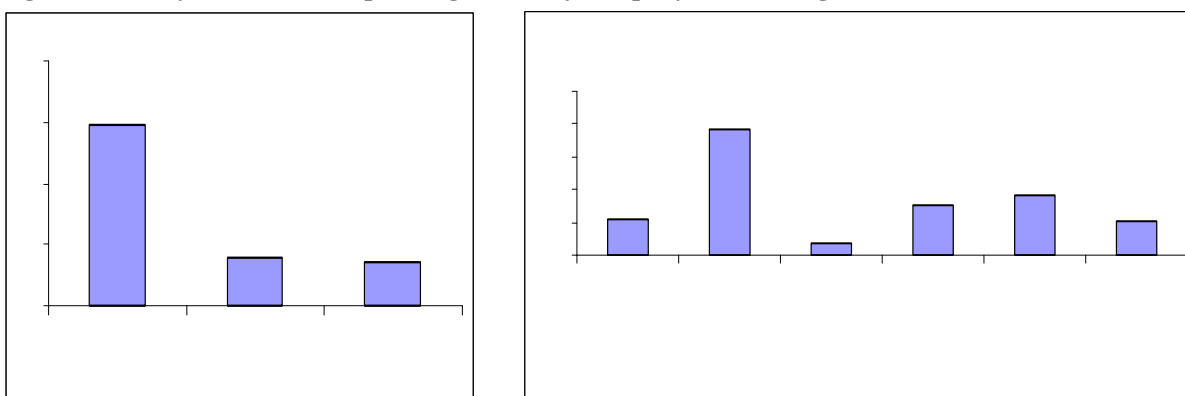


Source: World Bank, BEEPS Surveys 2002, 2005, ICS 2007

Foreign firms, small firms, and firms in Northern Croatia wait longer to obtain their operating license. On average it takes small firms 59.2 days to obtain the necessary documentation to be able to start operating. By contrast, large companies typically wait 14.2 days, and medium-sized firms 15.9 days. On average, foreign firms face a wait time of 37 days, whereas domestically-owned firms obtain their operating licenses in 25.8 days. Obtaining an operating license is most time consuming in Northern Croatia, amounting to 76.7 days, and most efficient in Slavonia, amounting to 6.9 days.

⁸⁵ www.hitro.hr

Figure 0.20: Days to obtain an operating license by company size and region



Dealing with licenses	Croatia	ECA	EU-10	EU-15	OECD
Procedures (number)	22	24	22	14	14
Duration (days)	255	251.3	202.9	172.3	153.3
Cost (percent of income per capita)	722.4	628.4	113.0	67.6	62.2

Source: World Bank, Doing Business Dealing with Licenses Indicator. www.doingbusiness.org

In spite of the municipality acting as a one-stop shop for the preliminary approvals, the licensing process takes a long time. By comparison, Danish builders have to take only 6 steps and spend 69 days to comply with the national construction licensing framework, while their Finnish counterparts spend only 38 days on the 18 mandatory procedures. The lengthiest procedures include those necessary to obtain the preliminary approvals from the various state institutions (i.e. Inspectorate of Fire, Electric Grid, National Telecommunications Agency and the waste collection department – each procedure takes up 30 days) and the procedures for the receipt of the location permit (45 days) and the building permit (65 days) from the municipality. Even obtaining a connection to electricity, water and sewage and telephone takes between 15-20 days in Croatia, whereas the same procedures in Denmark, Finland or even Georgia do not exceed 5 days in duration. Some 97.2 percent of Croatian firms' costs incurred in building and registering a warehouse are accounted for by obtaining a decision from the municipal authority regarding utilities (HRK 144,369) and getting connected to the electric grid (HRK 238,000). It is noteworthy that there are virtually no informal payments made when dealing with the utility providers.

⁸⁶ World Bank, Doing Business 2008, www.doingbusiness.org

⁸⁷ Davor Mikulic, "Assessment of the unofficial economy in the republic of Croatia in 1998 using the system of national accounts", originally published in *Economic Trends and Economic Policy* (Croatia), 2000, No.83, 35-95. Davor Mikulic estimates that 9.6 percent of the construction services supplied in Croatia in 1998 were offered by the unregistered (i.e. informal) economy.

Important reforms to ease the burden of the licensing and permits regime have been implemented.

The creation in 2005 of the HITRO one-stop for company registration increased transparency about the process of obtaining the operating license. Information about the process as well as all the necessary forms to be completed are available both online and at the HITRO counters in the major cities. A 15-day statutory time limit was introduced at the County Offices for Economic Affairs to ensure a timely delivery of the Certificate of Compliance with the Minimum Requirements. However, in spite of these reforms, the entire process of overcoming the post-registration start up process remains lengthy.

The launch of the regulatory guillotine (HITROREZ) in 2006 has the potential to ease the burden of business licensing on the private sector. HITROREZ is the first fast-track review of regulations affecting business operations, with the aim of simplifying the regulatory environment and reducing the cost of doing business. The first phase of the exercise was completed in June 2007 with the creation of an internet-accessible inventory (www.hitrorez.hr) of 2,836 business-related regulations. Moreover, the government has accepted the recommendations to simplify or eliminate roughly 55 percent of all inventoried regulations. The completion of the implementation stage is estimated to result in \$250 million in savings for businesses from the licensing and other business formalities simplification reform⁸⁸.

The government has also expressed an interest in institutionalizing the Regulatory Impact Assessment (RIA). RIA is an instrument designed to increase the efficiency of adopted policies and regulations in achieving their objectives by increasing the quality of original regulatory solutions. Although the Rules of Procedure of the Croatian Government and the Rules of Procedure of the Croatia Parliament contain provisions prescribing RIA in the regulatory process, it is still not systematically implemented. Part of the problem arises from the lack of a unified methodology to define the minimum scope of the assessment to be employed by the line ministries. Moreover, the RIA Office to set the standards, coordinate the work of the line ministries in the field of RIA and to further develop the RIA system has not yet been created.

The following policy changes are recommended to improve the business licensing regime through streamlining licenses and reducing fees:

- **Undergo the second phase of the HITROREZ initiative.** Now that the Government has taken stock of the business licenses and permits that companies are faced with, it is important for there to be a thorough review of all of them to eliminate the ones that are redundant and without a legal base or simplify the remaining ones with the view to reducing the time and cost of obtaining them.
- **Launch a regulatory guillotine at the sub-national level.** The first phase of HITROREZ only analyzed the national legislation. However, businesses are confronted with regional requirements that prove to be unnecessary or overly bureaucratic and costly.
- **Draft the RIA law and create the RIA Office** to vet future business licenses and implement a RIA policy for existing and future business licenses and permits.
- **Extend the scope of RIA to by-laws and other ministerial level regulations and to the sub-national level.**
- **Draft a Business Regulation Bill to give the electronic registry “positive legal security” after extensive consultation with all the stakeholders.** This would ensure that only licenses and permits that are approved by the Business Regulatory Reform Unit performing a quality control function and which are introduced in the electronic registry can be enforced against businesses.
- **Ensure that the electronic registry of regulations is updated regularly** to keep businesses up to date with recent development in national and sub-national regulations.
- **Publicize the costs of obtaining all the licenses and permits in order to reduce the incidence of corruption.**
- **Standardize the application documents for all the permits and licenses.**

⁸⁸ World Bank, FIAS, 2007 Annual Report

- **Consolidate project/business clearances at the County Office for Economic Affairs or at the HITRO counters.**
- **Continue capacity building** within the State Administration in order to improve the service delivery to businesses.

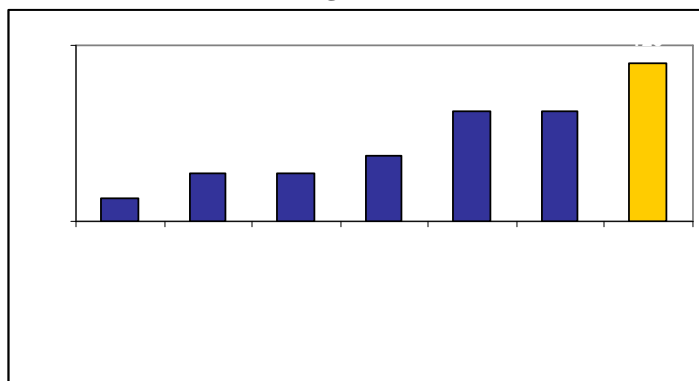
Corporate Governance

A strong corporate governance framework is essential for economic growth.

Countries with stronger protection of creditor and shareholder rights are associated with deeper and more developed banking and capital markets⁸⁹. Hence, in these countries firms have better access to finance, which can result in greater investment, higher growth and creation of more jobs and eventually a greater number of firms. Companies that are perceived by investors to be well governed also enjoy a greater market valuation and a lower cost of capital⁹⁰, as demonstrated by studies undertaken by McKinsey⁹¹ and by Deutsche Bank⁹². Furthermore, companies that are better governed are more efficient and enjoy higher profits and faster sales growth⁹³. Poor governance can affect the functioning of a country's financial markets. It can increase financial volatility and even economy wide effects by contributing to currency and banking crises, as the East Asian crises of 1997-1998 proved⁹⁴.

Croatia, like other transition economies, is confronted with an important corporate governance issue in the form of weak minority investor rights. Companies that have stronger minority shareholders' rights tend to be better governed and more efficient and to enjoy higher profits and faster sales growth. A weak investor protection environment can result in the problem of investor expropriation by controlling shareholders, especially in a setting of concentrated ownership as seen in Croatia. The top 10 Croatian shareholders own 80 percent or more of the shares in most companies⁹⁵. Otherwise known as self-dealing, investor expropriation can take many forms, including excessive executive prerequisites and compensation,

Figure 0.21: Croatia's minority investor's protection compared to its neighbours in 2008



⁸⁹ "Corporate Governance and Development", Stijn Claessens, Global Corporate Governance Forum, Focus 1, 2003

⁹⁰ "Predicting Firm's Corporate Governance Choices: Evidence from Korea" Black, Bernard S.; Jang, Hasung; Kim, Woonchan, University of Texas Law School Working Paper No. 39, August 2004 – showed that well-governed firms in Korea traded at a premium of 160 percent to poorly governed firms.

⁹¹ McKinsey's Global Investor Opinion Survey, 2002

⁹² "Beyond the numbers – Corporate Governance: Implications for Investors", Grandmont, Renato; Grant, Gavin; Silva, Flavia; Deutsche Bank, April 1, 2004. - The study of S&P 500 firms showed companies with strong or improving corporate governance outperformed those with poor or deteriorating governance practices by about 19 percent over a two-year period.

⁹³ "Corporate Governance and Equity Prices"; Gompers, Paul; Ishii, Joy; Metrick, Andrew; *Quarterly Journal of Economics* 118(1), February 2003, 107-155.

⁹⁴ Toolkit 2, "Developing Corporate Governance Codes of Best Practice", Volume 1, Module 1, Global Corporate Governance Forum, World Bank Group, 2005

⁹⁵ "Report on the Observance of Standards and Codes; Corporate Governance Country Assessment, Croatia", World Bank Group, June 2007

manipulation of profits via transfer pricing, and self-serving financial transactions such as directed equity issuance or personal loans to insiders.⁹⁶

Croatia is ranked 126th on the Doing Business 2009 Protecting Investors Indicator⁹⁷. Croatia's minority investors protection framework lags behind those of Slovenia (ranked 18th), Bulgaria and Romania (both ranked 38th), Turkey (64th), Serbia (70th), Germany and Macedonia, FYR (both at 88th)⁹⁸. Croatia has to catch up in terms of its minority investors' protection legal framework not only with its neighbors, but with most of the world's countries. Investor protection in Croatia scores not only below the OECD average (Croatia scores 4.0 on the Investor Protection Index out of a maximum of 10, while the average for OECD is 5.8), but also below the regional (Eastern) Europe and Central Asia average (5.5).

Croatia's ranking on the Protecting Investors Index reflects gaps in its corporate governance legislative framework covering conflict of interest and related-party transactions. For instance, there is no requirement in law for an executive subject to a conflict of interest to disclose to the board of directors or the public, either immediately or in the company's periodic filings, a related-party transaction and his/her conflict of interest. Even if a minority shareholder were able to prove that the related-party transaction was prejudicial to the company's operations, he/she could not take the executive in question to court. The existing legislation does not empower a shareholder plaintiff who holds 10 percent of the share capital or less to sue directly or derivatively for the damage that such a transaction might cause to the company. The only avenue for redress is for the minority shareholder to request a government inspector to investigate the transaction. If the executive is indeed found guilty, then the maximum penalty that he/she faces is merely the restitution of the profits made from the transaction. According to the law on the books, neither fines nor imprisonment can be applied against the executive. Hence, a minority shareholder in Croatia would find him/herself in a situation of powerlessness in the face of self-dealing, given that the avenues for private and public enforcement are virtually absent.

Croatia has started to reform its corporate governance framework by incorporating the revised OECD Principles of Corporate Governance into its national legislation. Following the release of the revised OECD Principles in 2004, the EU and its member states made a concerted effort to incorporate them into their national legislation. Croatia followed suit by extensively amending the Companies Act (CA), based on German and Austrian company law, in 2003 and the Securities Market Act (SMA) in 2006. In April 2007, HANFA, the Croatian Financial Services Supervisory Agency, together with ZSE, issued a Code of Corporate Governance which all public companies are required to comply with (except those companies listed on the Parallel market⁹⁹)¹⁰⁰. As a result of these changes, Croatia's corporate governance legal framework has improved and alignment with the *acquis* is on track¹⁰¹. However there are remaining gaps that need to be addressed to achieve full compliance with the Lamfalussy Directives¹⁰² and hence with the OECD Principles of Corporate Governance.

⁹⁶ "The Law and Economics of Self-Dealing", Simeon Djankov, Rafael La Porta, Florencio Lopez-de-Silanes, Andrei Shleifer, November 13' 2006

⁹⁷ Croatia Country Profile, *Doing Business 2009*, retrieved from: www.doingbusiness.org

⁹⁸ See Annex 1 for the full *DB'08* Protecting Investors Rankings

⁹⁹ The ZSE stock market has 457 securities worth a total 337 billion Kuna⁹⁹ and listed on its five segments: the Official Market, the ZIF Market, the Regular Market, the JDD Market and the Parallel (or Free) Market. Companies listed on the first four tiers must implement the newly adopted corporate governance code on a "comply or explain" basis. Parallel market members are not required to comply with either the SMA, the HANFA regulations or with the new corporate governance code

¹⁰⁰ The Croatian National Bank (HNB), which enforces compliance with the 2008 Act on Credit Institutions, is also in the process of preparing a corporate governance code for banks not listed on the ZSE.

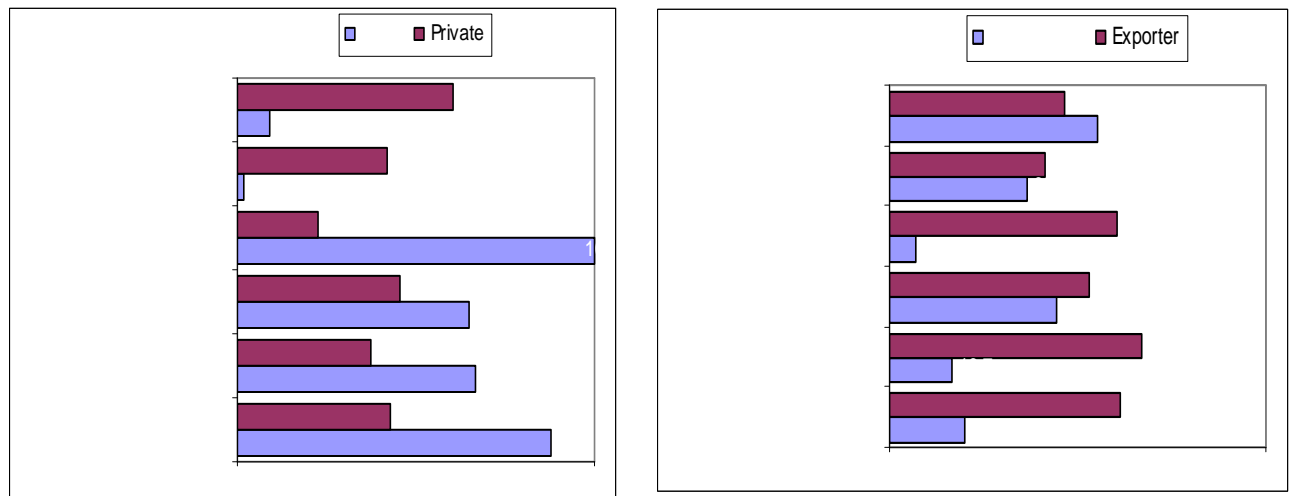
¹⁰¹ "Croatia 2007 Progress Report", Commission Staff Working Document, Commission of the European Communities, Brussels, November 6, 2007, pages 29-30

¹⁰² The Lamfalussy Directives are an essential part of the Commission's Financial Services Action Plan. They include: the Market Abuse, Prospectus and Transparency Directives.

Increasing use of external auditors on the part of Croatian firms is found to increase productivity. Disclosure and transparency with regards to the functioning of the firm is one of the main six areas covered by the OECD Principles of Corporate Governance, the international benchmark for good corporate governance practices. Principle VC states that an annual audit should be conducted by an independent, competent and qualified auditor in order to provide an external and objective assurance to the board and shareholders that the financial statements fairly represent the financial position and performance of the company in all material respects. *This report's Escribano-Guasch econometric analysis (Chapter 4) shows that an increase of 1 percent in the number of firms operating in Croatia that have their annual financial statements checked and certified by an external auditor is associated with a boost to aggregate and average productivity of 0.115 percent.*

The vast majority of firms operating in Croatia do not have their financial statements checked and certified by an external auditor annually. Though new acts on Accounting and Audit have been introduced in the past couple of years to ensure that companies comply with the International Financial Reporting Standards (IFRS), enforcement of these rules has been rather weak. Dalmacija is the only region in the country where more than 50 percent of the firms interviewed report having had their financial statements checked and certified by an external auditor in fiscal year 2006. Slavonija and Zagreb and its surroundings are the regions with the second and third highest rates of use of external auditors, 45.6 and 43.2 percent respectively. Lika i Banovina was the region that performed the worst on this account, with only 22.4 percent of the firms interviewed by the World Bank having had their financial statements checked by an external auditor.

Figure 0.22: Percent of companies that had their financial statements verified by an external auditor in 2006, by type and region



Private firms as well as exporters tend to make greater use of external auditors.

Analyzing the data by ownership split, one can infer that private companies have a better corporate governance infrastructure than companies that do not, since on average 39 percent of private companies have their financial statements verified by an external auditor, while only 10 percent of the public companies do so. In Lika i Banovina, 100 percent of the interviewed private firms had their statements verified by an external auditor, while only 22.3 percent of all public firms there

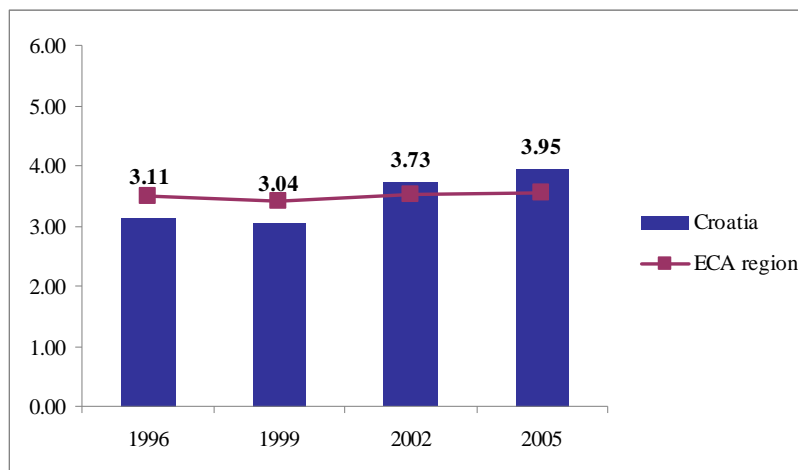
complied with this principle of good corporate governance. One of the explanatory factors could be that, with an incomplete restructuring of the economy, public companies face fewer constraints in accessing finance than private companies do and hence are not as pressed to reform their corporate governance as their private sector counterparts. It is also interesting to note that more than 50 percent of exporters employ the services of an external auditor, nearly twice as many as non-exporters across the 6 regions of Croatia, with a pronounced difference in Lika i Banovina as well as in Northern Croatia.

The ownership structure and the origin of the investor are not significant determinants of compliance with the IFRS requirements. There is little difference between the companies that have one owner, be it the state or an individual, and companies with several owners when it comes to the use of external auditors. The only exception was recorded in Dalmacija, where 82.6 percent of companies that have more than one owner had their financial accounts checked by an external auditor in 2006, nearly twice the rate for companies with one owner. There is also little difference between companies that are domestically or foreign-owned at the country level. However, there is a pronounced difference at the regional level, especially in the cases of Dalmacija and Slavonia, where 100 percent of the foreign firms had their financial statements inspected in 2006, by comparison to only 52.8 percent (Dalmacija) and 45.3 percent (Slavonia) of the domestically-owned companies.

Enforcement of Contracts

With Croatia becoming more integrated in the world economy, it is increasingly important to assure foreign traders and investors of the reliable and cost-effective enforcement of contracts. This primarily requires a functional judiciary, since other private contract enforcement mechanisms exist “under the

Figure 0.23: Confidence in the Croatian Legal System in the period 1996-2005



¹⁰³ Figure 5.23 compares the confidence in the legal system by surveyed firms located in Croatia and in the rest of the ECA region in 1999, 2002 and 2005. The data come from firm managers’ answers to the BEEPS questionnaire in 1999, 2002 and 2005. All the ECA countries participated in the 1999, 2002 and 2005 BEEPS; while in 1999, firms from Serbia and Montenegro did not take part in the survey. Figure 5.23 evaluates to what extent firm managers agree or disagree with the following statement: “I am confident that the legal system will uphold my contract and property rights in business disputes.” Firms are given an answer scale from 1 to 6, corresponding to various degrees of disagreement or agreement with the above statement, with higher values indicating a higher degree of agreement. The measures reported in the figure are country averages across all firms that responded to this question, regardless of whether the firm had or had not used the courts in past business disputes.

shadow of the law”¹⁰⁴ and depend on the strength of the formal institutions for their successful employment by the private sector. The creation of stable, clear, effective, and predictable laws and legal institutions is one of the main challenges facing Croatia in its efforts to promote investment and growth.

Internationally, there exist private and public contract enforcement mechanisms. A healthy national system for enforcing contracts needs to contain a mixture of the two. Private mechanisms include relational contracting based on trust, self-enforcement through repeated transactions, third-party enforcement based on reputation, alternative dispute resolution (ADR) mechanisms and private protection firms. Public contract enforcement is performed by the courts, which represent an avenue of last resort (the vast majority of contract and property disputes are resolved informally,¹⁰⁵ partly because the credible threat of a lawsuit deters breach.)

Reform of the judiciary in Croatia remains one of the priority areas that need to be addressed to fulfill the EU accession commitments¹⁰⁶. Throughout the 1990s, the Croatian judicial system was beset by problems such as lack of independence, staff shortages and inefficiency. As a result, Croatian firms lacked confidence that the judiciary would uphold their contract and property rights in disputes. Reforms of the legal system, through a more coordinated effort on the part of the government since 2004 and also due to the adoption of the 2005 Action Plan for the implementation of the *Strategy to Reform the Judicial System*, have contributed to an increase in the level of confidence in the legal system. However, enforcing a contract in Croatia remains more difficult than in the EU-27. Croatia is ranked 44th on the Doing Business Enforcing Contracts indicator, below Germany (9th), Hungary (12th), Austria (13th), and Romania (31st).

The adoption by the Supreme Court in December 2006 of the Code of Judicial Ethics was intended to enhance the impartiality and professionalism of the judges. A Code of Ethics for Prosecutors was adopted in February 2008. Some progress was made with implementing the framework of property declarations of judges, state attorneys and deputy state attorneys when the March 2007 ordinance on the content and manner of handing the declarations was adopted¹⁰⁷.

The Croatian justice system is considered highly inefficient. The current situation in the court system is characterized by a large backlog of cases accumulated during previous years (887,000 in 2008, of which 307,000 refer to misdemeanor cases). The duration of court proceedings is widely considered as one of the most fundamental and important symptoms of crisis in the justice system in Croatia. The resolution of a simple payment dispute takes a total of 38 procedures and 561 days, a duration that exceeds the averages for OECD and ECA countries. The trial and judgment period takes 354 days in total. The court system is perceived as being timely by only 3.6 percent of firms (a slight improvement from 2002).

Table 0.5: Enforcing Contracts in 2007

Region, Group or Economy	Procedures (number)	Duration (days)	Cost (percent of claim)
Croatia	38	561	13.8
Europe and Central Asia (ECA)	36	425	23.4
OECD	31	463	18.9

Source: *Doing Business 2009, Enforcing Contracts Indicator*, www.doingbusiness.org

¹⁰⁴ Avinash Dixit, “Evaluating recipes for development success”, *The World Bank Research Observer*, vol. 22, no.2, Fall 2007

¹⁰⁵ Stefka Slavova, “Resolving Business Disputes in South Eastern Europe: the Role of the Courts” in “Building Market Institutions in South Eastern Europe Comparative Prospects for Investment and Private Sector Development”, The World Bank, 2004

¹⁰⁶ European Commission, “Croatia 2007 Progress Report”, November 6th, 2007

¹⁰⁷ Ibid.

Among the key sources of inefficiency and backlog in courts were the non-adjudicative functions that judges were tasked with. Among them were land registration and titling, maintenance of the company registry, execution of judgments, supervision of elections, investigations in criminal proceedings, and processing non-disputed inheritance cases. Recent projects, such as the e-Land Registry, the e-Cadastre, the e-Court Registry and e-Enforcement, as well as reforms of criminal proceedings and the adoption of the Inheritance Act, have all ensured that these tasks have now almost completely been transferred from judges to other professionals.

Another reason for the creation of the backlog was the absence of a case management system. A properly-designed case management system allows for the monitoring and managing of a case in the court docket from the moment the action is filed to the moment it is finally decided. By facilitating the analysis of court workloads, it can help predict trends and plan strategically. It also makes it possible to measure the performance of judges and to randomly allocate cases to them, thus enhancing their performance and their integrity. Though there are plans to implement an integrated case management system (ICMS) throughout the entire country, to date the ICMS has only been adopted at a few courts that are part of the pilot testing sample. A document management system, e-filing and a management reporting system are currently lacking¹⁰⁸. In the meantime, redistribution of cases from over-loaded courts to smaller courts that are not always used to their full capacity continues, complemented by the temporary transfer of judges from the less-burdened courts to the over-burdened ones.

The inflow of new cases remains high, which contributes to further increases in the backlog. The State engages in litigation even when there is little chance of success. Parties abuse procedural rules in order to delay a final decision and its enforcement, while judges make little use of existing possibilities to control the number of hearings and the length of the procedures. They often fail to sanction abuse by the parties and their lawyers¹⁰⁹. The small claims court system, even if in existence, does not function¹¹⁰.

Lack of mandatory continuous professional training for the judges, state prosecutors, judicial advisors and trainees was also a cause for the creation of the backlog, in a setting where the existing professionals were not well-versed in the rules guiding the working of a free market economy. It was also seen as a cause for the lack of consistency in the application and interpretation of the law. Though the Judicial Academy was established in March 2004 precisely to address this deficiency, it is only now getting properly staffed, following the multi-annual strategy, and equipped with the necessary budget to fulfill its role.

Though the cost of enforcing a contract in Croatia is relatively low by international standards, few firms perceive it as affordable. Solving a payment dispute in Croatia is less costly than in the EU-27, EU-15 or ECA regions or even in neighboring countries (except Hungary). The total cost of settling the dispute amounts to an average 13.8 percent of the claim. High attorney costs remain the greatest barrier to accessing justice in Croatia. Only 12.4 percent of firms usually perceive it as affordable to solve a business dispute through the courts.

Enforcement of judgments remains a real challenge for the Croatian judiciary. While the greatest backlog reduction achieved so far was in the backlog of enforcement cases, the enforcement of judgments continues to make up 25 percent of all pending cases¹¹¹ and they are the main problem at 93 percent of the courts¹¹². Only 14.8 percent of firms usually perceive the court system as able to enforce its decisions in resolving business disputes, half the figure for their German counterparts. Even courts and parts of the state administration themselves do not regularly execute the decisions of higher courts in a timely manner¹¹³.

¹⁰⁸ World Bank, Project Information Document, Judiciary Reform Project, March 2007, TTL Irina Kichigina

¹⁰⁹ European Commission, "Croatia 2007 Progress Report", November 6th, 2007

¹¹⁰ World Bank, "Croatia Country Economic Memorandum", July 2003

¹¹¹ <http://www.buyusa.gov/croatia/en/investmentclimatestatement.html>

¹¹² European Commission, "Croatia 2006 Progress Report", November 8th, 2006

¹¹³ European Commission, "Croatia 2006 Progress Report", November 8th, 2006

Furthermore, current practice delays enforcement until all appeals are exhausted,¹¹⁴ contrary to the provisions of the Law on Enforcement where judges' decisions on payments or direct actions are to be executed immediately per such decision. Croatia currently makes no use of special enforcement officers vested with public powers. By contrast, the introduction in FYR Macedonia of private bailiffs not only improved the rate of enforcement of court decision, but also reduced the average time to enforce a judgment from 90 to 60 days in the period 2006-2007¹¹⁵.

Alternative dispute resolution mechanisms

Not all disputes need to go to court for resolution. Internationally, companies can choose alternative dispute resolution mechanisms to settle a dispute. ADR is an umbrella term for a variety of processes: the two main types being arbitration and mediation (also known as conciliation). ADR represents any process “other than adjudication by a presiding judge in court (i.e. litigation), in which a neutral party participates to assist in the resolution of issues in controversy”¹¹⁶. ADR mechanisms are designed to complement but not replace the court system. It can lead to early and speedy settlements of disputes and thus allow economic agents to circumvent the court system bogged down by a large backlog of pending cases. It can reduce court backlogs and assist in eliminating corruption by bypassing discredited or corrupt courts¹¹⁷. (In some cases, parties may even choose an ADR process along with litigation and conduct them in parallel, until they settle, withdraw, or get a court decision or a binding ADR award. ADR is both useful and effective.)

Arbitration has been more popular in Croatia than in EU member countries. Arbitration is a dispute resolution process which is voluntary, binding and procedurally less formal than litigation, in which a party-selected decision-maker, often with specialized expertise, reaches a decision on a business dispute. Parties are bound to accept and respect the agreement of the third-party decision. In Croatia, arbitration is voluntary and conforms to the UNCITRAL model procedures. Croatia is also a signatory to the major international conventions regulating the mutual acceptance and enforcement of foreign arbitration. Businesses in a dispute can approach the Permanent Arbitration Court within the Chamber of Commerce, a body in existence since 1965,¹¹⁸ in order to obtain an arbitration award. They can also approach the Croatian Chamber of Crafts as well as other associations for ADR. On average, in the period 2002-2005, Croatian firms report having been involved in 5 cases as plaintiff and 1.7 cases as a defendant that were filed with a civil or commercial arbitration court. These figures for Croatia are far above those for Germany, Portugal and Greece, likely due to the serious backlog in the court system.

The number of mediation centers has been increasing. Mediation is a flexible, generally voluntary, non-binding dispute resolution process, in which a neutral third party (the mediator) assists two or more disputants to reach a voluntary, negotiated settlement of their differences. The mediator cannot force the other parties to accept any agreement and it is only the parties who can jointly agree on a certain outcome. Once the parties agree to a resolution, they are bound by their contractual obligations. In Croatia, mediation is foreseen in the Mediation Act. The Commercial Court in Zagreb set up an efficient court mediation structure, which was subsequently replicated by the Ministry of Justice in all municipal and commercial courts and for all civil cases¹¹⁹. There is also the Conciliation Center of the Croatian Chamber of Commerce, which also provides other ADR processes in dispute resolution¹²⁰, in existence since 2002.

¹¹⁴ <http://www.buyusa.gov/croatia/en/investmentclimatestatement.html>

¹¹⁵ World Bank, Doing Business 2008, www.doingbusiness.org

¹¹⁶ World Bank Group, Small and Medium Enterprises Department, “Alternative Dispute Resolution Manual: Implementing Commercial Mediation”, November 2006, http://rru.worldbank.org/Documents/Toolkits/adr/adr_fulltoolkit.pdf

¹¹⁷ World Bank Group, Small and Medium Enterprises Department, “Alternative Dispute Resolution Manual: Implementing Commercial Mediation”, November 2006, http://rru.worldbank.org/Documents/Toolkits/adr/adr_fulltoolkit.pdf

¹¹⁸ http://www2.hgk.hr/en/about_cce.asp?izbor=pac

¹¹⁹ European Commission, “Croatia 2007 Progress Report”, November 6th, 2007

¹²⁰ <http://hgk.biznet.hr/hgk/tekst.php?page=tekst&id=245>

However, the mediation approach is not yet fully familiar to the country's economic agents, in spite of its many positive attributes, and thus there is still scope for its wider utilization¹²¹.

Trade-Related Services

The lack of awareness on standards and quality requirements is a hindrance to exporting. The importance of meeting the quality and standards requirements of importing countries is crucial in developing export competence. Research indicates that a ten percent increase in the number of shared standards enhances bilateral trade by three percent. Standards help to reduce the information costs that would have to be incurred by SMEs, for example, in seeking to place their goods in a foreign market. Croatia's performance in this area to date leaves much room for improvement. First, compared to the less than 9,000 Croatian standards that are based on regional and international standards, Romania and Bulgaria have some 20,000 and 18000 respectively. Secondly, in several cases where harmonized European standards have been transposed into Croatia, older technical regulations based on ex-Yugoslav standards stipulated by Ministries (about 9000) have not been removed, thereby creating a dual standards system. Unfamiliarity with European standards serves as a hindrance in placing goods on European markets. Our firm-level analysis confirms that Croatian firms that upgraded their products (to meet higher standards) were most likely to export.

The technical infrastructure for conformity assessment remains weak. For Croatia to compete effectively in the global market, it needs to demonstrate that its products and services conform to international standards. In order to do this, Croatia needs a solid network of standards-related facilities including access to standards and technical regulations, metrology, testing, quality assessment, certification and accreditation (elements that form the components of a national quality infrastructure). In spite of substantial recent progress, Croatia's national quality and standards system falls short of European and international norms. Obsolete technical regulations, many of them dating from the Yugoslav period, prevent producers from adopting modern technologies from abroad and from meeting global buyer requirements. In areas where standards and technical regulations have been aligned with EU requirements, there is a gap between policy and implementation. The national standards, metrology and accreditation institutions suffer from limited technical and administrative capacity. Moreover, while Croatia has a competitive certification market dominated by foreign-based multinationals, it is not clear whether its network of independent testing and calibration laboratories has the capacity to meet the domestic and EU market needs of the Croatian private sector

Croatia's new quality and standards institutions suffer from relative isolation at the regional and international level. This lack of integration of Croatia's standards, accreditation and metrology institutions into relevant international and regional bodies creates technical barriers to trade. International and regional integration of the various national quality infrastructure bodies can mitigate these barriers and lead to the avoidance of multiple standards, tests and accreditations across countries. It can also give member countries a say in the creation of standards. Integration can be achieved by national standards bodies for example, at the international level, via membership in ISO and at the regional level through membership in CEN¹²² and CENLEC¹²³. Croatia's quality and standards system is less integrated when compared to Turkey or Romania. Although Croatia's national standards body is a member of international bodies such as ISO¹²⁴ and IEC,¹²⁵ it contributes little to international standardization. As a mere *affiliate* member of the European Committee for Standardization body CEN, Croatia cannot participate in the development of the regional standards it must adopt to comply with *acquis* requirements. In terms of accreditation, Croatia is

¹²¹ European Commission, "Croatia 2007 Progress Report", November 6th, 2007

¹²² European Standards Organization

¹²³ European Committee for Electrotechnical Standardization

¹²⁴ International Organization for Standardization

¹²⁵ International Electrotechnical Commission

not a member of the IAF¹²⁶ or a full member of ILAC¹²⁷, the two principal international organizations for accreditation. Membership in these organizations enhances an accreditation body's prospect of gaining international credibility. To join the IAF or ILAC, accreditation bodies must demonstrate that they operation at high international standards in areas covering operations, quality management systems, personnel and equipment. In the area of metrology, Croatia is an associate member of CGPM¹²⁸ but not a signatory of the Metre Convention, the main diplomatic treaty in metrology.

Table 0.6: International and Regional Integration of Croatia's National Quality Infrastructure

	Standards		Accreditation			Metrology		
	ISO	CEN	IAF-MLA	ILAC-MRA	EA-MLA	CIPM-MRA	EUROMET	WELMEC
Bulgaria	yes	yes	no	no	partial	yes	yes	Yes
Croatia	yes	affiliate	no	no	no	yes	yes	Associate
Poland	yes	yes	yes	yes	yes	yes	yes	Yes
Romania	yes	yes	no	yes	partial	yes	yes	Yes
Turkey	yes	yes	no	yes	partial	yes	yes	Associate
UK	yes	yes	yes	yes	yes	yes	yes	Yes

Source: Staff Elaboration

¹²⁶ International Accreditation Forum

¹²⁷ the International Laboratory Accreditation Cooperation

¹²⁸ Croatia is an Associate Member of the General Conference on Weights and Measures

Knowledge of foreign markets

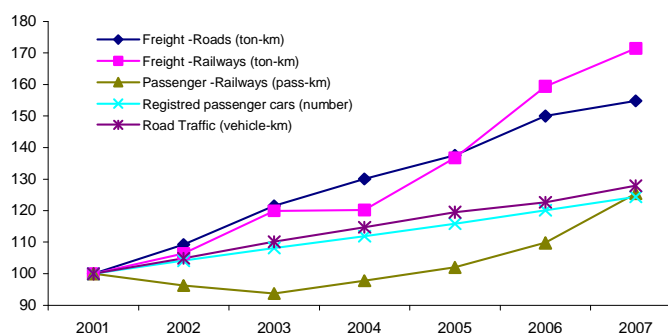
Knowledge of foreign markets is important to boost exports. Successful exporting often requires knowledge about foreign markets. However the search costs for learning about unfamiliar markets are high for an individual company and in many cases prohibitive for SMEs. The provision of market research services that help exporters to be matched with buyers, and enter into distribution and retail chains in foreign markets, helps to reduce these costs as the search costs are spread over a larger number of firms. Hence, many successful exporting economies (e.g., Hong Kong, Singapore, Ireland, and Turkey) provide services to help firms enter new markets they otherwise might not have been able to.

Croatian firms are hindered by a lack of information on foreign markets. Our analysis confirms that firms in Croatia that used the internet to access suppliers and clients (an indication of greater global visibility and marketing) were more likely to enter export markets than those that did not, thus pointing to the importance of marketing services for Croatian firms. In an important survey carried out of 450 exporters in Croatia, by the Croatian Exporters Association, “insufficient or bad promotion activities” were regarded as among the main obstacles to exporting. Furthermore, among some 160 topics of interest identified by exporters, the ability to enter foreign markets ranked topmost. Indeed, seminars recently carried out by the Croatian Exporters Association on “market research” and “successful exporting and entering new markets” were oversubscribed, pointing to an unmet need amongst Croatian exporting firms, particularly SMEs. Interviews carried out with exporting firms in Croatia point out that economic diplomacy service of Croatian embassies overseas, including their ability to provide sectoral research on foreign markets, introduction to potential buyers etc., are weak. Firms were of the view that officers in these embassies were not skilled in providing such services.

Intellectual property rights can provide a competitive edge in global markets. In today’s knowledge driven economy, owning intellectual property rights can be a powerful means to remain competitive in a challenging, risky and dynamic business climate. Patents give owners the exclusive right to prevent others from using the patented invention, thereby creating a market entry barrier for competitors in respect of that invention. This helps companies capture a market niche for themselves. Using patents granted by the European Patent Office as a benchmark of innovative activities taking place in a country, Croatia compares favorably with most CEE countries, with the exception of Hungary, which is well ahead of most CEE countries in patents granted. Patents granted by EPO to Croatia have risen from 7 in 2004 to 17 in 2006; higher than Bulgaria and Romania, equal to Poland, and moderately behind Slovenia and the Czech Republic. Despite this potential, Croatia lags behind most of these countries in exports of high and medium technology goods, suggesting difficulties in commercializing innovative activity. Most SMEs are often not aware of the competitive advantages of IPR assets, pointing to the need for further education and publicity. Even when aware of the benefits, many firms, particularly SMEs, find the registration of patents rather expensive. Finally, even when patents have been successfully registered, there is the need for them to be commercialized; however the venture capital market in Croatia is underdeveloped, thus limiting the opportunities particularly for incubators of innovation to place their products on the market. We explore ways to improve technology adoption and innovation later on in this report.

Growth in GDP and trade has been accompanied by substantial growth in land freight transport over the past ten years, with international transport representing about half of total freight traffic. Freight transported by rail and road increased from 2.8 billion ton-km in 1997, to 9.6 billion ton-km in 2002, and to 13.5 billion ton-km in 2006. In tons, these volumes increased from 56 million tons in 2002 to 79 million tons in 2006, compared with 63 million tons in 1984 (the high point of the pre-war period). This has been accompanied by a strong shift of freight from rail to road, with 76 percent of ton-km and 81 percent of tons carried by road in 2006. However both modes managed to experience strong growth for the past ten years. International traffic represented about 48 percent of road transport in ton-km. About 80 percent of international road transport was outsourced.

Figure 0.24: Trends in Road and Railway Transport (2001=100)



Source: CROSTAT.

Port traffic also steadily increased from 18.6 million tons in 2002 to 26.3 million tons in 2006, with transit trade confirming its relevance. Over 80 percent of this freight is international in nature. Aside from solid mineral fuel, oil and oil products, which together represent 74 percent of transit, the transit of ores, and metal products dominates. This transit has grown rapidly over the past ten years (140 percent). Trends in 2007 and 2008 indicate an acceleration of this trend as plans for increasing production of steel products in Bosnia Herzegovina are moving forward.

Croatia’s overall trade logistics performance has improved in recent years but still remains significantly behind EU-10 countries. In 2007, Croatia ranked 63rd out of 150 countries, below EU-10 countries, in the Logistics Performance Index¹²⁹, a composite index on performance measuring customs, infrastructure, international shipments, logistics competence, domestic logistics costs, timeliness, tracking and tracing. Croatia’s overall logistics performance (2.71) is superior to the average for the Europe and Central Asia region (2.59)¹³⁰, but inferior to the performance of other middle income countries such as the Slovak Republic (2.92), Hungary (3.15) or Poland (3.04), or to EU-15 countries, for instance Germany (4.1) and Austria (4.06). While Croatia appears reasonably competitive on domestic logistics costs and timeliness, logistics operators indicate that it still faces capacity constraints in infrastructure, services and border processing compared to EU-10 countries. Croatia offers few logistics centers compared to other Central European countries. Tracking and tracing, as well as logistics competence, are rated below those of competitors.

¹²⁹ “Connect to Compete Report”, World Bank, 2007. The Logistics Performance Index is based on a survey of operators on the ground worldwide (global freight forwarders and express carriers), providing feedback on the logistics “friendliness” of the countries in which they operate and those with which they trade. Respondents combine in-depth knowledge of the countries in which they operate with informed perceptions of other countries with which they trade, and experience of global logistics environment.

¹³⁰ Scale 0-5 with 5 being the best score.

Table 0.7: Logistics Performance Index 2007

Country	LPI	Customs	Infrastructure	International shipments	Logistics competence	Trading & trading	Domestic logistics costs	Timeliness
Turkey	3.15	3	2.94	3.07	3.25	3.27	2.71	3.33
Hungary	3.15	3	3.12	3.07	3.07	3	3	3.63
Slovenia	3.14	2.75	3.22	3.14	3.03	2.91	3.13	3.73
Czech Republic	3.13	2.93	3	3.03	3	3.27	3.4	3.53
Poland	3.04	2.83	2.63	2.92	3.04	3.12	3.23	3.53
Latvia	3.02	2.53	2.53	3.31	2.94	3.03	2.94	3.63
Estonia	2.93	2.73	2.91	2.83	3	2.84	3.23	3.33
Cyprus	2.92	2.77	2.91	2.92	2.77	2.92	2.92	3.23
Slovak Republic	2.92	2.61	2.63	3.03	3	2.87	3.03	3.23
Romania	2.91	2.3	2.73	3.2	2.83	2.83	2.63	3.13
Bulgaria	2.87	2.47	2.47	2.73	2.83	3.14	2.91	3.53
Lithuania	2.73	2.64	2.3	3	2.7	2.3	3	3.4
Croatia	2.71	2.33	2.5	2.63	2.83	2.43	3.03	3.43

(scale 0-5 with 5 being the best score)

Source: World Bank's LPI Database

Croatia has an extensive network of transport infrastructure. It comprises (a) about 1,163 km of motorways, 27,000 km of classified interurban roads and 22,000 km of local roads; and (b) a 2,664 km railway network, of which about 250 km are double track and 1,000 km electrified. In addition to roads and railways, the transport infrastructure also includes (a) the main international sea ports of Rijeka and Ploce and secondary sea ports, plus numerous river ports on the 918 km of the Danube, Sava and Drava rivers; and (b) seven international airports.

This network is being actively developed, primarily through a massive program of public funding. Its network of motorways expanded rapidly from 455 km in 2002 to 1,160 km in 2007, bringing it on a par with EU-15 countries. Since 2002, about 4 percent of GDP was dedicated annually to the road program. In 2008, the Croatian Parliament endorsed a HRK18 billion National Railway Infrastructure Program for the next four years to upgrade the rail network. The level of government subsidies to the rail sector, currently at 1.5 percent of GDP, is likely to grow to 2.3 percent by 2010, which is on the high side compared to neighboring countries. Discussions are also ongoing on a draft river transport strategy, including an investment plan of HRK5.5 billion. In ports, Croatia has launched a number of major projects to upgrade capacity in particular in Rijeka, Ploce and Zadar, which are designed on the basis of public private partnerships. Croatia is working closely with the European Commission (IPA funding) to upgrade rail corridor X and prepare the upgrade of the inland waterway system, and with international financial institutions in the various transport modes. Investments in equipment by transport operators have also been substantial. The road transport sector added 53,000 freight vehicles since 2002 compared to a total fleet of 159,000. New handling equipment such as gantry cranes was purchased in the ports. At the same time railway fleet capacity was reduced by 11 percent during that period, as traffic dropped compared to prewar levels.

Integrated infrastructure transport development remains difficult in Croatia. Integrated corridor services are not in place at this point since, until recently; with excess capacity in place, connectivity and intermodality were secondary priorities. As an illustration, a bulk industry located in Zenica (Bosnia-Herzegovina) and importing coal through the port of Ploce will need to interact with two railway

companies, multiple border agencies, and the port operator for example, with no integrated system of communications among them, for a trip of less than 300 kilometers. Most of the time, cargo will wait idle for the next corridor participant to take over. Any upgrade in capacity will be only partly coordinated. This situation contrasts with the level of integration in countries like the Netherlands, where transit times and dedicated freight lines are clearly established to connect to main destinations. Croatia's direct competitors in Slovenia are actively working on partnerships between the port and international railways to optimize corridor service delivery to Central Europe. With container capacity being reached in ports, this is becoming a priority to support the growth in traffic and revenues, while new capacity is added, and avoid sub-optimal new infrastructure investments. While connectivity to other modes is mentioned in most transport investment programs, true integration in planning and operational designs is only partial and limited, and encounters institutional resistance. Nonetheless reviews of constraints by logistics experts have repeatedly identified intermodal connections at the port level as bottlenecks for Croatia to gain relevance in trade logistics.

Short of developing competitive corridor services at this stage, it is likely Croatian freight railways would lose its highest revenue generating market to competition. Travel on short distances needs integration to be competitive. Upon the opening of the Croatian railway network to competition, under the terms of the EU accession, these corridors, which are the main net income generator for the railways, will face the highest level of competition by well organized European commercial operators. Only well-integrated service providers will be able to compete effectively.

Current infrastructure pricing policies in railways and ports result in Croatia subsidizing neighboring countries. Cost recovery principles are not applied at this point in ports or railways. While cargo pays for the provision of rail freight services, this coverage includes only a contribution to operating costs. Track access charges are estimated to cover only 25 percent of the operating costs of tracks and none of the capital costs, with a current track access charge of 0.14 € per freight train-km in 2007, significantly below the level applied in EU countries. Since rail freight cargo generates 78 percent of user revenues, it could play a major role in improving railway sustainability if commercially driven investments are given priority. Similarly in port operations, ports have sought to remain competitive by limiting increase in tariffs to the maximum extent. This approach, while adequate to regain market share in the short term, would fail to yield the necessary return to keep modernizing ports in the long run. Recognizing this issue, new concessions in ports are being negotiated based on a cost recovery basis. Establishing a level playing field among ports would become increasingly important in setting such fees.

Significant increases in port capacity are being developed but will come late compared to market needs, calling for further efficiency gains. The gap between installed capacity and forecast demand is substantial in bulk cargo (Ploce) and container cargo (Rijeka, Ploce). The port of Rijeka already suffers from excessive dwell times for general cargo, wood and stones, caused partly by low storage tariffs. In Ploce, the port bulk and container capacity is close to being fully used, and until new facilities are put in operation, the port layout and equipment will de facto inhibit productivity gains. While some improvement can be achieved in operations, additional physical capacity is necessary. Presently the extension of four terminals is foreseen in the port sector: (i) first container terminal in Ploce; (ii) new bulk terminal in Ploce; (iii) extension of Brajdica container terminal in Rijeka; and (iv) new Zagreb container terminal in Rijeka. The development of this new capacity will cover some of the most acute gaps in port infrastructure and significantly increase productivity levels, but it will come late by a couple of years compared to the foreseen traffic growth. In the interim all operational opportunities need to be sought to optimize corridor flows through reduced dwell times in ports, additional loading and unloading equipment, dry ports providing additional storage space inland for Rijeka (connection to Skrljevo and Kukuljanevo), and optimized corridor delivery times.

While an ambitious program of infrastructure development is underway, its fiscal impact is very high and Croatia would benefit from greater private participation in infrastructure¹³¹. Needs in terms of alleviating remaining transport bottlenecks are substantial in roads (completing the motorway on corridor Vb), rail (about 40 percent of the rail connection Rijeka-Hungarian border which is in poor condition, and 222 km with bottlenecks in the area of Zagreb¹³²), ports, multimodal and river transport in particular. The projects contained in infrastructure programs include a range of reasonably good return projects as well as a number of high cost projects not yet validated by cost benefit analysis. In particular, considering that operating revenues for the railway infrastructure company reached 352 m HRK in 2007 compared to 1.4 b HRK in operating costs, prioritizing the 18 billion HRK program of investments calls for careful analysis of alternatives to avoid creating liabilities that will extend for the next 50 years. Since different authorities manage the respective modes, the process would benefit from a holistic approach prioritizing across transport modes through integrated planning.

With the anticipated EU accession, Croatia has the potential to upgrade its trade logistics significantly and to expand export of trade logistics services to neighboring countries. Croatia could achieve this goal by enhancing its competitiveness as a transit country and adjusting its policies to ensure that transit sustainably contributes to its development. This, in turn, would allow the emergence of competitive logistics services, a major requisite for economic growth and competitiveness. While such an approach rests by nature on private sector efforts and innovation, the emergence of such competitive transit services in Croatia warrants close follow up on the following aspects from a policy and institutional standpoint: (i) corridor-based optimization across transport modes; (ii) a sustainable financial framework for each freight transport mode; and (iii) an optimized development of additional capacity, focused on market demand. Croatian authorities have initiated activities in many of the following areas at this stage, and results are foreseen in the future.

B. UNLEASHING CROATIAN INNOVATIVE POTENTIAL

With the Lisbon Agenda setting ambitious goals of making the EU "the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion", supportive policies for innovation and in particular R&D activities are gaining momentum in the EU. Transforming knowledge into productivity gains and innovation, a major source of growth, is not exactly a novelty in Croatian history. Croatian inventors and research institutes have built a world-wide reputation and -- with EU accession on track -- are actively collaborating with their European peers. Croatia's knowledge-base is, thus, a potential source of growth.

This report estimates that, by judiciously increasing its ratio of R&D to GDP from the current 1.0 percent to 3 percent, Croatia could potentially increase its income by around 6 percent in 2025 (8.2 percent by 2040). This report finds higher R&D to be the second largest potential contributor to increased GDP amongst the five Lisbon agenda targets considered (after increased employment).¹³³ The report also finds that increasing Croatia's patenting level to three-quarters of the patent distribution range of a sample of comparator countries (Croatia is currently slightly below the median of the sample countries included in the regression) *could raise its real per capita income by 0.27-1.23 percent.*¹³⁴ The question is hence: how can Croatia unleash its knowledge base to boost growth acceleration?

¹³¹ For a detailed analysis see Public Finance Review-World Bank (February 2008).

¹³² Southeast Europe Core Regional Transport Network Development Plan- Five Year Plan 2008 - 2012 (October 2007)

¹³³ Lejour et al. (2008). *The Economic Effects of the Lisbon Target on Croatia*. Background paper for this report.

¹³⁴ See Volume II for the details on the Growth Regressions.

Innovation Performance

Croatia’s overall innovation performance lags behind the EU average and has been falling further behind. The European Commission recently published an overview of achievements of EU member states, EU candidates Croatia and Turkey, and comparators including Iceland, Norway, Switzerland, Israel, Australia and the United States. Innovation performance is calculated on the basis of 25 indicators covering five dimensions of innovation.

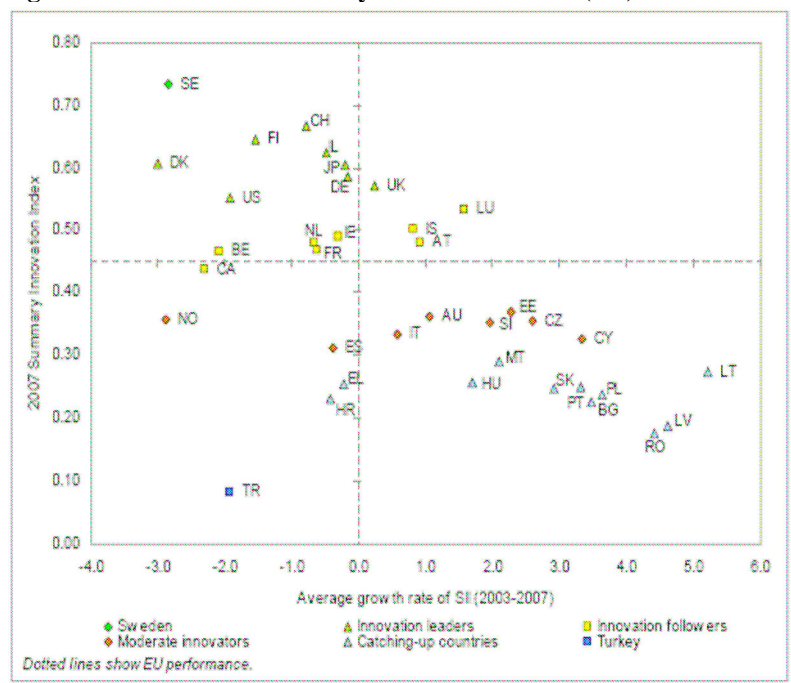
Innovation drivers measure the structural conditions required for innovation potential, *Knowledge creation* measures investments in R&D activities, *Innovation & entrepreneurship* measures the efforts towards innovation at the firm level, *Applications* measures the performance expressed in terms of labor and business activities and their value added in innovative sectors, and *Intellectual property* measures the achieved results in terms of successful know-how generated.

Results from the past five years have been taken into account. Croatia is grouped among the “catching-up” countries that have scores significantly below the EU average. Croatia is the only country in this group that has not seen its score increase towards the EU average over time. Croatia’s 2007 Summary Innovation Index (SII) is 0.23 out of 1, higher only than those for Romania (0.19), Latvia (0.18) and Turkey (0.08).

Croatian firms produce few patents. Patents granted to Croatian applicants by the US patent and trademark office (USPTO) have been much below the EU average and also below the levels of regional comparator countries such as Slovenia and Poland. The ICS data for Croatia shows that only six percent of the firms sampled applied for a domestic patent in the last three years. Disaggregating by industry, one finds that seven percent of the firms in the manufacturing sector and four percent in the services sector applied for a patent. Twenty-nine percent of the large firms applied for patents while only two percent of the small firms did so. Further, exporting firms applied for a larger number of patents, with 17 percent of exporting firms having applied for a patent in the last three years as opposed to one percent of the non-exporting firms. Exporting firms are thus undertaking greater innovative activities than non-exporting firms.

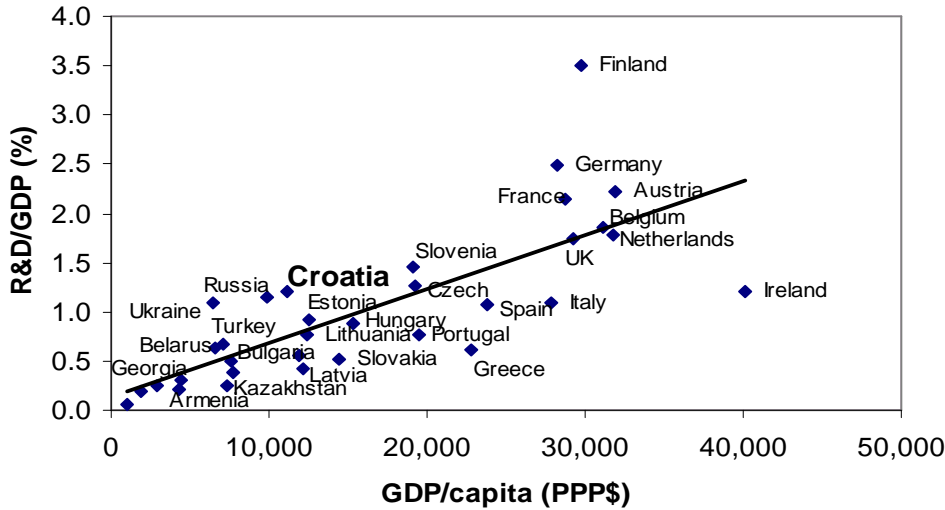
Croatia is inefficient at turning R&D investments into patentable results. Croatia is spending more on R&D per capita than other countries at similar income levels but still displays lower levels of patenting activity. This suggests that the Croatian national innovation system may not be efficient at commercializing R&D. Low R&D expenditures are hence not the only bottleneck to increased innovation in Croatia.

Figure 0.25: The 2007 Summary Innovation Index (SII)



Source: 2007 European Innovation Scoreboard.

Figure 0.26: Research and Development/GDP vs. GDP/Capita, 2004



Source: UNESCO Science & Technology Statistics

The Croatian R&D paradox stems from the inadequate and obsolete structure of the R&D sector, which is characterized by the domination of public R&D over business R&D. Investments in R&D (almost 1 percent of GDP) have therefore proven to be insufficient to provide an adequate level of innovative output. Business R&D accounts for only 40 percent of the total R&D and the trend has been constant, unlike other EU countries where the share of private R&D has been increasing. Business investments not only amount to a low share of total R&D expenditure but are concentrated in a few multinational companies, the significance of which for the national research and innovation capacities requires further investigation. It will be necessary to build up business R&D by restructuring the R&D sector.

Box 0.1: Can R&D Laboratories of former SOE's survive the market test?

The *Koncar Electrical Engineering Institute (KEEI)* is a joint-stock research institute fully owned by Koncar Electrical Industries Inc. (KONCAR) holding group. KEEI was the research and development arm of Koncar from 1921 to 1991. The main activities of the institute's 13 laboratories relate to electronics, and rotating machines, working with electrical utilities, monitoring, consulting, and the certification of products.

The institute has been financially independent since 1991, although still belonging to the Koncar Holding Group. Being financially independent allows KEEI to keep all of its profits. Ninety percent of the profits from KEEI are reinvested in business activities and ten percent are invested in strategic long term research and development.

KEEI's main customer base includes companies belonging to the Koncar group and Croatian utility companies. Its main competitor in the market is the Faculty of Engineering of Zagreb University, which provides similar services. Government agencies account for a tiny share of its revenues, with less than one percent of its sales. Profits for KEEI were 1 million euros in 2006, accounting for 10 percent of its turnover that year (10 million euros).

Supervision services (eg: technical supervision of highways) represent a small share of these revenues but generate very high returns which are then reinvested in R&D activities. Staff salaries depend on results, as measured by the added-value, unlike most other research institutes where career progression depends more on scientific credentials and publications.

Source: Staff Elaboration

R&D departments used to be well-integrated with production activities inside state-owned enterprises but mostly disappeared after these enterprises were privatized. There are a few cases of successful restructuring of R&D laboratories of former state-owned enterprises to new market conditions (see Box 5.1). At the same time, business investments not only account for a low share of total R&D but are also concentrated in a few multinational companies, with a relatively minor contribution from locally

owned-enterprises and negligible participation of small and medium size firms. Yet, some niches of commercial research have developed over the years, particularly in the software sector (see Box 5.2). The *Science and Technology Policy 2006-2010 for Croatia* addresses this concern and sets targets to increase investments from the private sector with the goal of reaching a 1:1 ratio of public vs. private sector investment by 2010.

Multinational companies of the health (clinical tests) and pharmaceutical sector had relatively large R&D departments in Croatia. In the past, these companies benefited from the country's knowledge base and academic excellence in the field of biochemistry and related subjects. In the last few years, however, the search for economies of scale and cost reduction in R&D has triggered a reorganization of the sector, with multinational companies concentrating R&D activities in selected laboratories with clear advantages in terms of cost-effectiveness. Declining profit margins in the pharmaceutical industry have been another major factor affecting R&D in the country.

Box 0.2: Private R&D in SMEs

InfoDom Ltd. is a company dedicated to business processes; re-engineering and development of intelligent information solutions and systems that support enterprise performance. Since its establishment in 1993, InfoDom has participated in leading IT projects in Croatia and provided the majority of IT solutions in the public sector.

InfoDom invests approximately 30 percent of its expenditures in R&D and the technical staff spend approximately 25 percent of their time on in-house training. It has maintained research collaborations with academic institutions, particularly the Universities of Zagreb and Varazdin. It has also cooperated intensively with multinational companies from the IT sector such as IBM, Microsoft and Oracle.

Started with nine employees from the academic sector, InfoDom has currently more than 90 employees, has a total revenue of approximately 50.5 million HRK (2007), and is one of the leading software developers in Croatia. It currently exports to Slovakia and Hungary and has a strategy for business expansion focused in the regional market that includes Serbia, Bosnia and Herzegovina and Macedonia.

Source: Staff Elaboration

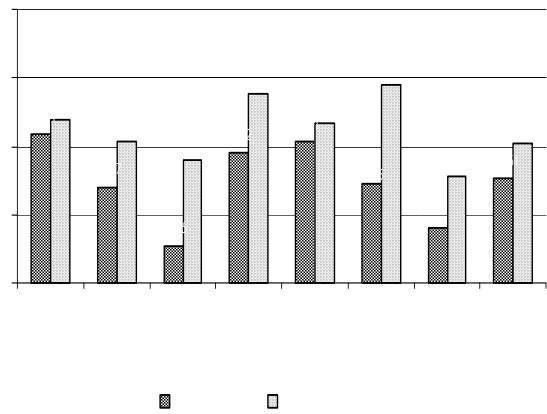
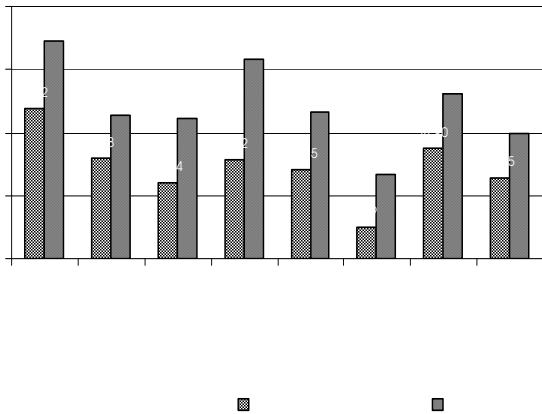
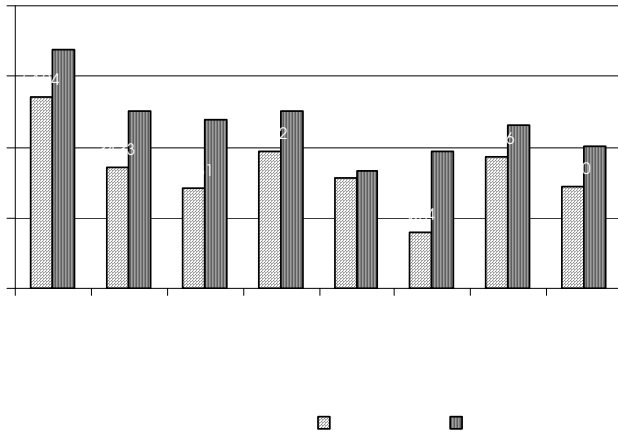
It would be useful to explore further the obstacles to the expansion of R&D in the private sector in Croatia. Interviews with managers of public programs supporting private sector R&D indicate a potential lack of supply of fundable projects. Reports mention that, despite systematic efforts to diffuse their programs through potential clients in the private sector, the number of applications has not significantly expanded over the last years. This may be related to the fact that such programs are still new, but may also provide evidence for the fact that the provided incentives are not sufficient given the risk and appropriability issues inherent to the activity. Yet some programs – such as the tax incentives for private R&D and the RAZUM Program of the Business Innovation Center of Croatia (BICRO) – are much older and do have a larger number of beneficiaries. A third possible reason is the limited share of *de novo* firms in the economy (*vis a vis* former state-owned enterprises and state-owned enterprises) and the overall lack of corporate restructuring and market dynamism in Croatia. As economic history shows, corporate restructuring and the specialization it implies are highly correlated to technological progress and innovation.

Although the average R&D investments are low, more firms are innovative in Croatia than in comparator countries. Introducing new products or upgrading products allows firms to be more responsive to fluctuating market conditions and is key to competing in a globalized economy. In the 2007 Investment Climate Survey (ICS), innovation at the firm level is measured by the introduction of new products within the last three years of operation¹³⁵. Regression analysis with the ICS data shows that Croatian firms undertaking innovative activity are also more productive. Croatian firms are more innovative than most of their European counterparts when accounting for their industrial sector. Sixty-eight percent of Croatian manufacturing firms had introduced new or significantly improved products in the past three years. This is significantly higher than the next most innovative country, where 50 percent of the firms are innovating (see Figure 5.28) Putting this data together with the patent data discussed earlier, it appears that

¹³⁵ The details of the ICS are discussed separately in the Investment Climate Assessment chapter. The total number of firms sampled was 633.

Croatian firms are typically engaged in innovations that are new to the firm though not new to the market. Croatian firms are hence reducing the innovation gap up with other countries, not by pushing the national technology frontier but by introducing products and processes new to them that do not require IPR protection.

Figure 0.27: Innovative Activity in Croatian Firms



introduce new technologies is nearly twice the share of non exporting firms. The level of technology adoption also varies across regions (Figure 5.17), with Slavonia (19 percent of firms introducing a new technology) lagging far behind regions like Zagreb (70 percent) and Northern Croatia (73 percent).

Figure 0.30: Share of Firms that Introduced a New Technology in the last three years (by Exporter Status)

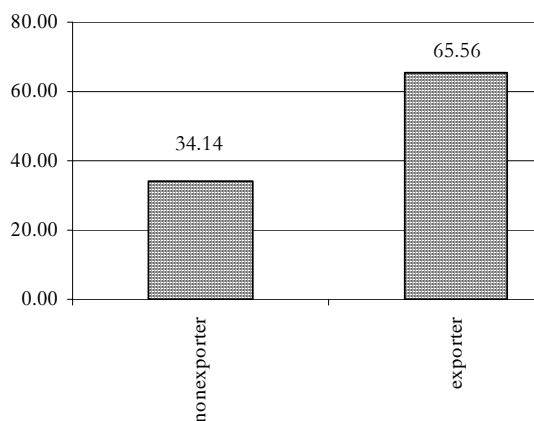
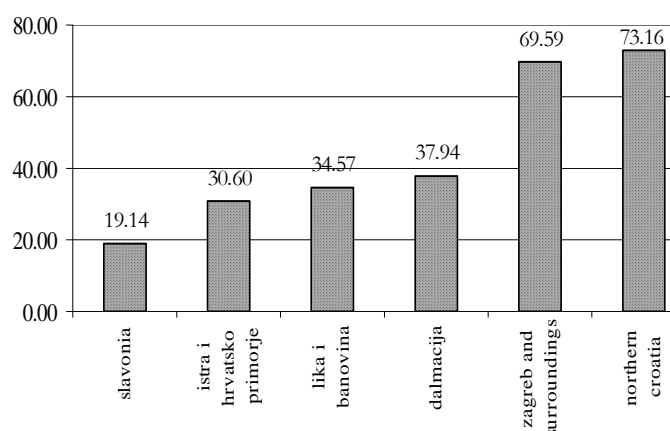


Figure 0.31: Share of Firms that Introduced a New Technology in the last three years (by Region)



Source: ICS 2007.

Openness to foreign trade and investment is critical to the process of technological adoption and diffusion. Trade, FDI and licensing represent three important channels of adoption of technology from abroad.¹³⁶ Trade openness increases competitive pressure on local firms and exposes them to global best practices in technology and management. Adopting technologies from abroad is less costly, less risky and quicker than developing new technologies domestically. As a technological follower, Croatia should seek to acquire foreign technology through multiple channels, including imports, foreign direct investment (FDI) and licensing.

Croatian firms are mostly oriented to their traditional regional markets in the former Yugoslavia, and the bulk of their exports are in manufactured products. A large share of Croatian enterprises, both SMEs and large holding companies, are turned towards their traditional markets in the former Yugoslavia, with Bosnia and Slovenia being two of their main trading partners. As former Yugoslav republics tend to operate farther from the technological frontier than EU member countries, competitive pressures to adopt new technologies and innovate remain low among many Croatian firms. Nonetheless, there has been a marginal increase in the share of Croatian exports to the EU following various preferential trade agreements, and there has been a shift away from textiles and clothing to other manufactured goods. The bulk of Croatia's exports are in manufactured products; the main export products being refined petroleum, transport equipment, ships and boats, textiles and apparel and food products.

There is a close connection between foreign direct investment and trade. FDI can act as a channel of technology transfer when investors introduce product and process technologies from their home countries to their domestic subsidiary. Not only can it introduce technology within the subsidiary, but spillovers, including backward and forward linkages, transmit technology to domestically-owned firms. Net FDI inflows as a percentage of GDP in Croatia are relatively low by international standards. These inflows had been increasing steadily since 1995.

Most of the FDI inflows have been the result of privatization and there has been little greenfield investment. In 2006, the net inflow of foreign direct investment (FDI) almost doubled as a percentage of

¹³⁶ Standards are another important form of foreign technology adoption and are discussed in Chapter 4

GDP to 7.4 percent; this growth was mostly due to direct equity investments. The takeover of a pharmaceutical company, recapitalization of some foreign-owned banks, and the acquisition of two domestic banks contributed significantly to this growth¹³⁷. The financial sector accounts for the largest share of cumulative FDI inflows (30 percent), followed by manufacturing (27 percent), and posts and telecommunications (13 percent). Private investments in processing and manufacturing industry have remained relatively low, with only 10 percent of manufacturing FDI being greenfield investment. Croatia's manufacturing sector, although an important force in the country's exports, is thus benefiting little from technological spillovers from FDI.

The acquisition of technology through licensing in Croatia has been gaining momentum. Since licensing occurs when a technology is still protected by a patent, licensing is an indication of the use of relatively advanced technology. There are limitations to licensing as a mode of technology transfer. Licensing only embodies the codified part of a technology and may not have the desired effect on technological capabilities without a prior accumulation of tacit knowledge by the recipient firm. Moreover, SMEs do not have the means to identify and negotiate collaborative agreements with foreign suppliers. In Croatia, as in other countries, licensing is a more accessible technology transfer mechanism for large firms. This is because SMEs have few means to identify and negotiate collaborative agreements with foreign technology suppliers.

¹³⁷ EU Progress Report, 2007

Table 0.8: Use of foreign licensed technologies by Croatian firms

	Small	Medium	Large
Share of Croatian firms using a technology licensed from a foreign-owned company	20 percent	22 percent	33 percent

Source: ICS 2007

ICT plays an important role in facilitating innovation and technology absorption. Recent research has shown that technology embodied in new ICT capital goods has been a primary source of output and productivity growth in ICT-using sectors¹³⁸.

Electronic communication is widely used in Croatian firms. Close to 90 percent of the firms in Croatia use email daily, a higher number than in South Korea. This includes email correspondence with both suppliers and buyers. Sixty-one percent of employees use email in the service sector, much higher than the 37 percent in the manufacturing sector.

Figure 0.32: Email for Business Use

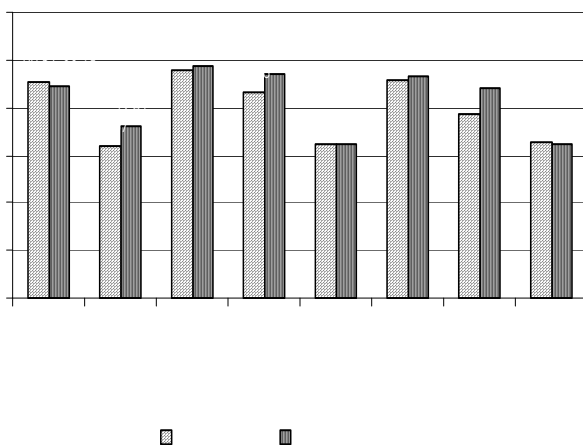
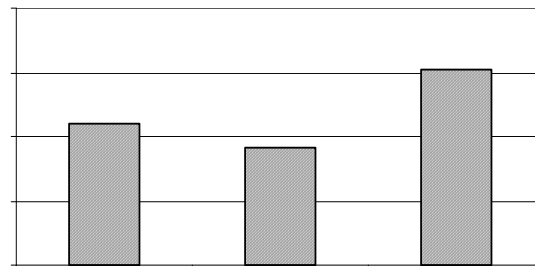


Figure 0.33: Share of Firm's Employees that use Computers Regularly



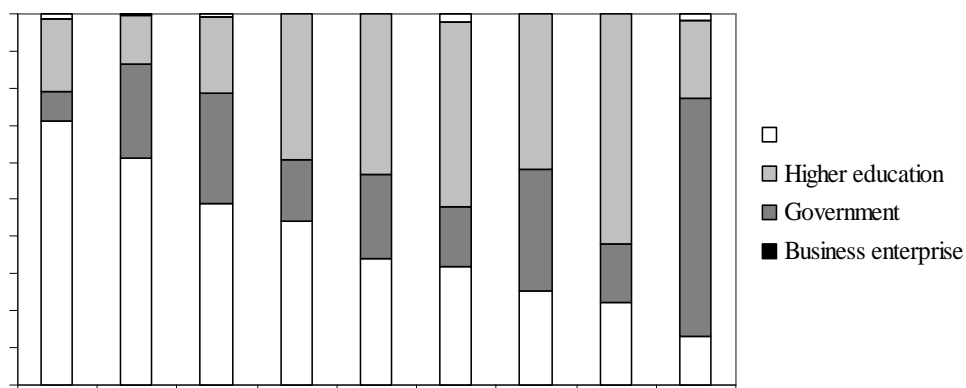
in order for firms to undertake innovative activity, they require a skilled labor force. Firms can obtain returns from training and education through two channels, namely internal channels and external channels. Internally, firms gain due to increased labor productivity from their own workers. External gains accrue to the firms through spillovers from their interactions with skilled labor in the same region.

There are few graduates from science and technology programs in Croatia. Less than six percent of Croatia’s population has a university degree in science or technology, which is lower than in most countries in the region, including Bulgaria, about the same as that in Turkey and much lower than the EU average of thirteen percent. Further, the number of science and technology graduates has remained constant in Croatia while it has grown in other transition countries like Bulgaria, the Czech Republic and Poland. Croatia’s lower level of science and technology graduates represents a lower supply of advanced skills for innovation. Highly innovative countries like Finland have invested heavily in science and technology education at the university level. Finland now has over three times as many science and technology graduates proportionate to its population as Croatia. One of the biggest complaints made by industry is that the graduates from Croatian universities lack the practical training to become productive in industry. As a result, graduate students often need to take additional courses to meet the requirements of their workplace.

Employment in medium/high and high technology manufacturing in Croatia is lower than in other Central Eastern European countries like the Czech Republic, Hungary, Poland and Slovenia. Firms operating in medium and high tech sectors have significant opportunities to innovate. Employment in these industries also indicates the potential for catching-up, which is easier if economies are specialized in technology-intensive sectors (Radosevic, 2003). The technological composition of exports in Croatia is also lower than in most CEE countries.

Croatia dedicates a low share of its labor force to R&D activities, particularly in the private sector. R&D personnel in the private sector are likely to develop more useful innovation, driven by market demand, than public sector R&D staff. Croatia ranks behind countries such as Slovenia or Estonia in terms of the proportion of its labor force involved in R&D. The outlook is even less favorable when examining the share of R&D personnel in the enterprise sector, with only 16 percent of the total number of researchers found in the business sector. In Croatia, the largest number of researchers work in the higher education sector (42 percent) and the government sector (33 percent).

Figure 0.34: Total R&D personnel as a share of the labor force in 2004



Note: 2004 data used for Romania, Spain, Malaysia, Croatia and Turkey and 2005 data for South Korea, Slovenia, Estonia and Bulgaria . R&D personnel are counted as full-time equivalent.

Source: UNESCO Science & Technology Statistics; World Bank WDI database.

In order to deal with the lack of human resources for innovation, the Croatian government has been introducing some Diaspora-related programs. One of them is the “*Unity through Knowledge Fund*”, managed by MSES, and designed to help Croatian scientists from abroad to return to Croatia and/or develop research-related activities in the country (or with local researchers). The program aims at financing projects between Croatian scientists in Croatia and abroad through a competitive evaluation of research and technology proposals. Most Diaspora partners are entrepreneurs from the US, Australia, Spain and Sweden.

Industry-Research Collaboration

An important obstacle to Croatia’s innovative performance is the lack of collaboration between R&D, universities and the private sector. There are benefits for both enterprises and researchers in increased industry-research collaboration. Linkages between industry and the research sector are among the most important components of the innovation system. By collaborating with researchers, firms can introduce innovative products that would increase their competitiveness and open up new markets. As anecdotal evidence suggests, patenting and licensing, the development of joint research projects and spillovers from science-based companies are still novelties for the country’s research and development institutes as well as its public universities. For instance, it was only in 2007 that *Rudjer Boskovic Institute*, the well-known public research institute dedicated to basic research in natural sciences, started a systematic effort to commercialize the result of its research with the creation of a technology transfer office in the form of a limited liability company (*Rudjer Innovations Ltd*). *Brodarski Institute*, the naval institute of the former Yugoslavia, with an extensive history of technological developments in the shipbuilding industry, has currently no more than a handful of research contracts with the private sector (corresponding to about 30 percent of total revenues). A statistical survey of the level of innovative activity in Croatian enterprises, implemented in 2004, concluded that more than half the enterprises that introduced innovations in 2001-2003 gave very low importance to universities and research institutes as a potential source of information for innovation.

Several factors hinder industry-research collaboration in Croatia. Among the various possible obstacles to industry-research collaboration is a lack of interest at the firm level to invest in R&D and thus to collaborate with researchers. There is also a perceived lack of motivation for the research community to engage in IP activities, collaborate with industry or even aim at securing industry supported research grants (IPR CARDS Report, 2008). The career progression for scientists and researchers in Croatia is to a large extent determined by the number of publications to their name. This provides disincentives to collaborate with the private sector, since the result of joint research cannot be incorporated in publications. Croatian researchers are also concerned about the lack of academic freedom driven by the firms’ short term research needs. Researchers also find the administrative process of identifying a potential match in industry and the process of project management to be time-consuming and to divert them away from their research. Moreover, the current legal arrangements between universities and their faculty members do not facilitate consultations with the business sector and the generation and transfer of IP between the industry and research sectors. A few R&D institutes and universities have technology transfer offices to help alleviate this concern. MSES has also introduced an IPR protection grant aimed at researchers who need financial assistance for protection of their IPR in their results on the local and international level. Preference is given to applicants who have cooperation with those in the diaspora, with a view to attracting Croatian researchers aboard to undertake collaborative research with domestic researchers.

The provision of earmarked, non-competitive funding also discourages the diversification of revenues, a key motivation for the commercialization of research. Institutional funding still accounts for most research funding for R&D institutes, and is mostly not allocated based on measurable performance benchmarks. Competitive research funding is distributed in small fragments between a large number of beneficiaries and research fields, which limits its effectiveness in producing results, given that research is often “lumpy” in nature (i.e., requiring a certain minimum scale threshold to be effective). Moreover, competitive research funding is allocated by a policy-making department embedded in the Ministry of

Science, Education and Sports (as opposed to an implementing agency, which is best practice in OECD countries), which may raise concerns related to transparency and objectivity in grant allocation.

Governance issues may also have become more relevant for the efficient management of research institutes in Croatia after their centralization under the MSES. Under the *Law on Research and Development*, the MSES is responsible for the management and administration of the public R&D institutes.¹⁴⁰ The Law defines three bodies for governing the institutes: the Governing Council, the Academic Council, and the director of an institute. The Minister of Science and Technology appoints the members of each governing council. The Minister appoints members of the institute's academic council, on advice of the Minister's Scientific Council (whose members the Minister also appoints). The academic council organizes the professional evaluation of projects (with the Minister having the faculty make the final decision about each individual research project). Vacancies for the directorships of the institutes are publicly advertised but the Minister makes the final decision on advice of the Scientific Council and the institute's academic council, the members of both having been appointed by the Minister.

Business incubators and technology transfer offices (TTOs) are in their initial stages. These are crucial mechanisms to facilitate the start-up of new, science-based companies. There are several self-denominated business incubators in Croatia but few of them would share similarities with the incubators in the U.S. or Europe, being much more oriented to the provision of real estate and other low-value added business services. BICRO is currently supporting the set-up of three new incubators that will follow international best practice and is discontinuing the public support to the previously existing incubators. Yet, some of those existing "quasi-incubators" (e.g. TERA) could have more market potential if they were reformed. The development of TTOs has been delayed by the lack of legal integration between the faculties that constitute Croatia's universities and the resulting ownership of intellectual property by the faculties (to the detriment of universities). Recently, the Universities of Zagreb and Rijeka have managed to overcome this problem and started establishing TTOs.

In Croatia, there is a lack of venture capital to close the gap between research and technology commercialization, although funding is available for more established firms. Venture capital (VC) is crucial to finance start-up technology-based businesses in their initial loss-making phases. At the startup phase, technology-based firms have few other options to finance their development and technology commercialization activities. It is only when they reach maturity that firms can then turn to profits, public share issues, institutional investors, bank loans and public grants or subsidies to finance their operations. VC is useful for innovative startups in that it is usually coupled with innovation management assistance, which increases the chances of reaching the technology commercialization stage. Venture capital is essentially non-existent in Croatia, at least at a scale that would make it visible to most of the national innovation system players. The government is supporting the development of a Venture Capital Fund through BICRO.

Governance of the National Innovation System

Overall, technology and innovation policy is still fragmented in Croatia, resulting in programs with overlapping objectives and a lack of rationalization of resources. The Ministry of Science, Education and Sports (MSES) is the responsible administrative body for planning, funding and monitoring of the overall science and education system. The Ministry of Economy, Labor and Entrepreneurship (MELE) also has programs particularly to increase business- industry linkages. These two ministries however seem not to fully coordinate their policies and programs, as both offer programs for similar types of objectives and beneficiaries. Moreover, some MSES technology commercialization programs with very similar objectives are managed by distinct agencies. Given the level of development of its programs; institutions and its increasing

¹⁴⁰ The *Scientific Research Activities Law* of 1993 changed the status of all research institutes formerly administered by the universities to "public institutes", bringing them under the direct administration of the MSES.

commitments in terms of R&D expenditures, Croatia could benefit from a full-fledged assessment of its NIS and its impact on innovation, productivity and economic growth.

Recommendations

Improving the investment climate to stimulate innovative activities. Croatia should ensure that the basic elements of its national innovation system are in place, such as proper funding mechanisms, IPR enforcement, and market-driven research institutes, before embarking on an ambitious and expensive program of technology commercialization infrastructure development.

Private sector R&D and innovation. Investments in R&D have been dominated by the public sector. This has proven to be insufficient to provide an adequate level of innovative output. Restructuring the innovation system to increase incentives for firms to invest in R&D could increase competitiveness and help generate sustainable growth and productivity. In order to reverse the ratios of public to business R&D, the government needs to motivate firms to invest in R&D. The government can stimulate R&D investments and innovation in the private sector through well-designed public financial support mechanisms such as matching grants and loans. Tax incentives have been introduced but need to be enforced effectively in order not to be misused. Grants are available through programs introduced by MSES; however cumbersome bureaucratic application procedures decrease their potential benefit. Useful next steps to should include: (i) benchmarking the existing tax-incentives with leading innovative economies and assessing their impact on the promotion of private R&D (ii) assessing to what extent public R&D activities (given the limited supply of human resources) may be “crowding-out” private R&D; and (iii) considering the alternative of attracting R&D-intensive FDI jointly with the FDI promotion agency.

Improving the quantity and quality of human resources for innovation. Croatia should introduce measures to increase the scale and quality of its R&D workforce. These measures should target both the supply and demand sides of the labor market. On the supply side, investing in science and engineering education to strengthen Croatia’s technical workforce should be a government priority. Croatia has also introduced diaspora programs to encourage the scientific community abroad to return. On the demand side, programs to subsidize internships for science and engineering graduates in R&D projects in industry can enhance firms’ understanding of the value of R&D and create a culture of innovation in the private sector and also provide graduates with some practical experience in industry.

Strengthening industry-research linkages. The transfer of knowledge and the results of scientific discoveries to commercial application remains a major challenge that needs to be addressed in Croatia’s science and technology policy. There is a need to restructure publicly-funded research institutes in order to re-orient their research towards the needs of industry. This could include programs that encourage research partnerships and strengthen support schemes for researchers to facilitate their mobility between research and industry, and improving the flexibility of the distribution of financial returns from the commercialization of research between the researcher and the institution to which he or she is affiliated. These programs would promote commercialization of academic research by encouraging universities and research institutions to work more closely and effectively with business and attract people and capital into innovative business ventures. Enhancing linkages with industry would require more flexible legal and administrative arrangements for researchers in these academic institutes. Next steps to improve conditions for collaboration between university and industry should include (i) reviewing criteria for progress in the academic career; (ii) simplifying legal requirements for cooperation; (iii) reassessing the overall incentive embedded in the legal regime (using the *Bayh-Dole* framework as a reference); (iv) encouraging market-oriented activities of public research institutes and technology parks; (v) promoting the restructuring of public R&D institutes by a system of declining earmarked funding, and introducing researcher-level incentives for diversification of revenues; (vi) supporting the development of technology transfer offices; (vii) reviewing the benefits provided by BICRO’s SPREAD program, and possibly adopting a matching-grant scheme; and (viii) promoting the development of technology/innovation “brokers” who would help the development of joint-projects to be supported by current programs.

Implementing Bologna Process reforms. The reforms related to the Bologna Process need to be implemented more effectively by particular faculties/departments, and supported by resource allocations – in terms of facilities, lecturers, and additional funds for specific projects. The still existing inertia needs to be challenged by transparent evaluation and quality assurance systems. Where possible, the participation of international experts in evaluation/accreditation of institutions and study programs should be further widened. The role of universities as vehicles of regional development has so far been only partially recognized (see OECD, 2007). Underdeveloped regional policies, insufficient functional integration of universities, and a patchy university network¹⁴¹ have contributed to this situation. The network of regional universities and polytechnics is still under development. A more systematic and coherent approach to regional development is needed, which will enable the implementation of measures to address needs of regional labor markets, entrepreneurship, industrial structures, regional innovation systems, etc. (MoSES, 2007a). In such a context, tertiary education institutions can serve as regional knowledge repositories which facilitate regional development.

The government should review the regulatory bottlenecks for the development of a venture capital industry in the country to ensure that it is able to thrive and support early-stage technology-based ventures. There is a lack of available venture capital to close the gap between research and technology commercialization, although funding is available for more established firms. Venture capital is crucial to finance start-up technology-based businesses in their initial loss-making phases. The Croatian government should facilitate the creation of seed and venture capital funds to bridge the gap between research and technology commercialization.

Although there are a number of national programs aimed at entrepreneurship, few of them focus on technology-based economic development. There are a few programs introduced by the Ministry of Economy, Labor and Entrepreneurship (MELE). However, these programs require numerous, complex documents that must be provided by any entrepreneur, incubator or technology park seeking support. Further, there is no national network of service-providers supporting the demand for technology adoption and innovation in SMEs. In many countries, technology extension programs are used to increase demand for technological upgrading in SMEs and to support industrial upgrading through comprehensive entrepreneurship and technology services.

Improving market incentives for technology adoption. Simplifying the regulatory and legal environment would enable greater technology adoption, especially among SMEs. Enhancing corporate governance would strengthen the incentives for cost-minimization and facilitate joint ventures. The government needs to support technology transfer facilitating institutions that would provide firms with access to new and advanced technologies. Increasing access to financial services and simplifying the administrative and bureaucratic procedures involved, particularly for small firms, would alleviate the financial constraints that these firms face now.

Stimulating trade and FDI. Providing incentives for exporters and improving financing, especially to promote exports among SMEs, will provide incentives for firms to invest in new technologies. In order to maximize technology transfers to Croatian firms, an increase in the technological capabilities of Croatian firms to absorb these technologies (e.g. increase in skilled labor force) would attract more greenfield FDI. Providing domestic firms with support for technology absorption would make Croatia more attractive to knowledge-intensive FDI and maximize technological spillovers.

Creating policies to stimulate technology adoption. While innovation policy remains important, it needs to be complemented by schemes to facilitate technology adoption in firms. Most domestic firms would greatly benefit from adoption of existing improved technologies. Since innovation is most often the results

¹⁴¹ Universities and polytechnics have, until recently, existed only in major urban centres. Moreover, in terms of size one notes a disproportionate relation between the largest institution (University of Zagreb) and smaller universities and polytechnics in regional centers: the University of Zagreb accounts for more than a half of all enrolled students in Croatia (MoSES, 2007a).

of the improvements or combination of existing technologies, the effect of any measure for increasing innovation can be enhanced by measures to support technology adoption. Technology adoption schemes could be particularly helpful to SMEs and to firms in traditional manufacturing sectors, both of which are lagging behind technologically.

Improving the overall governance structure of Croatia's National Innovation System by establishing a strategy for gradual implementation of a monitoring and evaluation system and consolidating and institutionalizing some of the programs (such as those for the support of the Diaspora) and clarifying the roles of BICRO and the Croatian Institute of Technology.

CONCLUSIONS AND POLICY RECOMMENDATIONS

To reduce the income gap and speed up economic convergence with EU countries, Croatia needs to increase employment and speed up productivity growth. Though Croatia's achievements over the past decade have been notable, a simple extrapolation of the current growth path shows that Croatia's per capita income 50 years from now will correspond to only 60 percent of the US level, a position that EU-27 economies reached in the early 1990s. Moreover, Croatia's current growth pattern may not be sustainable, as indicated by the country's external imbalances. The two most important factors that could boost Croatia's growth rate in the medium and long term are labor and total factor productivity (TFP).

An improvement in Croatia's labor market performance would speed up Croatia's EU convergence process. The contribution of labor to economic growth has been meager in recent years: less than 1 percent of the almost 5 percent growths in the 2002-2006 period. The labor force participation rate of Croatia's population would have to increase substantially (and unemployment to fall further) to bring Croatia closer to the Lisbon target of a 70 percent employment rate by 2015. Reaching the Lisbon target could translate into an increase in the GDP level of some 17.7 percent in 2025 (and 22.9 percent in 2040) compared to 2008. It could also translate into a 15.9 percent higher level of consumption in 2025 (20.4 percent in 2040) and an increase in exports of 15.2 percent in 2025 (20.9 percent in 2040).

In addition to the need to increase employment, faster growth in labor productivity could help lower Croatia's unit labor costs, which are the highest among the EU-10 countries, and which thereby hinder Croatia's competitiveness. Achieving both of these objectives requires reforms to enhance labor market flexibility, which is necessary for the efficient allocation of labor resources. Finally, an emerging skills mismatch – a shortage of skilled labor compared to the needs of the economy -- needs to be addressed in order not to become an obstacle to job creation, investment and firm growth.

There are various policies that the government could implement to increase labor market flexibility, labor productivity growth and labor supply:

- **Limit the bargaining power of insiders** through relaxing employment protection for workers and giving the possibility of an opt-out option to employers who do not wish to be covered by the terms of branch level bargaining agreements. The resulting lower unit labor cost, when accompanied by reductions in hiring or firing costs, will facilitate the reallocation of jobs away from less productive activities, firms and industries towards more productive ones.
- **Relax the employment protection legislation** in order to move towards the protection of workers rather than of existing jobs. This change would be best complemented by a revision of the unemployment benefit policy to grant workers the necessary income protection in line with the "flexicurity" principle, as illustrated by the Danish model.
- **Reform the social protection system** to weaken the incentives for early labor force withdrawal, and to place safeguards to limit the abuse of the benefits granted to war veterans, the disabled and unemployed individual farmers.

The capacity of the educational system to train workers in skills demanded by the market, so as to reduce skills shortages, would also allow labor to increase its contribution to Croatia's economic convergence. The perceived skills deficit is greatest with regard to practical skills, which could be acquired through vocational education and training (VET), as well as "soft" skills such as teamwork, communication, ability to work independently, and ability to learn (required for life-long learning). There is a range of policies that the government could adopt in order to reform vocational training and life-long learning and thus address the issue of skills shortages, as well as the related issue of enhancing the innovative capacity of Croatia's economy:

- **Enhance the responsiveness of VET and tertiary education system to labor market needs**, with the provision of better labor market information on occupational trends; the provision of transparent information on employment status of graduates from VET and higher education programs; the functional integration of Croatian universities; and flexible adjustments of enrollment quotas.
- **Modify the governance structures and decision-making processes** at national, sector, regional and school levels, in order to make VET and life-long learning programs more relevant. This includes existing bodies as the National VET Council, sector councils, and local/regional partnerships, as well as changes in the composition of the school boards in VET schools by inclusion of representatives of the business community and students and graduates (as advisory members). Employers' involvement needs to play a crucial role in shaping the overall VET and life-long long learning policy agenda.
- **Design a comprehensive set of incentives for continuing VET as well as for life-long learning.** Transparent mechanisms for recognition of informal and non-formal education need to be supported by corresponding incentives and funding mechanisms (increasingly based on partnership between public and private sectors). This is strongly related to the decentralisation of decision making and strengthening of local partnerships.

Considering Croatia's demographic trends, growth in the coming years will to a large degree depend on a sustained increase in total factor productivity (TFP). In the period 2002-2006, Croatia's economic expansion was driven by capital accumulation (which corresponded to more than 3.5 points of the total output increase). However, a continuation of capital accumulation on the same scale in the coming future is unlikely, due to the fact Croatia's investment levels are already high by comparison to other upper- middle-income economies and because replicating the levels of public investment infrastructure in the future would lead to more socially inefficient choices.

Croatia could unleash productivity gains by improving (i) allocative and (ii) technical efficiency. Allocative efficiency measures the extent to which the most productive firms produce a large share of the output, while technical efficiency looks into the extent to which the best available technique is being used by existing firms. Though these two processes are complementary, the reallocation of resources (allocative efficiency) ought to be at the core of the economic transformation process in Croatia, as it has been the case in other transition economies. The advancement of structural reforms ought to be of primary importance.

In Croatia, the contribution of allocative efficiency to aggregate productivity is extremely low. Currently, a large share of Croatia's output is produced by older, larger and less efficient firms than in comparable countries, thus reducing average productivity. This low market dynamism in Croatia corresponds to a relatively precarious development of the "*de novo*" (small and medium sized) firms. Incomplete corporate restructuring and the remaining strong presence of the state in the economy account for the lower firm turnover rate than in comparable economies. The continued high share of employment in agriculture, by the standards of upper-middle-income countries, demonstrates that the transition from low (subsistence) agriculture to higher productivity activities is still incomplete, and this also detracts from allocative efficiency.

Increasing allocative efficiency would require a broad range of reforms to address the problems posed by restrictive product market regulations. Croatia falls into the category of countries with relatively restrictive product market policies. In particular, Croatia is most restrictive in inward-oriented policies – meaning policies concerned with the degree of state control of the economy and with barriers to entrepreneurship. This includes barriers to competition in the form of legal requirements to enter a market (e.g. licenses, permits) and antitrust exemptions. In 2003, Croatia scored worse than the EU-15 average in terms of barriers to competition. To increase allocative efficiency a broad set of reforms would be required to:

- **Reduce state involvement in the economy**, especially in the energy, communications and transport sectors. It is important to address inefficiencies in these sectors, as they still represent a drag on the rest of the economy and impose additional costs on firm operation. This is reflected in regression results indicating that restrictiveness of regulation in energy, transport and communication sectors has a significant negative impact on growth.
- **Decrease barriers to entrepreneurship** through facilitated entry, exit and licensing regimes and a lower administrative burden. A 25 percent reduction in the administrative burden by 2015 would increase Croatia's GDP by 2.4 percent by 2025. Further liberalization of network industries would alleviate costs for the rest of the economy, thus stimulating growth.
- **Improve the efficiency of the agricultural sector** through land consolidation and the development of land rental and land sales markets. Recent reforms of the Cadastre and the Land Registry will play an important role in increasing the number of land transactions.

Reforms of the investment climate will be necessary to increase technical efficiency. The report's study of the main factors affecting the growth of productivity in Croatia suggests that reforms in the areas of red tape, infrastructure, corporate governance, access to finance and skills and technology are required in order to increase Croatia's growth rate.

Growth could be "endogenized" by addressing key issues in the trade sector. An open trade regime permits more rapid economic growth, with exports as the driving force. Moving Croatia's trade openness to a level equivalent to the top quarter of the current distribution of countries¹⁴² could raise its real per capita income by 0.26-0.36 percent.

With the anticipated EU accession, Croatia has the potential to upgrade significantly its trade logistics performance and to expand export of trade logistics services to neighboring countries. It can achieve this goal by enhancing its competitiveness as a transit country and adjusting its policies to ensure that transit sustainably contributes to its development. This, in turn, will allow the emergence of competitive logistics services, a major requisite for economic growth and competitiveness. While such an approach rests by nature on private sector efforts and innovation, the emergence of such competitive transit services in Croatia warrants close follow up on the following aspects, from a policy and institutional standpoint:

- **Corridor based optimization across transport modes.** From a user perspective, overall corridor performance is what matters. The overall logistic performance from port-to-final-destination drives the selection of routes by forwarders, more than the performance of individual modes in isolation. An improvement in the technical infrastructure for conformity assessment would be required.
- **Sustainable financial framework for each freight transport mode.** Long term sustainability of transit activities requires payment of fees covering long-term marginal costs for the use of infrastructure, and emphasizing the provision of higher value added services to cargo owners by the private sector.
- **Optimized development of additional capacity**, focused on market demand. Upgrading trade logistics performance requires an integrated public-private approach to improve the quality and range of services offered and support the development of logistics infrastructure, particularly in ports. Investments and know-how needs in both infrastructure and services are substantial considering that, in a base case scenario, demand for containerized cargo through Croatian ports is forecast to double by 2015.

Innovation and Research & Development represent another area of policy-making that could contribute to "endogenizing" growth. Croatia's overall innovation performance lags behind the EU

¹⁴² Croatia's current trade openness is close to the median of the distribution of the sample of countries included in the study.

average and has been falling further behind. Judiciously increasing annual R& D expenditures from 1.0 percent of GDP to the Lisbon target of 3.0 percent by 2015 could have a strong effect on income. In 2025 Croatia's GDP could be 6 percent higher and in 2040 it could rise to 8.2 percent. Exports could be an estimated 12.9 higher in 2025, and real wages some 4.9 percent higher. Increasing the level of human capital in line with the Lisbon Agenda could have a long-run beneficial impact on GDP of 0.3 percent by 2025 and 2 percent by 2040. Real average wages could be 0.3 percent higher in 2025 (and 1.9 percent higher in 2040), as could consumption levels.

- **Creating a more effective science and technology policy framework.** Croatia needs to outline its research and innovation policy priorities in a single overarching innovation policy which inter alia clearly defines the role and responsibilities of the various agencies that have overlapping objectives.
- **Improving the quantity and quality of human resources for innovation through improvements in higher education.** On the supply side, investing in science and engineering education to strengthen Croatia's technical workforce should be a government priority. On the demand side, programs to subsidize internships for science and engineering graduates in R&D projects in industry can enhance firms' understanding of the value of R&D and create a culture of innovation in the private sector (as well as providing graduates with some practical experience in the industry).
- **Strengthening industry-research linkages and financing Innovative entrepreneurship.** The transfer of knowledge and the results of scientific discoveries to commercial application remains a major challenge that needs to be addressed in Croatia's science and technology policy. There is a need to restructure publicly-funded research institutes in order to re-orient their research towards the needs of industry. Increasing bridging institutions like incubators, science and technology parks and technology transfer centers would facilitate this process. There is a lack of available venture capital to close the gap between research and technology commercialization, although funding is available for more established firms. Venture capital (VC) is crucial to finance start-up technology-based businesses in their initial loss-making phases. The government should facilitate the creation of seed and venture capital funds to bridge the gap between research and technology commercialization.

Complementarities and sufficiency of measures. It is important to note that there are certain complementarities between the various components of growth that have been identified in this analysis. For instance, even if increasing the labor force participation to 70 percent under the Lisbon Agenda is a goal in itself, the measures needed to achieve it may also impact other areas of the economy such as trade or consumption. Moreover, the accumulation of skills over one's lifetime through Life Long Learning is not only important for the achievement of lower labor unit costs due to increased labor supply, but is also the foundation for today's technology-driven, skill-based economic development. Hence, an inclusive approach needs to be adopted to unleashing higher economic growth.

Political economy constraints. The suggested policy measures to enable Croatia's growth and EU convergence will have varying distributive impacts. Policies to increase average productivity (such as improvements in the quality of the work force, decreasing the time to clear customs or reducing power outages, for instance) should boost growth while having a minimum distributive impact. However, some other policies, such as enterprise restructuring and improved competition, may at least in the short-term negatively impact some people in regions where employment is concentrated in non-competitive industries. Success in getting more people into work may likewise lead, at least temporarily, to a drop in real wages for some of those already in work. These distributive impacts pose political challenges, and imply that some of the suggested reforms are likely be more politically demanding to implement than others.

BIBLIOGRAPHY

1. Adamovic, M., (2003) "Migration of Young and Scientists: Actual and Potential Brain Drain from Croatia in the 1990s", Master Thesis (2003)
2. Aghion, P., Harris C., Howitt P. and Vickers J., (2001) "Competition, Imitation and Growth with Step-by-Step Innovation," *Review of Economic Studies*, No. 68(3), pp.467-492, 2001
3. Aghion, P., (2007) "Designing Growth Policy", Presented in the Growth and Employment Policy Diagnostic Workshop –Monday, November 5 2007 organized by the World Bank in Ankara, Turkey
4. Agosin, M., (2002) "Export Performance in Chile: Lessons for Africa" In Gerald K. Helleiner, ed., *Non-Traditional Export Promotion in Africa: Experience and Issues*. New York: Palgrave Macmillan
5. Alcalá, F. and Ciccone, A. (2004) "Trade and Productivity", *The Quarterly Review of Economics*, vol. 119 (2), 2004
6. Anusic, Z., Madzarevic-Sujster S. and P. O'Keefe (2003), "Pension Reform in Croatia", World Bank Pension Primer, 2003
7. Arnhold, N. and D. Racic (2008), "Vocational Training, Higher Education and Lifelong Learning in Croatia: Addressing the Skill Gap", background paper
8. Arratibel, O. et. al. (2007) "Determinants of Growth in the Central and Eastern European EU-Member States – A Production Function Approach", Occasional Paper Series. No. 61. European Central Bank, 2007
9. ASHE (2007): *Pregled aktivnosti i postignuća*. Zagreb: Agency for Science and Higher Education.
10. Auer, Peter (2005) "Protected mobility for employment and decent work: Labour market security in a globalized world", ILO Employment Strategy Papers, Geneva, 2005
11. Babic, Z., Matkovic T. and Sosic V. (2006) "Structural Changes in Tertiary Education and Impacts on the Labour Market", *Croatian Economic Survey*, 2006
12. Bajo, A. (2006): 'Ključ autonomije je u financijskoj disciplini', *Lider*, 29 November 2006, available at: <http://www.liderpress.hr/Default.aspx?sid=10007>
13. Barbone, L., Polackova, H. (1996) "Public finances and economic transition", World Bank Policy Research Working Paper no.1585, 1996
14. Barro, R. J., and Jong-Wha L. (2000) "International Data on Educational Attainment Updates and Implications" NBER Working Paper 7911, September, Cambridge, 2000
15. Barro, Robert J. and Sala-i-Martin, X. (2004) "Economic Growth", The MIT Press, Second edition, 2004
16. Bartelsman, E., Haltiwanger J. and Scarpetta S. (2004) "Microeconomic Evidence of Creative Destruction in Industrial and Developing Countries", Policy Research Working Paper 3464, World Bank, Washington, DC, 2004
17. Bassanini, A. and Duval R (2006) "Employment Patterns in OECD Countries: Reassessing the Role of Policies and Institutions", OECD Social, Employment and Migration Working Papers No. 35, Paris, 2006
18. Bassanini, A. and Venn D. (2007) "Assessing the Impact of Labour Market Policies on Productivity: A Difference-in-Difference Approach", OECD Social, Employment and Migration Working Papers No. 54, Paris, 2007

19. Bassanini, A. and Scarpetta S. (2002) "Growth, Technological Change, and ICT Diffusion: Recent Evidence from OECD Countries", *Oxford Review of Economic Policy*, 2002
20. Bhagwati J. (1978) "Foreign Exchange Regimes and Economic Development: Anatomy and consequences of Exchange Control Regimes" Cambridge, MA: Ballinger, 1978
21. Bjeliš, A. (2008): Izvješće o radu za razdoblje od 1. listopada 2006. do 31. prosinca 2007. Available at: http://www.unizg.hr/fileadmin/rektorat/dokumenti/izvjesca_uprave/Izvjesce_o_radu_220208.pdf
22. Bezinović P. and Ristić Dedić Z. (eds.) (2005) *Strukovno obrazovanje i državna matura iz perspektive gospodarstva*. Zagreb: Institut za društvena istraživanja u Zagrebu. Available at: <http://www.drzavnamatura.hr/docs/drzavnamaturaHR/documents/21/Original.pdf>
23. Boeri, T. and Garibaldi P. (2007) "Two tier reforms of employment protection: a honeymoon effect", *Economic Journal*, vol. 112 (480), pp. F214-44, 2007
24. Brenton, P and Newfarmer R. (2007) 'Watching More Than the Discovery Channel: Export Cycles and Diversification in Development', Policy Research Working Paper 4302, World Bank, 2007
25. Bruchez, P.-A. (2003) "A Modification of the HP Filter Aiming at Reducing the End-Point Bias" Working Paper, Swiss Federal Finance Administration, Bern, August 2003
26. Cahuc, P. and Koeniger W. (2007) "Employment Protection Legislation", *Economic Journal*, Vol. 117 (June), F185-F188, 2007
27. CARDS (2006a): VET White Paper: Proposals and recommendations concerning VET Policy, Strategy and Legislation. Prepared by the Strategy and Legislation working group within the CARDS 2002 project 'Vocational Education and Training: Modernisation and Institution Building'. Available at: http://www.aso.hr/cards2002/Documents/EN-VET_white_paper.pdf
28. CARDS (2006b): A Comparative Study of the Labour Market and of the VET system in Croatia. Edited by T. Rosenzweig. Prepared by the Labour Market working group within the CARDS 2002 project 'Vocational Education and Training: Modernisation and Institution Building'. Available at: http://www.aso.hr/cards2002/Documents/EN-LMS_ENG_THE_final_version.pdf
29. Carlin, W. and Seabright, P. (2007) "Bring Me Sunshine: Which parts of the business climate should public policy try to fix?" Annual World Bank Conference on Development Economics Bled Slovenia, 2007
30. Caselli, F. (2004) "Accounting for Cross-Country Income Differences", CEPR Discussion Papers 4703, C.E.P.R. Discussion
31. CEDEFOP (2006a): Finland: Overview of the Vocational Education and Training System. Thessaloniki: CEDEFOP.
32. CEDEFOP (2006b): Czech Republic: Overview of the Vocational Education and Training System. Thessaloniki: CEDEFOP.
33. Central Bureau of Statistics, Croatia Labor Force Survey, 2002-2007
34. Central Bureau of Statistics, Household Budget Survey, 2002-2006
35. Central Bureau of Statistics, Projections of Population of Republic of Croatia 2004-2051
36. Central Bureau of Statistics, Statistical Yearbook of the Republic of Croatia, various years
37. Central Bureau of Statistics, Agricultural Census, 2003
38. Central Bureau of Statistics (2006); 'Rezultati ankete poslodavaca'. *Analitički bilten*, 3/2006. Zagreb: Croatian Employment Service.

39. Central Bureau of Statistics (2007a): 'Zapošljavanje prema obrazovnom programu i drugim obilježjima'. Analitički bilten, 3/2007, pp. 5-28. Zagreb: Croatian Employment Service.
40. Central Bureau of Statistics (2007b): 'Stopa zaposlenosti prema obrazovnom programu i drugim obilježjima'. Analitički bilten, 3/2007, pp. 29-31. Zagreb: Croatian Employment Service.
41. Central State Administrative Office for e-Croatia, "One Stop Shop Program Strategy" and "Implementation plan for the One Stop Shop Program", Zagreb, December 2004
42. CODEF (2007): Human Resources Development Operational Programme 2007 - 2009. Zagreb: Central Office for Development Strategy and Coordination of EU Funds.
43. Conway, P., Janod V. and Nicoletti G. (2005) "Product Market Regulation in OECD Countries: 1998 to 2003," OECD Economics Department Working Paper, No. 419. Paris, 2005
44. Conway, Paul, De Rosa D., Nicoletti G. and Steiner F. (2006) "Regulation, Competition and Productivity Convergence," OECD Economics Department Working Paper, No. 509. Paris, 2006
45. Conway, Paul, De Rosa D. and Nicoletti G. (2007) "Competition and Productivity Convergence in the Age of ICT: Evidence from OECD Countries," OECD Economics Department Working Paper, forthcoming. Paris, 2007
46. Council of Europe (2004) "European Judicial Systems 2002", European Commission for the Efficiency of Justice, December 2004
47. Crnković-Pozaić S. (2008) "Effects of legislation, policy and institutions on labour force participation", Background Paper
48. Croatian Financial Services Supervisory Agency (HANFA), Monthly Report, various years
49. Croatian National Bank (HNB) website, www.hnb.hr
50. Croatian Pension Insurance Institute (HZMO), Annual reports, various years,
51. De Rosa, D., Fay M. and Ilieva S. (2007) "Product Market Regulation in Bulgaria: A Comparison with OECD Countries", World Bank, Policy Research Working Paper Series, No. 4393, 2007
52. De Rosa, D., Fay M. and Pauna C. (2007) "Product Market Regulation in Romania: A Comparison with OECD Countries", World Bank, Policy Research Working Paper Series, No. 4402, 2007
53. De Rosa, D., Sonje V. and Madzarevic-Sujster S. (2008), "Product Market Regulation in Croatia: A Comparison with OECD Countries", background paper
54. Docquier, F. and Marfouk, A. (2004), "Measuring the international mobility of skilled workers, JEL, 2004
55. Dixit, A. (2007) "Evaluating recipes for development success", The World Bank Research Observer, vol. 22, no.2, Fall 2007
56. Djankov, S., La Porta R., Lopez-de-Silanes F., Shleifer A. (2006), "The Law and Economics of Self-Dealing", November 13, 2006
57. Durlauf, S., Johnson P. and Temple J. (2005) "Growth Econometrics", Handbook of Economic Growth, in: Philippe Aghion & Steven Durlauf (ed.), Handbook of Economic Growth, edition 1, volume 1, chapter 8, pages 555-677, 2005
58. Easterly, W., Ritzen J. and Woolcock M. (2006) "Social Cohesion, Institutions, and Growth", Economics & Politics, 18 (2), 103-120, 2006
59. EIS (2008): European Innovation Scoreboard 2007: Comparative Analysis of Innovation Performance. Maastricht: UNU-MERIT.

60. El-Erian, M. and Spence M. (2008) "Growth Strategies and Dynamics: Insights from Country Experiences", World Bank Working Paper Series No.6. Commission on Growth and Development. Washington DC, 2008
61. EP (2008): Recommendation of the European Parliament and of the Council on the establishment of the European Qualifications Framework for lifelong learning. Brussels: European Parliament.
62. Escribano A. and Guasch J. L. (2005) "Assessing the Impact of Investment Climate on Productivity using Firm Level Data: Methodology and the Cases of Guatemala, Honduras and Nicaragua", The World Bank, Policy Research Working Paper No. 3621, June, 2005
63. Escribano A. et al. (2008) "Croatia Investment Climate Assessment", background paper
64. ETF (2003): Initial Vocational Education and Training in the Republic of Croatia. Peer review report for Croatia. Torino/Turin: European Training Foundation.
65. European Bank for Reconstruction and Development (EBRD), Transition Indicators, various years
66. European Central Bank (2000), "Potential output growth and output gaps: concept, uses and estimates", Monthly Bulletin, June 2000
67. European Commission (2001): Making a European Area of Lifelong Learning a Reality. Communication from the Commission com(2001) 678 final. Brussels: European Commission.
68. European Commission (2002): The Copenhagen Declaration. Declaration of the European Ministers of Vocational Education and Training, and the European Commission.
69. European Commission (2003): Implementing lifelong learning strategies in Europe: Progress report on the follow-up to the Council resolution of 2002 EU and EFTA/EEA countries. Brussels: European Commission, Directorate-General for Education and Culture.
70. European Commission (2004): Key competences for lifelong learning: a European reference framework. Brussels: European Commission.
71. European Commission, "Croatia 2007 Progress Report", November, 2007
72. European Commission, EUROSTAT database
73. Flaig, G. and Rottmann, H. (2007) "Labor Market Institutions and the Employment Intensity of Output Growth. An International Comparison", CESifo Working Paper No. 2175, December, 2007
74. Gelauff, G.M.M. and Lejour A.M. (2005) "Five Lisbon Highlights. The Economic Impact of Reaching these Targets", CPB Document No. 104, The Hague, 2005
75. Government of the Republic of Croatia, Budget, various years
76. Government of the Republic of Croatia, Pre-Accession Economic Program, November 2007
77. Government of the Republic of Croatia, Strategic Development Framework 2006-2013
78. Haltiwanger, J., Scarpetta S. and Schweiger H. (2006) "Assessing Job Flows across Countries: The Role of Industry, Firm Size and Regulations", IZA Discussion Paper No. 2450, 2006
79. Hartvigsen, M. (2006) "Land Consolidation in Central and Eastern European Countries", "Shaping the Change", XXIII FIG Congress, Munich Germany, October 8-13, 2006
80. Hausmann, R.; Pritchett, L. and Rodrik, D. (2006), "Growth Accelerations.", Journal of Economic Growth, Vol.10:303-329, 2006
81. Hausmann, R. and Rodrik, D. (2006) "Doomed to Choose: Industrial Policy as Predicament.", The John F. Kennedy School of Government, Harvard University, 2006

82. Hausmann, R. and Rodrik, D. (2003) "Economic Development as Self-Discovery", *Journal of Development Economics*, Vol. 72, pp603-633, 2003
83. Hausmann, R., Rodrik, D. and Valesco, A. (2005) "Growth Diagnostic." The John F. Kennedy School of Government, Harvard University, 2005
84. Herczynski, J. and Bialecki, I. (2002) "Access to Secondary Education", unpublished paper, Warsaw, Poland, 2002
85. IDE (2006): *Career Advising Services in Croatian Universities: Handbook*. Zagreb: Institute for the Development of Education.
86. International Monetary Fund (IMF), *World Economic Outlook (WEO)*, various editions
87. International Monetary Fund (IMF) (2007) "Republic of Croatia: 2006 Article IV Consultation" February, IMF Country Report No. 07/81, Washington, DC, 2007
88. Kaufmann, D., Kraay A. and Mastruzzi M. (2007) "Governance Matters VI: Aggregate and Individual Governance Indicators 1996-2006" July, the World Bank Working Paper WPS 4280, Washington, DC, 2007
89. Klapper L., Amit R., Guillen M.F. and Quesada J.M. (2007), "Entrepreneurship and Firm Formation Across Countries", World Bank Policy Research working paper No. WPS 4313, 2007
90. Kox, H., Lejour A.M. and Montizaan R. (2004) "The Free Movement of Services Within the EU", CPB Document No. 69, The Hague, 2004
91. Krueger (1978) "Foreign Exchange Regimes and Economic Development: Liberalization Attempts", Cambridge, MA: Ballinger, 1978
92. Kuriakose S, J.L. Racine and P. Correa (2008), "Innovation and Research and Development in Croatia", background paper
93. Kutan, Ali M. and Vuksic, G. (2007), "Foreign direct investment and export performance: empirical evidence", *Comparative Economic Studies*, September, 2007
94. Lall, S. (2004) "Selective Trade and Industrial Policies in Developing Countries: Theoretical and Empirical Issues." In Charles Soludo, Osita Ogbu, and Ha-Joon Chang, eds, *The Politics of Trade and Industrial Policy in Africa, forced consensus?* Nairobi: Africa World Press, 2004
95. Lejour, A.M., Mervar A. and Verweij G. (2007) "The Economic Effects of Croatia's Accession to the EU", CPB Document No. 154, The Hague, 2007
96. Lejour et al. (2008) "The Economic Effects of the Lisbon Target on Croatia", background paper
97. Lindbeck, A. and Snower D.J. (2001) "Insiders versus Outsiders", *Journal of Economic Perspectives*, Vol. 15, No. 1, pp. 165-188, 2001
98. Linden, T. and Arnhold, N. (2008): *From Fragmentation to Cooperation. Higher Education, Research and Development in South-Eastern Europe*. Washington, DC: World Bank
99. Lopez-Claros, A., Porter M.E., Sala-i-Martin X. and Schwab K. (2006) "The Global Competitiveness Report 2006-2007: Creating an Improved Business Environment" World Economic Forum, New York, 2006
100. Marušiċ I. (2007): *Education Sector Development Plan 2005-2010: 2006 Annual Development Plan Evaluation Report*. Zagreb: Ministry of Science, Education and Sports.
101. Matkoviċ T. (2007): 'Obrazovanje i vještine'. In Japec, L. and Šušur, Z. (eds): *Kvaliteta Ćivota u Hrvatskoj: Regionalne razlike*. Zagreb: UNDP.

102. Matkovic, T. and Sosic V. (2007) "EU integration and Croatian labour market flexibility", *Der Donauraum*, Vol. 47, No. 1-2, pp. 69-85, 2007
103. Micco, A. and Pages C. (2006) "Economic Effects of Employment Protection", IZA Discussion Paper No. 2433, 2006
104. Ministry of Science, Education and Sports (2004) Zagreb: Strategy and Action Plan for Adult Education. Committee for Adult Education. Zagreb: Ministry of Science, Education and Sports.
105. Ministry of Science, Education and Sports (2005): Education Sector Development Plan 2005-2010. Zagreb: Ministry of Science, Education and Sports.
106. Ministry of Science, Education and Sports (2007a): OECD Thematic Review of Tertiary Education: Background Report for Croatia. Executive editors □eljko Duji□ and Pero Lu□in. Zagreb: Ministry of Science, Education and Sports.
107. Ministry of Science, Education and Sports (2007b): Overview of Achievements 2004 – 2007. Zagreb: Ministry of Science, Education and Sports.
108. Ministry of Science, Education and Sports (2007c): Strategy for the Construction and Development of the National Curriculum for Preschool Education, General Compulsory and Secondary School Education. Prepared by the Council for the National Curriculum. Zagreb: Ministry of Science, Education and Sports.
109. Ministry of Science, Education and Sports (2007d): Polazne osnove Hrvatskoga kvalifikacijskog okvira. Zagreb: Ministry of Science, Education and Sports, CARDS 2006
110. Ministry of Finance, Annual Reports, various years
111. MoE-FIN (1999): Education and Reserch 1999-2004. Ministry of Education Plan – Finland. Helsinki: Ministry of Education of the Republic of Finland. Excerpts related to lifelong learning policy available at: http://www.ilo.org/public/english/employment/skills/hrdr/topic_n/t14_fin.htm
112. MoE-HUN (2006): Strategy for Lifelong Learning in Hungary. Budapest: Ministry of Education of the Republic of Hungary.
113. Moj Posao (2007), "Na kakvog ste se zaposlenika spremni kladiti", Bulletin No. 1, Zagreb, 2007
114. Moore, D. and Vamvakidis A. (2007) "Economic Growth in Croatia: Potential and Constraints" IMF working paper WP/07/198, Washington, DC, August 2007
115. NCEEE (2008) National exams in first grades of grammar schools and VET 4-year VET schools. Draft version. Zagreb: NCEEE.
116. Nicoletti, G. and Scarpetta S. (2003) "Regulation, Productivity and Growth: OECD Evidence," *Economic Policy*, No. 36, pp. 9-72, April, 2003
117. Nicoletti, G., Scarpetta S. and Boylaud O. (1999) "Summary Indicators of Product Market Regulation with an Extension to Employment Protection Legislation", 1999
118. National Competitive Council (2005), "Recommendations for Increasing the Information and Communications Technology Competitiveness of Croatia", 2005
119. Nelson, R. (1993) "National Innovation Systems: A Comparative Analysis", Oxford University Press, Oxford 1999
120. OECD (2002) "Regulatory Policies in OECD Countries: From Interventionism to Regulatory Governance", Paris 2002
121. OECD (2005) OECD Economic Surveys – Brazil, Paris 2005

122. OECD (2005) *Education at a Glance*, various editions
123. OECD (2006) *Employment Outlook*, Paris, 2006
124. OECD (2006) *Boosting Jobs and Incomes - Policy Lessons from Reassessing the OECD Jobs Strategy*, Paris, 2006.
125. OECD (2007) *OECD Economic Surveys - Ukraine*, Paris 2007
126. OECD (2007), *Employment Outlook*, Paris, 2007.
127. Olley G. S. and Pakes A. (1996) "The Dynamics of Productivity in the Telecommunications Equipment Industry", *Econometrica*, Vol. 64, 6, 1263-1297, 1996
128. Parente and Prescott (1999) "Needed: A Theory of Total Factor Productivity" *International Economic Review* 39, 525-52, 1994
129. Piatkowski, M. and van Ark B. (2007) "Productivity Growth, Technology and Structural Reforms in Transition Economies: A Two-Phase Convergence Process", June 2007
130. Pološki Vokić N. and Frajlić D. (2004.) 'Pokazatelji konkurentnosti hrvatske radne snage: rezultati empirijskog istraživanja'. In: Bejaković P. and Lowther, J. (eds.) *Konkurentnost hrvatske radne snage*. Zagreb: Institut za javne financije. Available at: <http://www.ijf.hr/konkurentnost/poloski-frajlic1.pdf>
131. Prescott and Parente (1994) "Barriers to Technology Adoption and Development" *Journal of Political Economy* 102, 298-321, 1994
132. Republic of Croatia (2006), "Science & Technology Policy of the Republic of Croatia 2006-2010" Ministry of Science, Education and Sports, Zagreb, 2006
133. Romer, P. (1990), "Capital, Labor and Productivity", *Brookings Papers on Economic Activity, Microeconomics Special Issue*, pp. 337-367., 1990
134. Romer, P. (1990), "Endogenous Technological Change", *Journal of Political Economy*, 5, pp. 71-102., 1990
135. Romer, P. (1989), "Human Capital and Growth: Theory and Evidence", NBER Working Paper 3173, 1989
136. Romer, P. (2007) "Sustaining Growth", Presented in the Growth and Employment Policy Diagnostic Workshop in 2007
137. Romer, P. (1994), "The Origins of Endogenous Growth", *Journal of Economic Perspectives*, Winter 1994
138. Rutkowski, J. (2003) "Does Strict Employment Protection Discourage Job Creation? Evidence from Croatia", *World Bank Policy Research Working Paper No. 3104*, Washington, DC, 2003
139. Rutkowski, J. (2003) "Analiza i prijedlozi poboljšanja tržišta rada u Hrvatskoj", *Financijska teorija i praksa*, 27(4), pp. 495-513, 2003
140. Rutkowski, J. and Walewski, M. (2007) "Taxation of Labor", in Ch. Grey, T. Lane and A. Varoudakis (eds.), *Fiscal Policy and Economic Growth: Lessons for Eastern Europe and Central Asia*. Washington, DC, World Bank, 2007
141. Scarpetta, S., Hemmings, P., Tresselt T. and Woo J. (2002) "The Role of Policy and Institutions for Productivity and Firm Dynamics: Evidence from Micro and Industry Data", *Economics Department Working Paper 329*, OECD, Paris, 2002

142. Schultze, C. (1977) "The Private Use of Public Interest", Brookings Institution, Washington, DC, 1977
143. Slavova, S. (2004) "Resolving Business Disputes in South Eastern Europe: the Role of the Courts" in "Building Market Institutions in South Eastern Europe Comparative Prospects for Investment and Private Sector Development", The World Bank, 2004
144. Susic, V. (2008) "Assessing the Flexibility of the Croatian Labor Market", background paper
145. Susic, V. (2008) "Corporate Restructuring in Croatia – Source of Dynamism or a Major Drag on Economic Growth?", background paper
146. Tahvainen, S. (2006): Lifelong learning and adult training in Finland. Presentation given at the workshop Transnational exchange for active ageing. Sofia, October 19 –20, 2006. Available at: http://www.activeageing.org/Workshop/Workshop_Bulgaria/Tahvanainen.pdf
147. TF-IRL (2002): Report of the Taskforce on Lifelong Learning. Dublin: Government Publications
148. Transparency International, Global Corruption Barometer 2007
149. Transparency International, Global Corruption Report 2007, Corruption in Judicial Systems
150. UN World Population Prospects: the 2006 Revision Population Database
151. Viertel, E. et al. (2001): Assessment of the labour market and the vocational education and training sector in Croatia. Torino/Turin: European Training Foundation.
152. WIIW Database
153. Wimmer, A., de Soysa, I. and Wagner, C. (2002), "Political Science Tools for Assessing Feasibility and Sustainability of Reforms". Research paper prepared for the Independent Evaluation Office of the International Monetary Fund. University of Bonn, Center for Development Research, Department of Political and Cultural Change, 2002
154. World Bank (1994): Higher Education: The Lessons of Experience. Washington, DC: World Bank.
155. World Bank (2000) "Public Expenditure and Institutional Review (PEIR)", Croatia, 2000
156. World Bank (2003) Country Economic Memorandum (CEM), A Growth and EU Integration Strategy. Vols. I and II., Croatia, 2003
157. World Bank (2004) "Global Integration and Technology Transfer", 2004
158. World Bank (2005) "Enhancing Job Opportunities: Eastern Europe and the Former Soviet Union", Washington, DC, 2005
159. World Bank (2006) "Alternative Dispute Resolution Manual: Implementing Commercial Mediation", Small and Medium Enterprises Department, November 2006
160. World Bank (2006) Anticorruption in Transition 3, 2006
161. World Bank (2006) "Assessing World Bank Support for Trade 1987-2004", Washington DC, 2006
162. World Bank (2007) "Connect to Compete Report", 2007
163. World Bank (2007) "Escaping the Middle Income Trap: Trade, Integration and Growth in the Western Balkans", World Bank, Washington DC, 2007
164. World Bank - EDSTAT
165. World Bank Governance Indicators website

166. World Bank (2007) "Implementation and Results Completion Report on a loan to the Republic of Croatia for a Court and Bankruptcy Administration Project", June 29th, 2007
167. World Bank (2007) "Labor Markets in EU8+2: From the Shortage of Jobs to the Shortage of Skilled Workers", in: World Bank EU8+2 Regular Economic Report, September, 2007
168. World Bank (2007) "Living Standards Assessment, Promoting Social Inclusion and Regional Equity", January 2007
169. World Bank (2007) Project Information Document, Judiciary Reform Project, March 2007
170. World Bank (2007) "Report on the Observance of Standards and Codes: Corporate Governance Country Assessment, Croatia", June 2007
171. World Bank (2007) "The Pathway to Prosperity: Productivity Growth in Eastern Europe and the Former Soviet Union", Washington DC, 2007
172. World Bank (2008) "Croatia, Restructuring Public Finance to Sustain Growth and Improve Public Services: A Public Finance Review", Poverty Reduction and Economic Management Unit, Europe and Central Asia Region, Washington, DC
173. World Bank and IFC (2009) Doing Business, www.doingbusiness.org, 2009
174. World Economic Forum, Global Competitiveness Report, various editions