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# Bulgaria

## Accelerating Bulgaria's Convergence

### The Challenge of Raising Productivity

(In Two Volumes) Volume I: Overview

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## CURRENCY AND EQUIVALENT UNITS

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## ACRONYMS AND ABBREVIATIONS

ALMP	Active labor market programs	NEA	National Employment Agency
BAS	Bulgarian Academy of Sciences	NCAS	National Center for Agrarian Studies
BEEPS	Bank environment and enterprise performance survey	NCI	National Council for Innovation
BGN	Bulgarian Denominated Lev	NCSR	National Council for Scientific Research
CKOKO	Center for Control and Assessment of the Quality of Education	NEAA	National Evaluation & Accreditation Agency
CEFTA	Central European Free Trade Agreement	NIS	National Innovation Strategy
CVT	Continuing Vocational Training	NSRF	National Strategic Reference Framework
EFTA	European Free Trade Association	NRA	National Revenue Agency
EPA	Employment Promotion Act	NQA	National Qualifications Authority
EPL	Employment Protection Legislation	NQF	National Qualification Framework
EPO	European Patent Office	NSF	National Science Fund
EU	European Union	NSI	National Statistical Institute
EUR	Euro (Currency)	NSSI	National Social Security Institute
FDI	Foreign Direct Investments	NSRD	National Strategy for Research and Development
FE	Further Education	OP	Operational Programs
ICT	Information Communications Technology	OECD	Organization for Economic Cooperation and Development
GDP	Gross Domestic Product	PAC	Program Advisory Committees
IT	Information Technology	PIRLS	Progress in International Reading Literacy Study
IUT	Institutes Universitaire de Technologie	PISA	Program for International Student Assessment
KAM	Knowledge Assessment Methodology	RCI	Relative Cost Indicator
KEI	Knowledge Economy Index	R&D	Research and Development
KPI	Key Performance Indicators	SETC	Secondary Education Testing Center
LFP	Labor Force Participation	SME	Small & Medium Scale Enterprise
LFDI	Leadership and Faculty Development Institute	TIMSS	Trends International Mathematics and Science Study
LFS	Labor Force Survey	UNESCO	United Nations Educational, Scientific and Cultural Organization
		USPTO	United States Patent and Trade Mark

MES Ministry of Education and Science  
MLSP Ministry of Labor and Social Policy  
MOF Ministry of Finance  
NAVET National Agency for Vocational  
Education and Training



VET Vocational Education and Training  
VETA Vocational Education and Training Act  
VTC Vocational Training Centers  
WTO World Trade Organization

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## EXECUTIVE SUMMARY

### THE CHALLENGE OF INCREASING PRODUCTIVITY

1. On January 1, 2007 Bulgaria and Romania became the newest members of the European Union (EU). In the run-up to this momentous event, the Bulgarian economy and institutions had gone through a major transformation. After an initial collapse in output and employment as the old supply-driven modes of production were largely destroyed, growth of output and employment has resumed, but now on a demand-driven basis and in an increasingly competitive environment. This is no minor achievement. Nevertheless, Bulgaria still has a long way to go to catch up with its fellow EU member countries. The country's income per capita, at PPS in 2005, was 32 and 56 percent of the average level of EU25 and EU8,<sup>1</sup> respectively.

2. Closing the income gap and facilitating convergence with other EU countries is, and has been for some years, an overriding priority for Bulgaria. However, the country is embarking on this road to convergence with two disadvantages: the sheer distance that it hopes to traverse, and its rapidly declining working age population. For a time, this can be offset by increasing the labor force participation rate, but this has a limit. Beyond that, output will inevitably decline, unless offset by productivity growth.

3. To close the income gap and converge, Bulgaria needs to raise not just labor force participation and employment, but above all productivity. Convergence is not beyond Bulgaria's reach, but the country faces long odds. Bulgaria's labor productivity has been rising at about 4 percent per year on average since 2000. However, the split of strong GDP growth between growth in productivity and growth in employment has shifted during this period. Also, labor has been relatively immobile during the whole period, which is a concern. Early on most of the GDP growth came from a rise in labor productivity, using the existing labor force or even shedding some of it. From 2003 onwards, growth came mainly from a strong expansion in employment with labor productivity rising at only about 2 percent per year. This trend has been good for putting people back to work, but may spell trouble for the goal of convergence if, once much of the remaining unemployed or underemployed labor force is absorbed, the rate of growth of labor productivity fails to increase substantially from its recent pace. To avoid that kind of situation—that is, ensuring that the rate of growth of labor productivity picks up—requires bold policy reforms. Marginal measures will not be enough to make the country converge.

### OBJECTIVES OF THE REPORT

4. The report aims to assist the Bulgarian authorities in identifying options for policies and reforms that would help to boost productivity and employment and thereby economic growth and income convergence. To achieve this, the report looks at Bulgaria's product and labor markets, human resource development, and R&D and innovation system. The reform options are arranged along a time dimension, ranging from short to medium term. The implications of the proposed policy options for the government's budget are also briefly explored, including the utilization of EU grant funds.

5. The report concentrates mostly on the *supply-side* aspects of Bulgaria's product and labor markets, its education (primary and general secondary, VET, tertiary) delivery, and its R&D and innovation system. A companion piece, the Investment Climate Assessment, which is being prepared in

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<sup>1</sup> EU8 refers throughout the report to the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, the Slovak Republic, and Slovenia.

parallel, deals with the *demand side* and, using firm data, identifies the binding constraints to productivity growth from the firm perspective. While there is necessarily some overlap, the two reports together are designed to provide a more comprehensive view of the options to tackle the challenge of boosting productivity.

#### TACKLING THE CHALLENGE OF INCREASING PRODUCTIVITY: TOP TEN REFORMS

6. Innovation—defined as adoption of already existing or development of new technologies, products, and processes—lies at the heart of high productivity. It should, therefore, be the overriding objective for Bulgaria. For all countries, to build and maintain their productive sectors in the face of global competition, enterprises must be able to continuously improve their products and services and for that purpose successfully adopt new technologies and processes—that is, to innovate. However, there is no simple formula to promote innovation and thereby productivity growth.

7. To increase productivity and move Bulgaria to a higher growth path, action would need to be taken on several fronts. Growth is a result of a number of factors, including an enabling institutional framework that provides appropriate incentives. This will include above all the provision of incentives for increased labor mobility, which the report shows is currently weak, but essential for strong growth in the longer run. Incentives for investing in R&D and human capital would also be central.

8. From the analysis in the report emerge four core areas for action:

- a. Increase employment;
- b. Enhance labor mobility;
- c. Narrow the skill gap; and
- d. Strengthen R&D.

9. Bulgaria is doing well on the employment front (the first core message), but this is not yet true of the other three core messages—enhancing labor mobility, narrowing the skill gap, and strengthening R&D—which are all ways to increase productivity growth. Having a mobile labor force that moves from lower to higher productivity jobs and sectors as opportunities emerge is a core building block in the quest to raise productivity. Both product and labor market policies and regulations impact the mobility, and are thus the key levers to effect a change. Having a skilled and technically savvy labor force is in turn essential to effective adoption and adaptation of technologies, whereas R&D enhances technology transfer by helping firms to learn about technological advances.

10. The *top ten* reform options for the short and medium term to raise employment and productivity through enhancing labor mobility, narrowing the skill gap, and strengthening R&D are summarized in Table 1. The first four short-term reform options would be the key measures for increasing employment and labor mobility, while options 5-6 would address the skill gap and the remaining three would strengthen R&D. Of the medium-term reform options, the first two would enhance employment and labor mobility, and the rest would focus on the narrowing of the skill gap and strengthening of R&D.

<b>Table 1. Top 10+ Short-term Reforms</b>		<b>Top 10 Medium-term Reforms</b>
1	Minimize administrative burden on business, including barriers to entry of firms	Improve the enforcement of regulations in product markets
2	Continue privatization and abolish state's special voting rights in privatized companies	Reduce labor taxes further in a fiscally sustainable manner
3	Develop and encourage lifelong learning	Start vocational secondary education only after the completion of compulsory education
4	Revise labor legislation and regulations while complying with EU requirements	Develop curricula for vocational secondary schools that balance vocational and general studies
5	Shift the emphasis of active labor market programs (ALMPs) to support job search and strengthen their monitoring and evaluation	Establish Occupationally-Oriented Regional Colleges
6	Introduce per student financing to VET	Increase university tuition fees and establish a student loan scheme
7	Base tertiary institution funding on actual student enrolments	Introduce a performance-based component to tertiary institution funding
8	Strengthen university governance through the establishment of Boards of Trustees and a Tertiary Education Council	Consolidate universities and tertiary institutions
9	Increase the share of competitive R&D funding	Enhance industry-financed R&D
10	Encourage public-private partnerships in R&D	Encourage university research
11	Re-evaluate the role of the Bulgarian Academy of Science	

11. All these reforms could be carried out within Bulgaria's currently projected budget envelopes for 2007-09. Investment costs could largely be covered by grant funds available from EU. This would require some co-financing from Bulgaria's budget, but the total amount might be on the order of EUR15-20 million, which is roughly 0.06-0.08 percent of GDP. Even these amounts can likely be fitted into preliminary budget allocations for current Operational Programs (OP), since they are all compatible with the OP goals. Additional current running costs of the options taken together are miniscule compared to the potential savings. This leaves room for a good portion of savings to be kept by the ministries concerned to give them incentive to carry out the reforms rapidly and efficiently. This implies the need for leadership to make the case for the proposed reforms and build consensus. Since Bulgarian leaders have already been thinking about and planning a number of these reforms, this should be feasible.

12. Attention to issues of implementation is likely to be particularly important in Bulgaria. Evidence presented in the main report (Chapter 9) suggests that the performance of Bulgaria's institutions lags in most dimensions, when compared to countries at a similar level of development. There is a strong case for Bulgaria to develop a comprehensive mechanism that tracks performance across the entire administration. Specifying performance targets may be difficult, but the exercise of producing them, tracking them, and identifying corrective actions where performance gaps emerge, would help improve performance. It would be an iterative process, first piloted in some critical areas, and as experience is gathered, widened in scope and quality. Also, the power of making the information on performance publicly available should not be underestimated.



# 1. THE CHALLENGE OF INCREASING PRODUCTIVITY

## I. MAGNITUDE OF THE CHALLENGE

1.1. On January 1, 2007 Bulgaria and Romania became the newest members of the European Union (EU). In the run-up to this momentous event, the Bulgarian economy and institutions had gone through a major transformation. After an initial collapse in output and employment as the old supply-driven modes of production were largely destroyed, growth of output and employment has resumed, but now on a demand-driven basis and in an increasingly competitive environment. This is no minor achievement. Nevertheless, Bulgaria still has a long way to go to catch up with its fellow EU member countries. The country's income per capita, at PPS in 2005, was 32 and 56 percent of the average level of EU25 and EU8,<sup>2</sup> respectively.

1.2. Closing the income gap and facilitating convergence with other EU countries is, and has been for some years, an overriding priority for Bulgaria. However, the country is embarking on this road to convergence with two disadvantages: the sheer distance that it hopes to traverse, and its rapidly declining working age population.<sup>3</sup> For a time, the declining working age population can be offset by increasing the labor force participation rate, but this has a limit. Beyond that, output will inevitably decline, unless offset by productivity growth.

1.3. Hence, to close the income gap and converge, Bulgaria needs to raise not just its labor force participation rate, but above all its productivity. To give an idea of the magnitudes involved, Figure 1.1 presents scenarios of Bulgaria's GDP per capita through 2040 under two sets of assumptions. Through the year 2015, both scenarios assume that: (i) employment will continue to grow at about 3 percent per year, as it has since 2002, with the employment rate rising to the Lisbon target of 70 percent, and (ii) labor productivity will continue to grow at its recent pace of two percent per year. During this period, Bulgaria's GDP per capita converges from its current level of 34 percent of EU25 GDP per capita to 44 percent by 2015, assuming that EU25 GDP per capita continues growing at 2 percent per year, as it has on average in recent years (the uppermost trajectory in Figure 1.1). After 2015, the two scenarios diverge. At that point, there will be no more gains to be had from increased employment since the employable labor pool will have been more or less exhausted. From there on, productivity will be the sole driver of GDP growth. In the first scenario (the low trajectory), it is assumed that labor productivity will continue to grow at 2 percent per year. In the second scenario (the middle trajectory), growth in labor productivity accelerates to 5 percent per year and stays there for the duration.

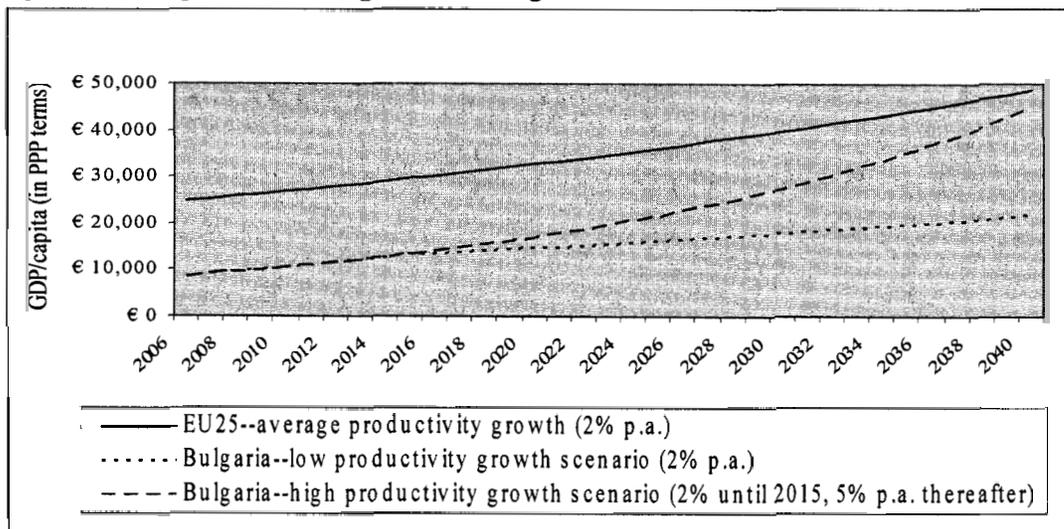
1.4. Figure 1.1 shows that if the labor productivity growth remains at 2 percent, Bulgaria will never converge. Convergence to EU25 stops in 2015, and for the rest of the projection period Bulgaria's GDP per capita remains at 44 percent of the EU25 GDP per capita. By contrast, if the rate of growth of labor productivity increases to 5 percent, Bulgaria's GDP per capita converges to that of EU25 and achieves parity around year 2040. However, to achieve that, Bulgaria will have to push on with its reform program. Ensuring that the rate of growth of labor productivity picks up requires policies and bold reforms, given the magnitude of the challenge.

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<sup>2</sup> EU8 refers throughout the report to the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, the Slovak Republic, and Slovenia.

<sup>3</sup> Population is projected to decline at 0.7 percent per year. See discussion on demographic trends later in this chapter.

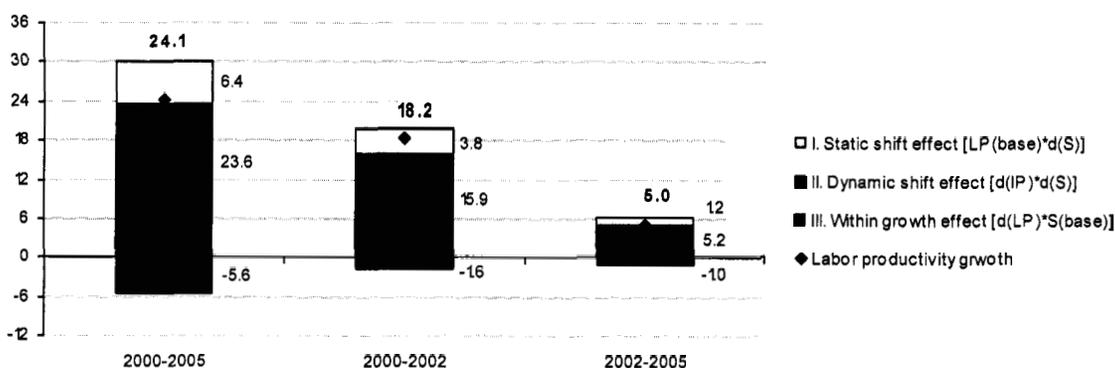
**Figure 1.1: Bulgaria's Convergence Challenge**



## II. RECENT PRODUCTIVITY TRENDS

1.5. During 2000-2005 labor productivity increased a total of 24.1 percent, or at an annual rate of roughly 4 percent, as marked in Figure 1.2 by a diamond. However, this was composed of annual labor productivity growth of almost 6 percent during the first three years (2000-2002), followed by productivity growth of under 2 percent per year during the latter part of the period (2003-2005). With GDP growing by 5-6 percent per year, this meant that employment was stagnant or even declining slightly during the first three years of the period (a period of “jobless” growth), followed by strongly expanding employment at a rate of 3-4 percent per year during the second three year period. The objective is, of course, to have strong growth in both employment and labor productivity, but that implies extremely high GDP growth. This may be difficult to achieve for extended periods of time.

**Figure 1.2: Shift-Share Analysis of Labor Productivity Growth for Bulgaria 2000-2005, %**



*Note:* The effects I-III may not sum up to the overall labor productivity growth because of rounding.  
 LP—labor productivity; base—base year; S—labor share; and d (...) — change between base and final year.  
*Source:* Bank staff calculations.

1.6. Figure 1.2 also shows something else. Productivity growth can be decomposed into effects arising from reallocation of production factors across sectors, and those coming from within the sector. In the case of aggregate labor productivity, one can decompose the overall change into three separate effects: (i) a *static shift effect*--the effect of reallocation of labor towards sectors with above-average initial *level* of labor productivity; (ii) a *dynamic shift effect*--the effect of reallocation of labor towards sectors with higher *growth* in labor productivity; and (iii) a *within-sector growth effect*--gains in labor productivity achieved through means other than reallocation of labor, including increases in the capital-labor ratio within the same sector. This type of decomposition is also referred to as “shift-share analysis”.

1.7. The decomposition of productivity growth reveals that labor was relatively immobile in Bulgaria in 2000-2005. Productivity growth due to reallocation of labor from sector to sector (that is, the sum of the two “shift effects”) accounted for almost 2 percentage points of labor productivity growth during the first three years (2000-2002), but for virtually none during the second half of the period (2003-2005), as can be seen from Figure 1.2. Most of the productivity growth came from simply raising the productivity of workers already working in any given branch of the economy. Similar results were obtained using a different decomposition method, but that case revealed that both capital as well as labor mobility across sectors were low (see Chapter 4 of the main report).

1.8. The relative immobility of factors of production raises concerns about the medium to long term growth potential of the Bulgarian enterprise sector. In the most dynamic economies, in particular in economies undergoing a transition like Bulgaria, growth takes place through the Schumpeterian process of “creative destruction”, in which firms either actively invest in new technologies and/or organizational change, in the process challenging their competitors to do the same, or face the threat of exit.<sup>4</sup> This fierce competition leads to an allocation of factors to their most productive uses, and thus keeps shifting the factors from less to more productive sectors. Further analysis at the firm level will be needed to ascertain the facts in the case of Bulgaria, but the “shift-share” analysis suggests that the process of “creative destruction” in Bulgaria is still in its infancy.

1.9. What do these results imply for Bulgaria’s convergence? They suggest that convergence is not beyond Bulgaria’s reach, but that the country faces long odds. Bulgaria’s labor productivity has been rising at about 4 percent per year on average since 2000, which does not seem to be that far from the 5 percent per year pace assumed in the convergence scenario in Figure 1.1 above. However, the split of strong GDP growth between growth in productivity and growth in employment has shifted during this period. Early on most of the GDP growth came from a rise in labor productivity, using the existing labor force or even shedding some of it. From 2003 onwards, growth came mainly from a strong expansion in employment with labor productivity rising at only about 2 percent per year. This trend has been good for putting people back to work, but may spell trouble for the goal of convergence if, once much of the remaining unemployed or underemployed labor force is absorbed, the rate of growth of labor productivity fails to increase substantially from its recent pace. To avoid that kind of a situation—that is, ensuring that the rate of growth of labor productivity picks up—requires policies and bold reforms that will allow all the effects identified through the different decompositions to play a role in raising labor and total factor productivity in Bulgaria. Marginal measures will not be enough to make the country converge.

### III. DEMOGRAPHIC TRENDS

1.10. Bulgaria’s productivity challenge is made even tougher by its demographics. Bulgaria has one of the fastest declining populations in the EU. In early 2006, Bulgaria had 7.8 million people.<sup>5</sup> However,

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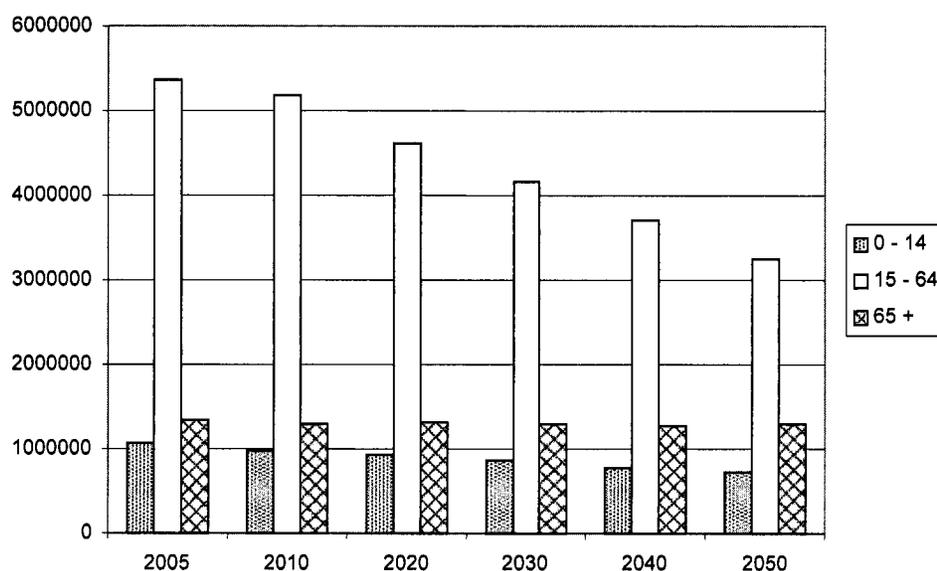
<sup>4</sup> See for example, Aghion and Howitt (2005).

<sup>5</sup> Eurostat (2005) based on Bulgaria’s NSI data.

according to Eurostat, by 2025 the population will have dwindled to 6.5 million, and by 2050 to 5.2 million. Projections carried out by the UN (2007) are similar, with the low/high scenarios of 4.2-6.0 million people by 2050. This represents a 0.7 percent decline in population per year. The demographic patterns are similar, but more moderate in all EU8 countries.<sup>6</sup> In contrast, total population of EU15 is projected to stabilize, although the share of old people will rise, and that of children and working age population decline.

1.11. Bulgaria's working age population (people of ages 15-64) will decrease. According to projections, it will decline by about one percent per year after 2010. As a result, the working age population is set to go down from 5.4 million in 2004 to 4.2 million in 2025, and 3.1 million in 2050. By 2050, the working age population would represent only 60 percent of the entire population, down from 69 percent in 2004. This means that even if labor force participation rates increased to 70-75 percent, there would be 35-40,000 fewer workers available each year during 2010-2030, tapering off to an annual decline of 20-25,000 workers by 2040-2050 (Figure 1.3). While this may eliminate the current unemployment problem in Bulgaria, it also implies that the labor force will have to go through a major upgrading of its education and skill levels, accompanied by large capital investments, to raise its productivity and bring Bulgaria's living standards to the average of those in other EU countries.

**Figure 1.3: Median Population Projections by Age Group, 2005-2050**



Source: Demographic Institute of BAS, Eurostat (2005) and UN (2007).

1.12. At the same time, the share of those aged 65 and above in Bulgaria will rise from 17 percent in 2004 to 26 percent in 2050. Because the ratio of working age to older people (aged 65+) will be declining steadily, the working age group will need to raise its savings rates sharply over time to take care not only of the current old people, but eventually themselves. They will not be able to expect generations younger than themselves to take care of them, since younger generations will be declining in numbers.

<sup>6</sup> EU8 refers throughout the report to the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, the Slovak Republic, and Slovenia.

1.13. The number of babies born each year is projected to decline from its current range of 65-70,000 per year towards 50,000 per year. This would imply a birth rate of about 1.5 children per woman. This is slightly higher than the range of 1.1-1.3 births per woman that has prevailed in the last 15 years. Some argue that the low fertility rate reflects the unfavorable economic conditions of the transition, which are not expected to last. However, even if the birth rate were to recover to the population-stabilizing rate of 2.1-2.2 births per woman, making it the highest in Europe, it would imply only getting back to the current number of babies born each year. Well before it affects the size of the labor force, this “baby bust” will have important implications for the school system. The numbers of children in primary and lower secondary schools are already declining and it is just a matter of a few years before upper secondary enrolments will be affected. Tertiary enrolments may escape the decline if access to tertiary level can be improved thus raising participation rates.

#### IV. OBJECTIVES OF THE REPORT

1.14. This report aims to assist the Bulgarian authorities in identifying options for policies and reforms that would help to boost productivity and employment and thereby economic growth and income convergence. To achieve this, the report looks at Bulgaria’s product and labor markets, human resource development, and R&D and innovation system. The reform options are arranged along a time dimension, ranging from short to medium term. The implications of the proposed policy options for the government’s budget are also briefly explored, including the utilization of EU grant funds.

1.15. This report concentrates mostly on the *supply-side* aspects of Bulgaria’s product and labor markets, its education delivery, and its R&D and innovation system. A companion piece, the Investment Climate Assessment, which is being carried out in parallel, deals with the *demand side* and, using firm data, identifies the binding constraints to productivity growth from the firm perspective. While there is necessarily some overlap, the two reports together are designed to provide a more comprehensive view of the options to tackle the challenge of boosting productivity.

1.16. The areas selected for the study respond to the priorities identified by the Bulgarian authorities. In this context it is worth noting that this report builds on the analysis of two prior Bank reports on Bulgaria—the Country Economic Memorandum of 2005 and the Public Finance Policy Review of 2006<sup>7</sup>. This study is also closely linked to the World Bank study that benchmarked Bulgaria’s product market regulations using the OECD methodology.<sup>8</sup> The benchmarking results have been partly utilized in this report, along with some of the prior work carried out by the World Bank on education. In addition to the areas covered in this report, other factors, such as adequate provision of infrastructure, are important for the quest to raise productivity. However, since they were already covered at least partly in earlier reports, they are not included in the current report.

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<sup>7</sup> World Bank (2005b), Bulgaria: The Road to Successful EU Integration—The Policy Agenda, Report No. 34233-BG., and World Bank (2006) Bulgaria Public Finance Policy Review: Leveraging EU Funds for Productivity and Growth.

<sup>8</sup> De Rosa, Fay, and Ilieva (2006), “Product Market Regulation in Bulgaria: A Comparison with OECD Countries.” The World Bank.



## 2. TACKLING THE CHALLENGE OF INCREASING PRODUCTIVITY

2.1. As stated in the previous chapter, to close the income gap and converge, Bulgaria needs to raise both *employment* and *productivity growth*. While employment has grown strongly in the past few years, its expansion has a limit, in particular as the working age population keeps shrinking. For some years there is still significant room to raise the labor force participation and employment rates, and that indeed should be done. However, once the remaining labor reserves have been mobilized, further growth in GDP can be sustained only through growth in productivity. Therefore, tackling the challenge of increasing productivity is becoming urgent.

2.2. Since the onset of the new millennium, transition economies like Bulgaria have faced a significantly changed global environment. The dimensions of change include globalization, the emergence of knowledge as the driver of economic growth, and the “flattening” of the world through the high speed information and communication technology. In economies increasingly based on knowledge, wealth and economic development depend on citizens’ capacity to creatively use their knowledge and skills to develop products and services that meet the needs of discriminating globally-connected consumers. Public and private organizations develop their competitive capacity by providing their employees with life-long opportunities for learning, and retraining. The organizations and enterprises in knowledge economies become first and foremost “learning organizations.” Bulgaria will not escape the impact of these trends. To keep up, it must adapt, and in the process raise the rate of growth of productivity.

2.3. Innovation—defined as adoption of already existing or development of new technologies, products, and processes—lies at the heart of high productivity. It should, therefore, be the overriding objective for Bulgaria. For all countries, to build and maintain their productive sectors in the face of global competition, enterprises must be able to continuously improve their products and services and for that purpose successfully adopt new technologies and processes—that is, to innovate. However, there is no simple formula to promote innovation and thereby productivity growth. To increase productivity and move Bulgaria to a higher growth path, action would need to be taken on several fronts. Growth is a result of a number of factors, including an enabling institutional framework that provides appropriate incentives.<sup>9</sup> This will include above all the provision of incentives for increased labor mobility, which is currently weak, but would be essential for the growth process. Incentives for investing in R&D and human capital would also be central.

2.4. The areas central to productivity growth and on which Bulgaria would need to focus on include the following:

2.5. **Investment in R&D:** Firms need incentives to innovate: to adopt existing or develop new technologies, products, and business processes that raise productivity. The most basic way to foster innovation is often considered to be investment in R&D, largely by the private sector. Available empirical evidence suggests that R&D investments have a positive impact on productivity growth.<sup>10</sup> R&D enhances technology transfer by helping firms to learn about advances at the technology frontier. For example, a

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<sup>9</sup> For a review on current thinking on growth see for example, Rodrik, ed. (2005) *In Search of Prosperity*; and Aghion (2006) “A Primer on Innovation and Growth”, Bruegel Policy Brief, Issue 2006/06, October.

<sup>10</sup> See for example Lederman and Maloney (2001) “R&D and Development.” Policy Research Working Paper No 3024, the World Bank.

study on OECD countries<sup>11</sup> shows that countries that are behind the world technology frontier can grow more quickly, if they invest in R&D and human capital to facilitate adoption of new technologies. Further, the closer a country or an industry is to the world technology frontier, the more important the R&D efforts become—which in this case means not just imitation of existing technologies but their improvement or replacement by entirely new technologies.

2.6. However, while R&D investments are important, they alone are by no means enough to foster productivity growth. Above all, it is necessary to create micro and macro-economic conditions that enable innovation and technological progress. These include promotion of: (i) competition in product markets; (ii) flexible labor markets; and (iii) an educated labor force.

2.7. For Bulgaria, these other areas are the more pressing priorities, and warrant most attention in the short run. In Bulgaria, it is the adoption of existing technologies—that is, imitation—that primarily matters at the moment. In general, Bulgarian firms are not yet at the frontier of technology, but should strive to move there over time. Their immediate task, therefore, is to acquire and put to use the best technologies available, while also building capacities for the creation of new ones—that is, moving beyond the adoption stage. For this to happen, it is vital for Bulgaria to have in place the basic micro and macro-economic conditions. This includes above all promotion of competition, flexibility in labor markets and a topnotch system of general as well as vocational and lifelong education. Measures that would support these would also go a long way towards helping develop a strong innovation environment.

2.8. **Product Market Regulation:** Unhindered entry, exit and turnover of firms are crucial for productivity growth. Firms have little incentive to adopt new technologies, if they are not challenged by competition.<sup>12</sup> Regulations limiting entry may hinder the adoption of existing and new technologies, as well as technology spillovers by reducing competitive pressures. Hence, policies that support competition and encourage outward orientation, flexible product market regulations, and attraction of new FDI inflows, play a key role in sustaining rapid productivity growth, while also promoting employment growth.

2.9. **Flexible Labor Markets:** Recent research indicates that product and labor market policies are complementary. Therefore, improving the functioning of both markets in parallel is likely to have a much greater impact on productivity growth, than improvements in each of the two markets alone. The evidence from OECD countries suggests that countries with restrictive product market policies also tend to have restrictive labor market policies, and vice versa.<sup>13</sup> Effectively functioning and flexible labor markets are essential to the quest to raise productivity as well as employment, since they are the critical link in ensuring that the skills and knowledge can be put to their most productive use. Rigidities in the labor market—such as those that discourage the shedding of redundant labor—hinder not just labor mobility but innovation and productivity growth, since they make it hard for a firm to move to a new activity and adopt a new technology. Thus, further enhancement of labor market flexibility would need to be

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<sup>11</sup> Griffith, Redding, and van Reenen (2000) “Mapping Two Faces of R&D: Productivity Growth in a Panel of OECD Industries.” Discussion Paper Series, No. 2457, Center for Economic Policy Research.

<sup>12</sup> Recent economic research suggests that there is an inverted U-relationship between competition and innovation: while too little competition leads to no innovation, too much competition can discourage innovation since firms are not able to reap the benefits of their efforts. See Aghion, Bloom, Blundell, Griffith, and Howitt (2002) “Competition and Innovation: An Inverted U Relationship.” Working Paper 9269, National Bureau of Economic Research.

<sup>13</sup> Nicoletti and Scarpetta (2005) “Product Market Reforms and Employment in OECD Countries”, Economics Department Working Paper No. 472, OECD and the World Bank.

considered in Bulgaria to promote convergence. This is particularly important in Bulgaria where the reallocation of labor across sectors is still rather slow, and would need to be increased.

2.10. ***Equipping the Labor Force with Relevant Skills:*** Finally, having a highly skilled and technically savvy labor force is also essential to effective adoption and adaptation of new technologies, and becomes increasingly important as a country moves closer to the technology frontier. Existing empirical evidence indicates that skill composition of the labor force matters for innovation—an increase in the stock of skilled labor is positively correlated with innovation efforts<sup>14</sup>, and a more educated labor force is quicker in adopting new technologies.<sup>15</sup> Research indicates that tertiary education investment increases a country's ability to make leading-edge innovations, while primary and secondary education impact the country's ability to implement existing technologies.<sup>16</sup> The fact that in the age of globalization, knowledge is becoming an increasingly important driver of growth, further emphasizes the importance of higher education.

2.11. Thus, it is secondary and tertiary education that are critical for productivity growth in Bulgaria. In addition to tertiary education, this report covers both general secondary and vocational education and training. However, since none of these education institutions would be effective without strong primary feeder institutions, the reform of primary education also matters. For that reason it is also covered in this report even though reforms in that sector are well on the way and the report is mostly a summary of what is already happening.

2.12. Changes in these various areas are likely to affect productivity differently. Labor and product market reforms can be expected to promote labor mobility, and aggregate productivity growth can increase, if workers move from lower to higher productivity sectors and thereby improve resource allocation. Reforms in these areas are also critical for employment generation, which can also increase aggregate productivity growth by improving resource utilization. However, in addition to raising aggregate productivity, R&D, education, and liberalization of product markets have the potential to increase the rate of growth of productivity. This shift allows any given level of productivity to be achieved more rapidly. It is this that Bulgaria should be aiming for, if it is to achieve faster convergence.

2.13. Chapters that follow examine the situation and challenges in each of the sectors and offer some options for reform. Chapter 3 looks at rigidities in product market regulation which if reduced would raise efficiency and lower the costs of production. The chapter lays out the main channels through which this might be accomplished.

2.14. The labor market connects the demand for a whole range of skills with the supply of these skills. If labor productivity is to be raised, the labor market must be efficient in reallocating labor from lower to higher productivity areas. It must achieve that in a constantly changing environment, so it must be flexible. Options to improve labor market functioning are covered in Chapter 4.

2.15. Chapters 5 through 7 deal with the accumulation of human capital in a number of ways. Chapter 5 covers the ongoing finance and governance reforms in primary and general secondary education. Chapters 6 and 7 examine the quality of vocational education and training as well as the quality of and access to tertiary education, with a particular focus on how well and efficiently the relevant institutions are

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<sup>14</sup> See for example Grossman and Helpman (1991) *Innovation and Growth in the Global Economy*, Cambridge, MA, MIT Press.

<sup>15</sup> Nelson and Phelps (1966) "Investment in Humans, Technological Diffusion and Economic Growth," *American Economic Review*, 56(1/2), 69-75.

<sup>16</sup> See Aghion (2006) "A Primer on Innovation and Growth", Bruegel Policy Brief, Issue 2006/06, October.

preparing the students for the demands of today's private businesses and public institutions. Reforms in these sectors could lead to major improvements in the use of public resources for creating the needed human capital.

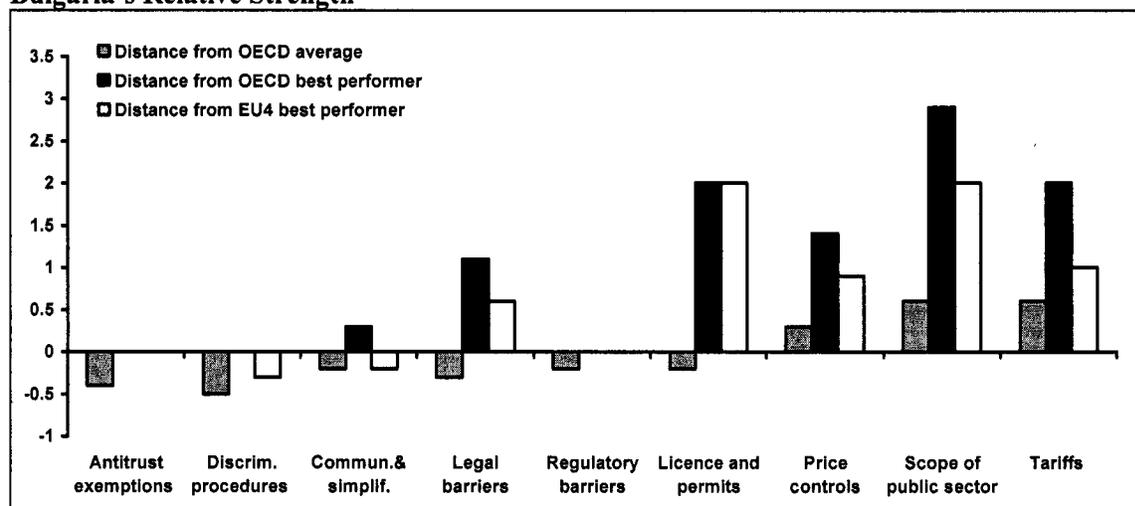
2.16. Chapter 8 covers the Bulgarian R&D and innovation sector, both in terms of its size and its effectiveness. Chapter 9 maps the sector program options into four core messages that relate to the achievement of the twin objectives of raising employment and labor productivity. Finally, Chapter 10 links the proposed reforms with the budget.

### 3. IMPROVING PRODUCT MARKET REGULATION<sup>17</sup>

3.1. Competition in product markets provides incentives to firms to reallocate resources to more productive activities, increase innovation and technological diffusion. In the process it raises productivity. In addition, less restrictive regulations may help increase employment by reducing the rents that some firms extract from overregulation and force firms to expand their activities.<sup>18</sup> Unhindered entry, exit, and turnover of firms are crucial for productivity growth. Bulgaria's productivity growth has indeed been fastest in sectors most exposed to competition.

3.2. The analysis in Chapter 3 of the main report shows that over the last few years Bulgaria has improved the regulatory environment for doing business. In some areas of product market regulation Bulgaria performs even better than the OECD average. Areas in which Bulgaria outperforms the OECD average (see Figure 3.1) are: antitrust exemptions, procedures that discriminate against foreign investment, legal barriers to entry, other regulatory barriers to trade and investment, and licenses and permits systems.

**Figure 3.1: Convergence to Best Performers in Product Market Regulation: Areas of Bulgaria's Relative Strength**



Source: OECD and *Product Market Regulation in Bulgaria: A Comparison with OECD countries*, de Rosa, Fay, and Ilieva, World Bank, (2006). Note: The values are for 2006 for Bulgaria and for 2003 for all other countries. Distances are calculated as the difference between Bulgaria's scores and those of the comparator group. Negative values show better performance of Bulgaria, while positive values show worse performance relative to the comparator groups.

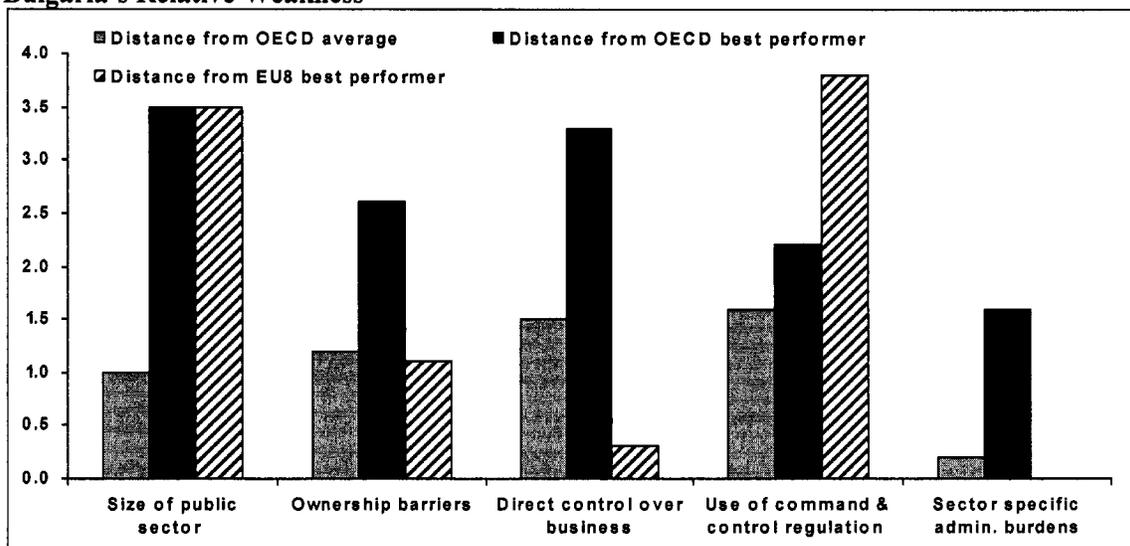
3.3. Areas, in which Bulgaria is comparable to the OECD average, or at least not seriously lagging, include: price controls, the scope of the public enterprise sector, and tariffs. In all other areas Bulgaria

<sup>17</sup> This chapter is in part based on the diagnostic and analytical work conducted under the leadership of the ECA Chief Economist Office. The work involved benchmarking Bulgaria and Romania's product market policies and institutions using the OECD methodology and data for OECD countries. The results of this benchmarking exercise for Bulgaria and a detailed description of all indicators can be found in *Product Market Regulation in Bulgaria: A Comparison with OECD Countries*, de Rosa, Fay, and Ilieva, The World Bank (2006).

<sup>18</sup> Conway, Janod, and Nicoletti (2005).

significantly lags the OECD average (see Figure 3.2). If one looks at Bulgaria's performance *vis-a-vis* OECD's best performers, Bulgaria lags significantly even in some areas in which it outperforms the OECD average, such as licensing and permits and legal barriers. Bulgaria thus stands to gain from further easing of its product market regulations. In addition, comparison of Doing Business indicators on administrative barriers to start-ups suggests that while Bulgaria has achieved progress in this area, the country is still behind most of the OECD countries (Figure 3.12 of the main report) that have succeeded in reducing by half the duration of registration procedures and the cost to register a company between 2003 and 2006. Progress in Bulgaria has been more modest.

**Figure 3.2: Distance from Best Performers in Product Market Regulation: Areas of Bulgaria's Relative Weakness**



Source: OECD and *Product Market Regulation in Bulgaria: A Comparison with OECD countries*, de Rosa, Fay, and Ilieva, World Bank, (2006). Note: The values are for 2006 for Bulgaria and for 2003 for all other countries. Distances are calculated as the difference between Bulgaria's scores and those of the comparator group. Positive values show worse performance relative to the comparator groups.

3.4. The methodology for benchmarking product market policies used in this analysis does not allow comparison of another important complement of regulatory quality—the functioning of institutions, including the judiciary. Nevertheless, a number of international comparative studies (see Chapters 3 and 9 of the main report) suggest that Bulgaria will need to further improve the functioning of its institutions to ensure that institutions have adequate capacity to enforce better regulations.

## I. BENEFITS OF REFORM

3.5. The benefits to be gained by Bulgaria through actions to further deregulate its markets are potentially large. The rate of growth of labor productivity could increase by 1.4-1.6 percent per year, if the regulatory environment was further freed up to the standards of OECD's best performers (US, Canada, UK, Australia, and New Zealand).<sup>19</sup> With Bulgaria's product market regulations in 2006 being slightly more restrictive than Portugal and as restrictive as Greece in 2003, the gains could be even greater (see Figure 3.3 of the main report). Restrictive market regulations have also been found to have a negative impact on investments in ICT. Conway et al (2006) estimate that 12 percent of the cross country

<sup>19</sup> Conway, et al (2006)

differences in ICT investment in OECD countries could be attributed to differences in product market regulations.

3.6. Investment, both foreign and domestic, could also be expected to rise as a result of the easing of product market regulations. A study by Alesina et al (2005) found that reducing barriers to entry and the extent of public ownership in transport, communications and utilities could permanently raise the ratio of investment to GDP by 2 percentage points. Another study by Nicoletti et al (2003) estimates that inward positions of FDI could rise by 60-80 percent in countries such as Greece, whose regulatory environment is of a similar level of restrictiveness to that of Bulgaria. Finally, Nicoletti and Scarpetta (2005) show that lessening barriers to entry and state control in non-manufacturing services could increase employment rates by 2.5-5 percentage points.

## II. OPTIONS FOR REFORM

3.7. To align Bulgaria's product market policies with the best performers in OECD, a well defined, government-wide reform program, enjoying high-level political commitment and developed in close consultation with the private sector, would be needed. Sizeable gaps with best performers exist in all but 4 of the 15 benchmarked policy domains (see Figures 3.1 and 3.2). To address them, both short and medium-term measures would be warranted.

3.8. In the *short term*, the program should, in the order of priority, try to:

- ***Minimize administrative burdens on business, including barriers to entry of firms:*** To promote competition and thereby productivity growth, it would be critical to make the starting and closing a business administratively easy and inexpensive. While Bulgaria has made significant progress in reducing the legal barriers to entry, starting and closing a business is still administratively cumbersome and costly, even compared to the OECD average. For starting a business, nine procedures are required in Bulgaria compared to the OECD average of six. Opening a business in Bulgaria still takes on average 32 days, while the OECD average is 16 days, and the minimum capital required in Bulgaria is about 91 percent of the GNI per capita while it is 36 percent on average in OECD countries. Bulgaria should aim to reduce these requirements at least to the average OECD levels, but preferably below. Experience shows that the impact of taking a substantial step in this area is much more significant than that of a series of small steps. The fast-track business registration service introduced in Portugal would be worth considering also in Bulgaria (see Box 3.1 of the main report).
- ***Continue privatization and abolish state's special voting rights in privatized companies:*** To further lessen state's control over enterprises, the government should consider removing the remaining ownership barriers such as the sale of equity in state-owned firms, and the use of special voting rights to control strategic choices of firms. In addition, continuing with the privatization program would help increase the efficiency in the economy, and improve labor productivity. Such reforms would contribute also to the reduction of the size and scope of the public enterprise sector, as well as to the creation of a leaner and more efficient public administration.
- ***Simplify further the licensing and permit system:*** Even though Bulgaria's licensing and permit system is broadly comparable to the OECD average, it still lags behind the best performers. Also, despite significant improvements, according to a 2005 survey, 27 percent of business still considered licensing and permit procedures to be cumbersome. The Bulgarian authorities may want to consider introducing the "silence is consent" rule for

automatic licensing to simplify the system further and thereby facilitate business. This area of action could also include further progress in the simplification and communication of rules and regulations.

3.9. In the *medium-term*, the following steps could be taken to improve the investment climate:

- ***Rely more on the use of incentive-based regulation through the use of alternative instruments.*** Following the example of OECD countries, the government may consider requiring the regulators to assess alternative policy instruments before adopting a new regulation. A range of possible instruments is described in Box 3.2 of the main report. Authorities could also consider implementing a “regulatory guillotine” to eliminate unnecessary and burdensome regulations.
- ***Improve the enforcement of regulations:*** The quality of written norms and regulations is important for achieving government goals and objectives, and for encouraging competition and competitiveness of businesses. Little can be achieved, however, if it is not matched by adequate quality of the institutions enforcing these regulations, including the functioning of the judiciary system in the country. Even if some regulations have already been optimized *de jure*, their actual implementation depends on the quality of enforcing institutions. This may further increase the costs of regulation, if processes and procedures are cumbersome, or if they result in corruption and/or anti-competitive pressures on selected firms and individuals.

Bulgaria does not fare well in international comparisons in the quality of its governance framework. It ranks low in terms of the quality of institutions in the Global Competitiveness Index, Transparency Index, and BEEPS indicators. Therefore, improving regulation of product markets in Bulgaria and reaping the benefits from this would hinge upon reforms aimed at upgrading the quality of institutions. Furthering reforms in public administration and judiciary would maximize the gains from better regulation of product markets in terms of higher productivity, innovation and technological upgrade of the economy, which are of importance in achieving the goals of the Lisbon Agenda.

3.10. Finally, being behind on the productivity ladder and behind best performers in product market regulation, implies that Bulgaria could reap high returns from reforms aimed at liberalizing the business environment both in terms of quality of regulations and quality of regulatory authorities. These returns to the society could be even higher, if combined with reforms that increase the flexibility of the labor market that allow firms and individuals to allocate resources to their most productive uses.

## 4. IMPROVING THE FUNCTIONING OF LABOR MARKETS

4.1. Recent cross-country empirical analysis for OECD countries finds that restrictive product market policies tend to go hand in hand with restrictions in labor market policies.<sup>20</sup> Correlation between product and labor market reforms implies that these policies are complementary, and profound reforms in one policy domain might facilitate reforms in the other, or amplify the effects of the latter. This means that Bulgaria should proceed with reforms in product and labor markets in parallel to promote employment and productivity growth.

4.2. On the surface, Bulgaria's labor markets are doing well. Employment has increased significantly in Bulgaria since 2002. Some 300,000 jobs were added during the period 2002-2005, bringing the number of employed to the three million range. Although this number includes the workers covered by the subsidized employment program "From Social Assistance to Employment", the number of these workers has been cut in half since 2004. It now stands at about 50,000, and is expected to be reduced further during 2007. Preliminary data suggest that, the number of employed may have grown another 100,000 during 2006. As a result, employment rates have continued to rise not only for overall labor force, but also for women, youth, older workers and even long-term unemployed. If GDP growth continues at its current pace, the unemployment rate is soon likely to drop to under 8 percent.

4.3. Nevertheless, major challenges lie ahead. Employment and participation rates remain among the lowest in EU, and are still far from the Lisbon goals. Bulgaria also still has a substantial reserve of unused labor, both in terms of registered unemployed and those who, for a variety of reasons, choose not to participate in the labor force. Unemployment remains high among youth and people with few skills and a low level of education. Regional disparities in employment situation are significant.

4.4. Strong growth in employment in the past four years was mostly concentrated in less productive and lower paying sectors. Even there, the relatively high minimum wage may have dampened the demand for labor of the small vulnerable enterprises. At the same time, some sectors are reporting shortages of relatively high skilled workers, which would suggest a supply side problem. Also, on the labor supply side there may exist an unemployment trap, wherein relatively high social benefits, when compared to the likely after-tax wage, do not give sufficient incentive to some of the workers to seek employment.

4.5. But increasing employment is only one of the objectives, although perhaps the most important one in the short run. The other objective is to speed up the rate of growth of labor productivity. A key ingredient of that is high mobility of labor across sectors. Research reported earlier points to a problem in this area. If it is not addressed, productivity growth, and with it GDP growth, are bound to slow down considerably, once the labor market tightens. Lack of labor mobility suggests that sectors with high levels and/or high growth of labor productivity have not been growing sufficiently rapidly—whether through the expansion of existing firms or the entry of new ones—to demand new workers.

4.6. Enhancing flexibility of labor markets—in parallel with reducing barriers in product markets—is also important from the macroeconomic point of view. Given the Currency Board Arrangement, the

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<sup>20</sup> See Nicoletti and Scarpetta (2005). A summary indicator of labor market policies has been estimated for OECD countries, which includes tax wedges, gross replacement rates, and employment protection legislation. The indicator of product market regulation includes barriers to entry, public ownership, market structure, vertical integration, and price controls in seven industries—gas, electricity, post, telecoms, air transport, and railways.

adverse consequences of a macroeconomic shock on growth and employment can only be minimized through labor and product market flexibility and adaptability. Moreover, faster responses in labor and product markets to the changing external environment would facilitate greater diversification of the economy and would reduce output volatility. Constraints thus exist in both product and labor market areas, and they need to be tackled in parallel.

## I. BENEFITS OF REFORMS

4.7. Most of the benefits are the same ones that would come from reducing constraints in product markets. Higher investment and greater labor productivity that would result from the reforms in product markets, when taken in parallel with the reforms proposed for the labor markets, would increase demand for labor, including for increasingly higher skilled and hence higher paid workers. Rough calculations presented in Chapter 4 of the main report suggest that if these reforms were taken, the Lisbon and Stockholm employment targets of an employment rate of 70 percent overall and 60 percent for women could be reached by 2015. To reach high rates of employment for young workers, older workers (55-64), and those with low educational attainment levels and those living far from the urban centers, may, however, take more effort. Some of the recommendations for the active labor market policies and lifelong learning presented below may be of particular importance for these groups. In addition, the reform options put forward would promote labor mobility.

## II. OPTIONS FOR REFORM

4.8. The 2006 EU Joint Employment Report highlights that a good balance between flexibility and security in the labor market, also referred to as “flexicurity”, can be achieved by the interaction of four key elements: (i) sufficiently flexible contractual arrangements; (ii) effective active labor market policies; (iii) a credible lifelong learning system; and (iv) a modern social security systems. Bulgaria faces challenges in all of these areas. EU guidelines for employment policies suggest that member states should: (i) encourage job creation by supporting entrepreneurship and a favorable business environment for enterprises; (ii) simplify and reduce the bureaucracy, regulations and administration governing starting business, hiring staff, and accessing start-up capital; (iii) improve access to training and re-training by employees; (iv) reform overly restrictive employment legislation that affects labor market dynamics; (v) promote flexible and diverse forms of labor agreements and working arrangements; and (vi) remove disincentives to work (for example, simplify regulations, provide incentives), and develop actions to eliminate undeclared employment.

4.9. Actions (i) and (ii) suggested above by the EU guidelines for employment policy are arguably the most important in terms of creating a strong demand for labor. They belong more to the overall business climate, and some aspects of them were discussed in the chapter on product market regulation. Actions covered by (iii) will be presented in Chapters 6 and 7 on vocational and tertiary education, although lifelong learning is covered here. The main focus of this chapter is on actions (iv)-(vi). The proposed reforms that the government may wish to consider in these areas are listed below roughly in the order of priority and grouped into short and medium term measures.

4.10. In the *short term*, the authorities may want to consider the following actions:

- ***Develop and encourage lifelong learning:*** Employers report that workers with the right skills are increasingly difficult to find, despite the fact the Bulgarian labor force is relatively well educated. This problem is likely to only get worse, if the Bulgarian economy keeps expanding. Therefore, the culture of lifelong learning needs to be further developed, and education delivery systems modernized. As will be discussed in Chapter 6, this includes expanding the network of adult training centers, VET schools and private providers, and other

alternative training opportunities. Also, their curricula need to be adjusted so that the certificates obtained by their graduates at the end of their training are recognized and valued by the employers.

Many countries have established tax incentives to encourage adult education. In Lithuania, the Law on Income Tax of Individuals envisions the possibility of receiving partial compensation of the cost of studies. In Hungary, employers pay a vocational training contribution equivalent to 1.5 percent of the wage. Employers that spend the same amount on apprenticeships, the training of their own employees, or on the development of a vocational training school are exempted from this contribution. In-company training, training related to investments creating new jobs, and training aimed at improving the competitiveness of SMEs, and the development of entrepreneurial skills are supported by grant schemes.<sup>21</sup> Although it may have budgetary implications, Bulgaria may also consider introduction of tax incentives to stimulate lifelong learning.

Meeting the training needs of employed individuals may require them to stop working for a period of time, which can be costly to both employers and employees. For this reason, Bulgaria may consider following the example of many OECD countries, which have introduced statutory or contractual training leave schemes that guarantee employees the right to return to their jobs after completing the training course, as well as institutional arrangements facilitating access to training and education on a part-time basis. Reinstatement rights help to reduce the risk element of human capital investment borne by the workers and imply some cost-sharing with employers (who need to either replace the workers undertaking the training or make do without them on a temporary basis).

- ***Revise labor legislation and regulations, while complying with EU requirements:*** Drafting a new Labor Code and revising labor regulations further is one of the actions that need to be taken. Although the Labor Code has been amended a number of times, it remains in some important ways too prescriptive for today's realities. Social partners—the employers and representatives of the employees—need to be given a greater role in determining employment relations. They are best positioned to assess the situation in their enterprises and industries and, through collective bargaining, develop rules that determine such important matters as wages, benefits, seniority bonus, and overtime and part-time work arrangements, without sacrificing an appropriate level of social protection. This would enable workers to benefit from *de facto* rather than just *de jure* employment protection because, by being partners in a negotiated settlement, their employers would have less incentive for non-compliance, and enforcement would be easier. At the same time, employers would have a chance to renegotiate regulations that are particularly costly to them, but of less value to workers.
- ***Shift the emphasis of active labor market programs (ALMP) to support job search and strengthen their monitoring and evaluation:*** NEA should retune the structure and content of ALMPs, and increasingly shift resources from the job creation program to other ALMPs deemed to be more cost effective. These include, first of all, activation policies, such as job-search assistance, counseling, job brokerage, and career guidance. Job seekers should have stronger incentives to look for new jobs, even in other occupations and in other regions of the country. This would require a more intensive follow-up of the individual cases by the front-line social workers than at present. A large-scale direct job creation program is justified at times of economic downturns, when aggregate demand is depressed and there are few

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<sup>21</sup> See: ([http://europa.eu.int/comm/employment\\_social/employment\\_strategy/04\\_national\\_en.htm](http://europa.eu.int/comm/employment_social/employment_strategy/04_national_en.htm)).

vacancies. This is no longer the case in Bulgaria. On a limited scale it might be used as means of helping the most disadvantaged groups of unemployed to regain contact with the labor market. It should be possible, over the next couple of years, to carry out this reshuffling of resources from direct job creation programs to other, more cost effective, programs in a budget neutral way, since the direct job creation program still consumes a good chunk of ALMP resources. There should be a special focus on young workers so that they do not turn into long-run unemployed.

However, there is a need to modernize and strengthen the administrative capacity of NEA for this shift to succeed. Also, ALMPs need to be accompanied by monitoring and impact evaluation, in order to fine-tune those of most relevance to the labor market situation in Bulgaria. The net impact of most ALMPs has not been assessed since 1999.<sup>22</sup> A net impact assessment is a rather expensive undertaking, and can be repeated say only once every five years, but there are less costly alternatives to evaluation of programs developed in other countries in the region, such as Performance Information and Management Systems (PIMS). In the meantime, NEA can begin to shift emphasis to programs, which experience has shown in other countries to be the most effective in reducing unemployment.

- ***Revisit the mechanism for establishment of the minimum wage and its level:*** Current levels of minimum wages are high in Bulgaria compared to other transition economies. This may be especially harmful in poorly paid industries, and in micro and small enterprises. Hence it would be important to make sure that the relatively high ratio of the minimum wage to the average wage is reduced over time. Currently, the minimum wages are set by the Council of Ministers. It may make better sense for the government to secure close involvement of social partners (employer and labor representatives) in the process, and have minimum wages determined sector by sector, in the context of collective bargaining agreements and in line with the ever-changing situation in each sector.<sup>23</sup> Close involvement of social partners in fixing the level of minimum wages is consistent with the ILO Convention 130 on minimum wages, which suggests that social partners should be consulted (not just informed), as well as the Pact on Economic and Social Development until 2009. Also, while evidence is mixed on the impact of minimum wages on employment, it is fairly clear in the case of young workers. Creating sub-minimum wages for young workers or in economically depressed regions, as is done in many EU countries, would promote job creation for less productive workers, who are also the ones typically hardest hit by unemployment. For example, Poland recently introduced a youth sub-minimum wage (at 80 percent of the regular minimum wages) in an attempt to alleviate youth unemployment.
- ***Revisit the current eligibility and entitlement rules of the unemployment benefit:*** Bulgaria's unemployment benefit eligibility and entitlement rules do not *per se* currently create major labor supply disincentives. However, taken together with other schemes, they may give rise to an "unemployment trap", especially in lagging regions, where benefits account for a high proportion of the prevailing market wage of low skilled labor, or for job seekers who had low wages before losing a job thus giving less incentive to the beneficiaries

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<sup>22</sup> The net impact of most ALMPs in Bulgaria has been evaluated only once. In 1999 the Netherlands Economic Institute (NEI) implemented the project "Evaluation of the Net Impact of the Active Labor Market Policies". At that time all analyzed programs had positive net impact—participation in them improved the chances that the unemployed have on the primary labor market.

<sup>23</sup> Currently, the thresholds for minimum social security contributions are negotiated between social partners and the government by most branches and main professional groups.

to go out and find a job. The current unemployment benefit entitlement rules, and mechanisms attached to their delivery, should therefore be revisited. The policies may include setting more efficient activation strategies, which better coordinate the level of unemployment benefits with ALMPs. In particular, NEA could monitor more closely the job search efforts of an unemployed person using individual action plans prepared for particular job seekers and, if their efforts are found wanting, impose sanctions ranging from partial to total withdrawal of the benefits. Although same performance criteria—such as “availability for work”, or evidence of “active job search”—are used to decide who will be allowed to register as unemployed, unemployment benefits of regressive scale and of limited duration, relatively strict job search requirements, monitoring of job search intensity efforts, and the quality job of brokerage services may help speed up transitions out of unemployment.

4.11 In the *medium term*, the key actions to consider for increasing labor productivity and employment would be as follows:

- ***Reduce labor taxes further in a fiscally sustainable manner:*** According to the 2005 BEEPS survey, about six percent of the formal enterprise workforce and 13 percent of the wage bill is not reported. This combined with the still sizeable informal sector, means that the tax base is not as wide as it could be, and that taxes on those who pay them are higher than they otherwise might be. The Government is obviously aware of this since it, for example, lowered the social contribution levy by six percentage points in 2006. It may, however, following the careful assessment of the impact of recent tax cuts, wish to consider further reductions of disincentives to work embedded in the tax and benefit systems, including further reductions of the tax burden on wages. This would need to be done in a budget neutral manner. While lowering the tax wedge might partly finance itself through higher employment and output, additional revenue measures or preferably expenditure cuts would likely be required.
- ***Engage employers' associations:*** Involvement of employers' organizations is an important instrument for minimizing the emerging skills mismatch in the labor market. Occupational standards, or employment specifications, must be defined by employers using procedures agreed upon by all stakeholders, as will also be highlighted in Chapter 6 on vocational education and training. These standards can then be used to develop more relevant criteria for the curricula of training institutions. This process is in train but should be evaluated and adjusted in line with the outcome of the evaluation.
- ***Strengthen labor market statistics:*** Bulgaria's labor market information system, especially wage statistics, needs further improvement. In addition, the government should consider developing other statistical instruments. Employer-based surveys of current and projected labor market conditions, for example, could focus on actual and planned job creation and job destruction, and on key determinants of hiring and firing. The objective of such surveys would be to determine the degree of labor market flexibility, and to prepare projections of likely changes in employment and unemployment.<sup>24</sup> A tracer survey of displaced workers would trace changes in labor market status (earnings, employment compared to unemployment, career developments), depending on the educational status of workers or unemployed individuals. It would be useful to keep track of graduates some years after graduation, as part of labor market monitoring. All these suggestions are in line with the Operational Program for Human Resources Development 2007-2013, which urges the

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<sup>24</sup> Recently NEA launched an employer survey to determine labor demand by professions and qualification levels.

promotion of cooperation between the education system, the vocational education and training system, the national economy, and EU through the development of systems for monitoring, analysis, and projections of labor demand and supply.

## **5. GOVERNANCE AND FINANCE REFORM IN PRIMARY AND SECONDARY EDUCATION**

5.1. An important step in promoting labor productivity will be the development of a skilled, technically savvy, and adaptable labor force, which has knowledge and skills that match the demands of the labor market. Rather than protecting existing jobs, policies should aim at equipping workers through education, on the job training, and lifelong learning for inevitable changes in the demand for labor, and thereby promote their adaptability and mobility across industries and sectors. While Bulgaria has a highly educated population for its level of income, that education does not necessarily translate into marketable skills. To raise labor productivity and mobility, Bulgaria would need to further upgrade its human capital by modernizing its education system. The next three Chapters of this Overview present the most important benefits of good performance in primary and general secondary education (Chapter 5); vocational education and training (Chapter 6); and tertiary education (Chapter 7), and identify options for further strengthening of education delivery. This chapter presents reform options for finance and governance of primary and general secondary education based on a more detailed analysis and discussion of the sector in Chapter 5 of the main report.<sup>25</sup>

5.2. Bulgaria has recently embarked on an ambitious program to reform its primary and general secondary school system with the aim of increasing the quality and relevance of skills, raising participation rates and optimizing resource use.<sup>26</sup> The Government's National Program for the Development of School Education 2006-2015 describes the current primary and general secondary education system as excessively centralized, and the legal framework as complex and inconsistent. Also, the current system of financing municipalities for the costs of managing schools does not provide incentives for efficient school management. Detailed norms about teaching hours and class sizes determine the number of teachers, and hence teacher salary costs, for which municipalities are then compensated. There is, therefore, little incentive or possibility for municipalities to reduce costs by closing and consolidating small schools or by organizing larger classes, since both would result in reduced municipal revenues from the state. Currently, the bulk of education-related resources a municipality receives from the state go to pay staff, and these funds are only loosely tied to the number of students in the municipality. Moreover, the closing of a school can be postponed for years, as municipal councils can simply choose to overrule the minimum class size requirements, and provide the gap in funding from their own sources or postpone repair work. In this way, the current system has left in place more schools than needed, sometimes in poor state, all suffering slow decline, with staff compensation consuming a rising share of total expenditures, and the resources available for teaching materials declining. As a consequence, the decline in student numbers has not been followed by the expected proportionate decline in the number of teachers. This, along with rising teacher salaries, has helped push up real costs per student.

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<sup>25</sup> This chapter is based on prior analysis and work by the World Bank's Bulgaria education team comprising of Christian Bodewig, Lars Sondergaard, Steven Bakker, Boryana Gotcheva, Rebekka Grun, Anna Khachatryan, Rosalind Levačić, Nickolay Mladenov, Juan Manuel Moreno and Reema Nayar. The authors express their gratitude to Stoyan Baev from the National Statistical Institute for preparing extensive datasets with school-level data.

<sup>26</sup> The reform agenda is laid out in the "National Program for the Development of School Education 2006-2015". For an in depth analysis of the challenges facing Bulgaria's primary and general secondary education system see Ministry of Finance (2005) "Public Expenditure Review—Education—Condition, Problems and Opportunities", and World Bank (2005c) "Bulgaria—Education and Skills for the Knowledge Economy", Policy Note.

5.3. Shifting to per student financing (unified standard per student), delegated school budgets with the allocation between salaries and other expenses left for the school, and school-based management are considered as some of the key levers to address these problems. The underlying premise is that the current spending pattern is inefficient, and a lot more could be done within the existing budgetary framework, with efficiency savings to be allocated to improvements in quality. The three-pronged approach would also be able to adjust best to the problems created by shrinking student cohorts.

#### I. BENEFITS OF REFORM

5.4. The goal of the reforms is to increase the quality of education, raise participation rates by ensuring equitable access for to all, and increase the efficiency of resource use. The initiation of the school governance and finance reform in primary and general secondary education opens an opportunity to promote long-term reforms improving access to and quality of education. First, the reform agenda, if sustained, would lead to a more efficiently managed school system with greater quality orientation than before, in particular if coupled with the introduction of internal and external assessments of learning outcomes to promote achievement of national education standards. Second, provided the reforms lead to school consolidation and adjustment to the size of the staff, there could be substantial efficiency savings amounting to BGN100 million per year. These savings would open the possibility of financing in a sustainable manner measures aimed at achieving improved education outcomes, and needs in other parts of the education system.

#### II. OPTIONS FOR REFORM

5.5. While the government has already shifted to per student financing for primary and general secondary schools on January 1 of 2007, further policy steps in the financing and governance areas would still need to be taken. The remaining short and medium-term reform options can be grouped as follows.

5.6. The four key *short run* policy steps and recommendations would be:

- ***Establish a clear and credible timeline for reform implementation to facilitate school consolidation:*** The efficiency savings will only materialize, if the per student financing formula leads to a further consolidation of the school network. Therefore, ensuring that school consolidation happens is critical. The government would need to announce a credible timeline for the roll-out of the reforms (and their sequencing) across all municipalities, covering 2007 and subsequent years. At the same time, the government should continue supporting the consolidation process through targeted advice and financial assistance to those municipalities which proceed with the consolidation of their school systems. In addition, hands-on advice to municipalities on how to manage consolidation would be helpful. Several municipalities have gained experience in school consolidation over the past years, and MES could promote peer learning activities among municipal authorities jointly with the National Association of Municipalities. This support and advice would need to be available throughout the reform period.
- ***Monitor the impact of reforms, and introduce external evaluation of learning outcomes:*** It is essential that the roll out of the reforms and their impacts are closely monitored and, based on the results, plans are adjusted as needed. The first stock taking in municipalities and schools would need to be conducted early on to detect any problems and allow early course correction. In addition, it would be important to monitor that municipalities treat all schools equally and fairly in their funding allocations, in particular prior to the roll-out of delegated budgets to schools. In parallel, the Ministry of Education and Science (MES) capacity to monitor education outcomes would need to be strengthened through the introduction of

nationwide external testing to determine learning outcomes, and through its management information system. MES has already conducted pilot student assessments and will phase in systematic external testing over the coming years.

- ***Relax central regulations on teaching hours and class sizes:*** The per student formula funding, and rigid top-down regulations regarding teacher working hours or class sizes are mutually inconsistent and could lead to a fiscal crisis in municipalities (or for schools, once the formula reaches them through delegated budgets). With the shift to per student funding, schools would need considerable flexibility in determining how they allocate students to classes and how many classes they establish. Therefore, it is recommended that MES leaves the class sizes for municipalities to decide, and relaxes regulations on teaching hours.
- ***Implement school-based management and delegated budgets:*** Per student financing enhances efficiency and quality only if it is accompanied by an expansion of school-based management and further delegation of budgets to schools. Hence, it is important that the school-based management is rolled out in the next few years, as the school consolidation proceeds, which requires preparation now. In the context of the shift to school-based management, capacity building for school directors and municipal education department staff will be needed, including on budgetary issues and determination of the delegated budget formula. MES has recently established an Institute of School Directors for this purpose, and a number of school principals have already been trained. In the meantime, however, MES should not hold off delegating responsibilities to directors, as the most important learning will happen on the job. When shifting to school-based management, introducing performance-related pay scheme for teachers might also be contemplated: school principals, who are accountable for quality, would need means to evaluate teachers and influence teaching quality. MES is also promoting the establishment of school councils comprised of parents and local stakeholders, such as community associations and private businesses. While the experience with such councils is mixed in OECD countries, they may enhance parent and stakeholder involvement in the school, and thereby help hold schools and municipalities accountable for school performance and budgeting, provided they are empowered and given full information.

5.7. The key *medium-term* policy step would be:

- ***Reinvest savings in measures aimed at promoting quality of education and access:*** The introduction of per student formula financing, if it leads to the consolidation of the school network, can yield substantial savings. Since consolidated spending on education as a share of GDP is projected to remain constant in the 2007-2009 medium-term fiscal framework, this implies that a growing share of the education budget can be reinvested in other education system needs, including policies to enhance education access and quality. In addition to the needs in the vocational and tertiary education side, this could include teacher training, external assessments of schools to promote school and teacher accountability, and pre-primary education to promote school readiness and reduce subsequent drop outs.



## 6. IMPROVING VOCATIONAL EDUCATION AND TRAINING

6.1 The major economic and social changes that have taken place in Bulgaria since 1989 have had an impact on the role of the vocational education and training (VET) system and its institutions, especially the public vocational secondary schools. These schools were established to serve the needs of centrally planned economic sectors of production, such as mining, ore processing, chemical and oil products, and heavy machinery—that is, sectors that have suffered major downturns in their share of production in the past ten years. The old VET system was also designed to serve the needs of large state-owned enterprises, with their training centers providing avenue for vocational training for students in the VET systems, as was also the case in current EU8 countries. These centers are now closed down, and opportunities for practical training have become limited. Vocational secondary schools still focus on programs designed to serve the old economic sectors, such as forestry, wood processing, and chemical, metallurgical, and machine technology. However, the new emerging economy is dominated by private small and medium enterprises (SMEs) in light industries and service sectors, and the needs of these enterprises are quite different from those that prevailed in the old one.

6.2 During the transition period, the labor market has experienced disequilibrium, and there is general consensus among officials and representatives of employers associations<sup>27</sup> that the knowledge and skills of the graduates of vocational secondary schools do not match the skill set required for the emerging job vacancies, despite the relatively low unemployment rates among its recent graduates in 2005. The situation is further aggravated by negative population growth rate and emigration.

6.3 With this in mind, the Council of Ministers approved in 2001 the Employment Promotion Act (EPA, 2001), which introduced incentives for employers to train their employees and maintain and improve their qualifications.<sup>28</sup> The Vocational Education and Training Act (VETA, 1999) in turn defined the regulatory mechanisms for initial and continuing vocational education and training. Its major goal is to “*match the quality of the vocational education and training provided for the needs of the labor market, and in accord with the trends in the European Union*”.<sup>29</sup> Since then a National Agency for Vocational Education and Training (NAVET) has been established, which is in charge of licensing VET providers and the classification of occupations. Amendments to the VET Act were introduced in 2003 and 2005 to approve a new list of professions and framework programs regulating the acquisition of vocational qualifications. The Bulgarian approach in defining qualification levels and professional competences is consistent with the approach developed by the European Qualification Framework and is based on knowledge, skills and personal qualities required for the profession. In 2005, consistent with European directives, progress was made in the mutual recognition of vocational qualifications. These developments notwithstanding, there is still significant room for improvement in the system as a whole.

6.4 As detailed in Chapter 6 of the main report, the VET system in Bulgaria streams students into vocational schools and designated occupational areas before the end of the compulsory education. Students streamed narrowly early in their education are harder to reorient than their contemporaries in general secondary education when they become unemployed, because of their weak general educational

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<sup>27</sup> Such as the Bulgarian Chamber of Commerce and Industries, the Bulgarian Industrial Association, and the Bulgarian Small and Medium Enterprises Agency.

<sup>28</sup> EPA regulates the types of continuing VET organized by the National Employment Agency, and the conditions of its delivery.

<sup>29</sup> Republic of Bulgaria-Council of Ministers, “National Strategy for Continuing Vocational Training, 2005-2010”.

background. They also often have difficulty accessing tertiary education, and lifelong learning opportunities. In other EU and OECD countries, the streaming into VET typically takes place only at the end of compulsory general education, roughly at age 16. Many OECD countries have also been exploring the development of flexible educational pathways in upper secondary education, which allow the integration of relevant generic vocational skills in all secondary schools, in order to respond to the needs of a diverse student population, and changes in the nature of work. This is what the EU Bologna process is also aiming for.<sup>30</sup> To achieve that typically requires reducing the number of vocational education programs by broadening the definition of vocational areas; creating linkages between general and vocational secondary schools; developing a combination of school and work-based learning; and building bridges between vocational secondary education and tertiary education.

6.5 Early introduction of VET at the secondary school level is also costly. Comparison of public spending per student in general and vocational secondary schools indicates that the average per student expenditures in vocational secondary education were 20 percent higher than the corresponding expenditures in general secondary during 2001-2005. However, the unemployment rates of graduates of secondary vocational schools have been consistently 1-2 percentage points lower than those of their general secondary school counterparts. They also are about 50 percent more likely to be among the long-term unemployed, which suggest that, in the longer run, general secondary education might have served them better. Furthermore, studies on returns to investment in education in OECD countries show substantial wage premia for graduates of alternative occupational tertiary institutions over secondary school graduates of either type. Those skills are increasingly in demand in advanced economies. But to get there, the students are best served by a broad-based general education at the secondary level. On balance, the evidence points in favor of general secondary schools, accompanied by a broadening of curricula in the remaining vocational schools at the secondary level.

6.6 Further, Bulgaria has a fairly small alternative sector of tertiary education, which may partly explain the low overall tertiary enrolment in Bulgaria compared to other EU countries. The sector consists of two public and nine private colleges, which enrolled only about 3.1 percent of all tertiary students in 2005. In addition, Bulgaria has a large number of post-compulsory, and specialized vocational colleges. This is in stark contrast with other EU and OECD countries, most of which have significant and strong alternative sectors of tertiary education, with enrolments ranging from a minimum of 16.4 percent of total tertiary enrolment in Finland to about 40 percent in Australia, Canada, Ireland, and Spain. All EU8 countries and Romania have alternative tertiary institutions and colleges with larger relative enrolments than Bulgaria. Academic programs offered by these institutions are typically vocationally and occupationally oriented, which differentiates them from universities. For that reason it is covered in this chapter on VET.

## I. BENEFITS OF REFORM

6.7 The proposed reforms would create a VET system that would be more responsive to the emerging labor market demands by giving a wider general education to VET graduates as well as providing them with various avenues for rejoining the more academic streams should they so wish. The system is also expected to be more cost effective.

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<sup>30</sup> In 1999 the EU launched the Bologna process, which supports a series of reforms to make European Higher Education more compatible, comparable, competitive, and attractive for EU citizens and citizens and scholars from other continents. The aim of the European Higher Education Area, which EU hopes to establish by 2010, is to provide citizens with choices from a wide and transparent range of courses, and benefit from smooth recognition procedures.

## II. OPTIONS FOR REFORM

6.8 High quality vocational education is needed to promote adoption of existing technologies and promotion of labor productivity. To move the Bulgarian VET system closer to the best practice examples in EU and OECD countries, and ensure that vocational education students have an appropriate basis for lifelong learning to promote their adaptability and mobility across sectors and industries, the government may wish to consider five short and medium-run reform options.

6.9 In the *short run*, the government would be advised to pursue the following financing reform to promote the efficiency of VET:

- **Introduce per student financing to VET:** To provide incentives for improvements in relevance and for cost control, the ongoing governance and finance reforms at the primary and general secondary levels could be extended to vocational secondary schools. This would include the shift to per student financing and delegated budgets to schools. The process of the reform extension, and revisions that might be required compared to primary and general secondary schools would need to be worked out and require further analysis.

6.10 To promote labor adaptability and mobility in response to market needs, it is critical that all students are equipped with basic general education, and the education system provides options for continued lifelong learning. To shift the Bulgarian VET system into that direction calls for broader structural reforms in the medium term. The four key *medium-term* reform options the authorities may want to consider are the following:

**Table 6.1: Alternative Sector in Select Countries (2004)**

Country	Gross Enrolment Rate	Percentage of Enrolment in:	
		University Sector	Alternative Sector
Australia	46.4	59.9	40.1
Canada	49.2	60.5	39.5
Finland	64.6	82.6	16.4
France	40.0	72.0	28.0
Ireland	42.2	62.7	37.3
Norway	40.7	78.1	21.9
Spain	31.1	56.9	43.1
<b>Bulgaria</b>	<b>25.7</b>	<b>96.9</b>	<b>3.1</b>

Source: OECD Statistics 2004. Tables C6.1 and A3.0

- **Start vocational secondary education only after the completion of compulsory education:** Following the example of other EU countries, Bulgaria would be well advised to delay the streaming of students into VET until the completion of compulsory education. Students streamed early in education are hard to reorient when they become unemployed, because of their weak general education. If this reform is implemented, the vocational schools presently offering the early programs would need to be closed and the students directed to schools offering lower general secondary education.
- **In parallel, develop curricula for the remaining vocational secondary schools that balance vocational and general studies.** The curricula would need to emphasize occupationally-oriented skills and competencies as well as strengthening the core of natural and social science, mathematics, foreign language, and the applied dimensions of this knowledge. This would imply increased integration of the curricula of the vocational and general secondary schools. The aim would be to ensure strong general education of vocational students, which would enhance their adaptability and readiness for continued learning.
- **Establish Occupationally-Oriented Regional Colleges:** In today's world, increasingly sophisticated skills are required even in many vocational occupations. As Bulgaria climbs up the technology ladder, the demand for people with occupational skills and education beyond the

vocational secondary can be expected to rise. To strengthen the existing alternative education sector so that it can respond to this demand, the government may want to consider initially clustering/merging and upgrading select existing vocational secondary schools (types J and K in Figure 6.1) as well vocational colleges (type L) into occupationally-oriented regional colleges. The selection criteria for clustering and upgrading would include the reputation of the institution, quality of its human and physical resources, and relevance of its programs to the needs of the local economy. The curricula offered by each college should be tailored to match the demand in the region (for example, programs geared towards tourism in regions close to the Black Sea). These new comprehensive occupationally-oriented colleges would be similar to those in other EU and OECD countries, and would satisfy the demand for access to tertiary education by a more diverse student population. This would include students with acceptable level of academic preparation, students from vocational secondary schools with possibly lower academic preparation, students seeking tertiary education qualifications, and students from disadvantaged groups. Therefore, the establishment of these colleges can be expected to increase tertiary education enrolment in Bulgaria. The new sector would establish important bridges between vocational secondary education and tertiary education on the one hand, and between the two sectors of tertiary education on the other. Students from both upper general and vocational secondary schools with, and in some cases without, the matura exam will be eligible to enter the new colleges. Graduates of these institutions can, after a period of employment, or immediately after completing their sub-degree studies, continue their studies towards a university degree. Figures 6.9 and 6.10 show two alternative models for the new institutions with the earlier mentioned bridges, and Table 6.11 summarizes the characteristics of each. Figure 6.11 shows in turn an example of the relationship among the various occupations in the construction sector in terms of the type and duration of studies at the secondary and the tertiary levels, and the corresponding occupational categories.

- ***Establish a National Qualification Framework and Authority to Strengthen Life Long Learning:*** If the proposed occupationally-oriented regional colleges were established, it would be important that a National Qualification Framework (NQF) also be developed. NQF would allow recognition of qualifications earned at various levels and stages of education and training to ensure that mobility, access, and life long learning opportunities are available. In addition, it would be worthwhile to consider establishment of a National Qualifications Authority (NQA), based on other similar existing successful agencies, such as NQA of Ireland. NQA would have three tasks: (i) the establishment and maintenance of NQF for all educational awards in Bulgaria; (ii) the establishment, promotion, and maintenance of the standards for education and training awards in all institutions (secondary, alternative tertiary, universities); (iii) the promotion and facilitation of access, transfer, and progression through the education and training system. It should be mentioned here that substantial consultations have taken place in Bulgaria since 2005 concerning the establishment of such a framework that adopts the guiding principles of the European Qualification Framework.

## 7. STRENGTHENING TERTIARY (HIGHER) EDUCATION

7.1 A modern knowledge-economy needs an adequate supply of skilled educated workers, and the bulk of workers are expected to have tertiary education. There is extensive evidence that effective tertiary education investment increases a country's ability to make leading-edge innovations. Highly skilled people are also usually adaptable in the face of changing labor market needs. Further, tertiary education and research are among the key elements to promote European integration: through provision of skills and knowledge that promote labor mobility, and through participation in the European Higher Education Area (the Bologna process) and the European Research Area. Bulgaria should follow these trends and take measures to increase the quality, efficiency and effectiveness of its tertiary education to promote productivity growth.

7.2 Tertiary education institutions are facing the challenge of adapting themselves to the multiple demands from stakeholders: students for the high quality education, employers for the relevance of education to their needs, and the government for accountability of the public resources allocated to the tertiary institutions. Institutions of tertiary education are no longer seen as remote places where students acquire academic knowledge and professional qualifications, but instead as a major force in the ongoing economic development, and the advancement of knowledge.

7.3 Tertiary education participation rates in Bulgaria are among the lowest in EU. With the EU accession it became easier for Bulgarian students to study abroad, which can be expected to have a further adverse impact on the tertiary participation rates unless action is taken. This is in stark contrast to the rises in participation rates in most EU8 countries (especially Hungary and the Baltic states), and the continued gradual growth in tertiary enrolment in EU15. This would need attention. Tertiary education is an important determinant of individuals' earning capacity and employment prospects, and therefore plays an important role in determining the level and distribution of income in society. In most developed and transition economies, the wage premium earned by the graduates of tertiary education compared to the graduates of upper secondary education are substantial and increasing with work experience. The graduates of tertiary education also face a lower risk of unemployment than those without tertiary education.

7.4 The present disjointed admission process is an obstacle to improved access to higher education. Currently, each university sets its own standards, entrance examinations, and criteria for admission, and students have to take different entrance examinations for each of them.

7.5 Bulgaria's tertiary education system is currently characterized by a large number of small single discipline universities and institutions, some of which are serving sectors of the economy that have become less relevant in the past decade. This is a concern not just from the fiscal point of view, but above all for quality and effectiveness of R&D. The large number of small universities means that a large share of university funding goes to overhead costs to finance administration, which implies that less is available for equipment and materials, with adverse implications for quality. It also prevents raising the student-faculty ratios, which at 10:1 are much lower than in other EU countries. Further, from the R&D point of view, a critical mass of researchers, usually across disciplines, would be required, which could not be assembled in such small single discipline institutions.

7.6 Bulgarian universities have significant autonomy without adequate accountability. Since university rectors are chosen by the faculty, each of them is essentially a *primus-inter pares* beholden to the academic colleagues who elected them. Most of them, when newly elected, do not have relevant management experience or training to manage the complex enterprises that modern universities and

colleges have become. To exacerbate the problem, the evaluation and accreditation of universities and their programs are carried out by academic peers.

7.7 Tertiary education in Bulgaria is largely financed by the state, with nominal tuition fees in practice, and relatively long study periods. Compared to other EU countries, public spending per full-time tertiary student is relatively high in Bulgaria. To provide incentives to improve quality, and efficiency of resource utilization would require increasing the competition for funding among the tertiary education institutions.

7.8 Finally, the often heard complaint in Bulgaria about the lack of relevance of programs, knowledge, and skills universities and tertiary institutions impart to graduates, is partly the result of the current divide between universities and their external environment. The faculty and rectors of universities have had little experience in seeking advice from the private sector on the structure and content of academic programs. Lack of relevance is also attributable to the limited institutional diversity, which constrains as well enrolment growth in priority areas such as science, technology, and engineering.

## I. BENEFITS OF REFORM

7.9 Research indicates that effective tertiary education investment increases a country's ability to make leading-edge innovations. Highly skilled people are also usually more adaptable in the face of changing labor market needs. Bulgaria should follow this trend and take measures to increase the efficiency and effectiveness of its tertiary education to promote productivity growth.

## II. OPTIONS FOR REFORM

7.10 To address these issues and to strengthen the overall performance of the tertiary education sector and facilitate R&D, Bulgarian authorities are in the process of preparing a new higher education strategy. The aim of the strategy is to improve the quality of tertiary education, expand access, and leverage public and private resources. The reforms are expected to focus on governance and financing systems, quality assurance, student admission policies, and expansion of university R&D. Initial steps have already been taken in establishing the Matura as the university entrance examination. In finalization of the strategy, the government may want to consider a set of short and medium-term reform options. There is no single measure that alone would fix the system.

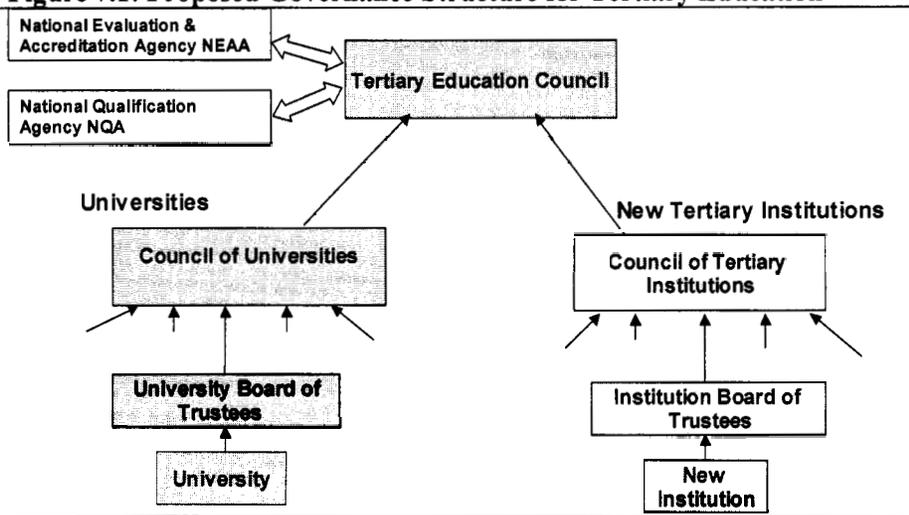
7.11 In the *short term*, the following four reform options may be considered, in the order of priority. Of these recommendations, the first two options would be the most critical ones for improvement of the performance of universities :

- ***Base the funding on actual student enrolments:*** To promote competition among universities and thereby provide them with incentives to improve quality and efficiency, as *the first step* the current funding formula could be adjusted so that instead of enrolment *targets*, the subsidy is based on *actual* enrolments. This change in the formula is critical to promote competition and influence incentives. However, over time this kind of a formula could lead to distortions such as enrolment beyond optimum levels, delays in student completion, and a bias towards low-cost programs. Therefore, other complementary reforms should be considered in the medium term, as outlined below.
- ***Strengthen university governance through the establishment of Boards of Trustees and a Tertiary Education Council:*** To enhance accountability of universities in terms of quality, relevance of programs, and use of resources, the Bulgarian authorities may consider instituting a contemporary governance structure for tertiary education, embodying many of

the reforms adopted in other EU or OECD countries. The governance reform would have two parts:

*First, change the role of government in tertiary education from directing and managing the system to that of “steering from a distance”.* This change would require the establishment of a Council of Tertiary Education for the whole system, and perhaps two separate lower level councils for its two sectors—the university sector, and the alternative (or non-university) sector of tertiary institutions and colleges. These two councils would develop the appropriate policies relevant to their sectors. Figure 7 highlights the proposed revised governance framework. The Council of Tertiary Education would replace the existing Council of Rectors. It would be an independent body mandated to develop and implement a national strategy—and related policies—in tertiary education, and ensure that the practices of tertiary institutions comply with them and serve the public interest.<sup>31</sup> The proposed two-tier framework is essential to ensure that the proposed new alternative tertiary sector (see Chapter 6) has a distinct and significant voice in the development of tertiary education policies in Bulgaria. Lessons learned from the experience of OECD countries that have introduced similar reforms over the past decades show the importance of such a two-tier governance structure. The linkages between the councils and other tertiary education bodies would need to be determined during the preparation stage.

**Figure 7.1: Proposed Governance Structure for Tertiary Education**



*Second, establish a Board of Trustees for each university/tertiary institution and have them appoint the heads of institutions.* The Board of Trustees would govern the affairs of the university/tertiary institution by: (a) developing broad administrative and management policies for the institution; (b) providing broad direction and coordination to the development of academic programs; (c) overseeing the efficient management of funds, property, facilities, and investments; (d) appointing the rector, as a chief executive of the institution; and (d)

<sup>31</sup> In other countries, a typical Council consists of 15 members; 9 (5 senior public sector and 4 private sector representatives) appointed by the Government, and 6 members representing the university council and the tertiary education council. In most countries, the Chair of the Council is a private sector representative appointed by the Government.

determining the representation of the institution on the Council of Universities/Tertiary Institutions.<sup>32</sup>

MES has recently proposed to establish Boards of Trustees, but only with an advisory function and with membership consisting primarily of faculty members. The implied lack of authority and the composition of membership are concerns. While these Boards, once in place, might be upgraded and provided proper authority, the concern is that until then as proposed they would simply further entrench the existing interests. This could tarnish the whole Board concept and make further adjustments unfeasible.

- ***Strengthen links with labor markets:*** The relevance of tertiary programs could be enhanced by strengthening the links to employers. In many countries such links include work placement of students with private and public sector employers during their studies, and setting up strong professional orientation programs and services. These measures give the employers an opportunity to assess the knowledge, skills, and competencies of students, and the incentive to actively provide input and advice on academic program relevance. MES could also consider providing incentives to institutions to establish Program Advisory Committees (PACs) for all programs, and include employer representatives in sectors such as engineering, engineering technology, business, or medicine. The mandate of the proposed PACs would include: (i) validating market intelligence about the existing and future demand for graduates of various disciplines; and (ii) providing advice on the knowledge and skills needed by employers. PACs and similar committees are used successfully in many EU countries, United States, provinces in Canada, Australia, and New Zealand.
- ***Institute the Matura as access examination:*** To simplify the university application process and thereby improve access to tertiary education, the government may want to consider making the Matura a nation-wide end-of-secondary school examination and the basis for university admission. As a side benefit, a nation-wide exit (school leavers) examination would also provide an objective basis for school evaluation. MES has already taken the initial steps of this reform, and expanded the mandate of the Center for Control and Assessment of the Quality of Education (CKOKO) to manage the Matura.

7.12 In the *medium term*, the following reform options, which would require preparation and some structural changes, would be worth considering. The reform options are listed in a descending order of priority.

- ***Increase tuition fees, establish a student loan scheme, and review scholarship programs:*** As the second step of financing reform, to provide incentives both to universities and students to perform, it is recommended that the tuition fees are raised to the maximum level of 30 percent of the actual tuition cost per student, that is, to the maximum permitted by law. In parallel, to ensure that the access to universities will not be unduly affected by the increased fees, a means-tested and/or income-contingent student loan system would need to be rolled out together with a revised policy of existing scholarship programs to target qualified low income students and to encourage enrolment in public or private tertiary institutions. Taken together, these reforms would: (i) augment sector financing and potentially expand access and make it more equal; (ii) provide incentives for students and their parents to demand value for their money, and press for quality improvements; and (iii) improve graduation rates and

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<sup>32</sup> In other countries, the Board of Trustees is typically composed of 15-20 members, depending on the size of the institution. Two thirds of the trustees are typically appointed by the government to represent key external stakeholders, including the government, employers, civil society, and labor unions. One third is elected and represents the key internal stakeholders of the institution: faculty, students, academic managers, staff, and alumni. The chair of the board is usually appointed by the government from the roster of appointed members.

throughput, since students who pay or borrow money are likely to be more vigilant about their studies.

- ***Introduce a performance-based component to tertiary institution funding:*** As the final step of financing reform, the authorities may want to consider introducing a performance-based component to tertiary funding, initially equivalent to 10 percent of the total state funding to an institution, but increasing it to 20-30 percent over five years. The performance-based component would be dependent on the performance of the institution in the previous year, or the moving average of the two most recent years. Performance could be assessed using key performance indicators (KPIs), which would measure the success of the institution in achieving the agreed outcomes, including cost-effectiveness of education delivery.<sup>33</sup> This step would provide further incentives to universities to improve quality, and avoid delaying student completion or focus on low cost programs, if KPIs are appropriately selected.
- ***Consolidate universities and tertiary institutions:*** As discussed in this chapter, the large number of small, single discipline universities is a concern not just from the fiscal point of view, but above all for quality and R&D reasons. The large number of small universities means that a large share of university funding goes to overhead costs to finance administration, which implies that less is available for equipment and materials, with adverse implications for quality. Further, from the R&D point of view, a critical mass of researchers, usually across disciplines, would be required, which could not be assembled in such small institutions. Australia and Hungary provide examples of successful mergers by bold government action, despite considerable opposition from the universities. The Hungarian reform focused on the consolidation of 100 specialized institutions into about 30 larger comprehensive institutions.

In Bulgaria, the government may consider merging some universities to create a smaller number of comprehensive universities with larger average enrolment than at present. The aim would be to reduce the number of small, specialized universities, and increase the student-faculty ratio to about 16:1 in all universities. An example of this kind of consolidation would be the establishment of a second comprehensive multi-campus technical university in Sofia by clustering the specialized small institutions of architecture, civil engineering and geodesy; chemical technology and metallurgy; forestry; mining and geology; transportation; and civil engineering. The consolidation or merger of universities is a classic example of change management involving strong vested interest. Hence, it would need to be managed by capable change managers using fair and transparent criteria. The benefits of the consolidation or mergers would need to be articulated to all affected parties, especially to the university faculty and rectors.

- ***Strengthen accreditation and quality assurance of universities and their programs:*** The government may want to consider separating the institutional accreditation from the program accreditation. NEAA should continue its work on institutional accreditation using the framework developed. However, program accreditation would require the involvement of international experts and professional organizations, which can add value in assessing the

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<sup>33</sup> Examples of KPIs include: (i) a student satisfaction indicator (based on student surveys) measuring the quality of the learning process, learning resources, environment, and student services; (ii) a graduate satisfaction indicator assessing the graduates' satisfaction with the institution and its programs, including the relevance and utility of the education received; (iii) employers' satisfaction indicator (based on surveys of employers of graduates of the institution) assessing the occupational relevance of the education received; (iv) the employment rate of graduates six months after graduation, which would measure the relevance of the program content for labor markets (taking into account graduates who are pursuing further education instead of employment); and (v) a graduation rate indicator assessing academic programs' efficiency and throughput.

quality of programs and in ensuring that the employers or employers' associations are included in the assessment process. An assessment by an external body would also have a better chance of ensuring that program accreditation is rigorous, and that university faculty members are not directly involved in the evaluation of their peers. In addition, it is recommended that internal quality assurance units and procedures are established in each tertiary institution to promote a culture of quality and ownership of quality assurance reforms.

- ***Continued teacher and faculty training:*** For the above mentioned reforms to produce maximum results, they would need to be complemented with capacity building. While the proposed reforms in governance would need to be accompanied with leadership training for university faculty, in-career teacher development, and initial teacher education for newcomers would also be warranted. For these purposes, MES may want to consider establishing a *Leadership and Faculty Development Institute (LFDI)*. The institute could be established in one of the leading universities, based on a competitive bidding process.

## 8. TOWARDS RESEARCH AND DEVELOPMENT (R&D) STRUCTURES AND POLICIES IN SUPPORT OF INNOVATION

8.1 The final piece of the productivity puzzle covered in this report deals with the R&D policies. As mentioned earlier, the available empirical evidence indicates that R&D investments have a positive impact on productivity growth, among other things by enhancing technology transfer. While the other factors already discussed—improving functioning of product and labor markets, and strengthening the education delivery—are likely to have the largest impacts on productivity growth in the short and medium term, Bulgaria will need to start paying increasing attention as well to its R&D policies to sustain high productivity growth over time.

8.2 Scientific research, technological development and the ability to convert research results into economic and social benefits play an increasingly important role in determining economic development and international competitiveness of countries. Globalization and rapid distribution and transfer of knowledge by information and telecommunication technologies have also made investments in knowledge increasingly pertinent. This includes the generation and adoption of new knowledge created by scientific research and technological development, investments in education and research, adoption of best practices, and openness to social, economic, and cultural innovations.

8.3 Bulgarian R&D system faces many challenges and opportunities. The country's recent entry into EU has brought along new competitive pressures, but also new windows of opportunity for improving R&D performance, and its operational and financial structures and instruments. Bulgaria joined EU at a time when R&D activities are gaining momentum in EU strategies. The Lisbon Agenda formulated in March 2000 sets the ambitious goal of making EU by 2010 *"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."* In Lisbon, and two years later in Barcelona, a number of concrete objectives in terms of research quantity and quality were formulated.<sup>34</sup>

8.4 Lisbon goals call for all EU member states to increase their R&D spending to three percent of GDP by 2010, of which two-thirds—two percent of GDP—is expected to be financed by the private sector. To achieve these goals, member states are to improve the environment for private research investment, R&D partnerships, and high-technology start-ups. However, as can be expected, the quantity and quality of R&D investment varies significantly across EU countries. Achieving these goals—in particular, the private sector investment goal—will be a significant challenge for Bulgaria, and unrealistic to achieve by 2010. Bulgaria may wish to quicken the pace of its progress in that direction.

8.5 Analysis presented in Chapter 8 of the main report benchmarks Bulgaria's R&D and innovation system and finds it weak in many respects. Despite major changes in the Bulgarian R&D and innovation system in the last decade, Bulgaria has started to fall farther behind the European and world leaders in innovation. It is an important area in which Bulgaria is not converging. While Bulgarian education establishment turns out fairly numerous and competent scientists, the research output is not particularly strong and tends toward basic rather than applied. The links of academia and research institutes to industry are not well developed and industry funds little of R&D. While the public sector funding of R&D, relative to GDP, stands at about one half of the Lisbon target, industry's share is only one twentieth of what it is in some of the most dynamic knowledge-based economies. Given Bulgaria's current

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<sup>34</sup> Lisbon goals apply primarily at the national level, since the bulk of R&D investments are made at that level. EU research programs account only for about five percent of the total R&D investments by the member states.

industrial structure, a rapid increase in industry financed R&D is highly unlikely, but will take time. Much of the answer lies in the competitiveness of the product markets and the flexibility of the labor markets in these economies as well as in their education systems. Building a knowledge economy is thus a longer term issue, but it pays to start as soon as possible. Unless decisive action is taken to rethink these systems in Bulgaria now, the gap between Bulgaria and European and world leaders in innovation may well continue to widen.

## I. BENEFITS OF REFORM

8.6 Strong long term productivity growth is impossible without a steady flow of innovations. The mother of innovation is competition. It is for this reason that so much emphasis in this report is put on promoting competitive product markets and complementary inputs that are needed for such markets to thrive—flexible labor markets and a high quality, equal access education system that delivers people with knowledge and skills needed by the economy. However, R&D also matters. Since in the long run it is only high productivity that delivers a high standard of living, the benefits of reform in Bulgaria’s R&D and innovation system are obvious.

## II. OPTIONS FOR REFORM

8.7 The benchmarking and analysis presented in Chapter 8 of the main report point to a number of reform options that the Government may wish to consider. The options are grouped into those that should get priority attention (“short-run”) and those that are of a more medium-term nature.

8.8 Five areas would need attention in the *short term*:

- ***Increase the share of competitive R&D funding:*** Bulgarian R&D funding, above all by industry, remains small and is below the targets set by the Lisbon agenda. Over time it would need to be increased aiming at a better balance between public and private funding as well as between institutional and competitive funding. Bulgaria has recently established instruments for competitive R&D funding (such as NIF and NSF), but their share of budget allocations is still small and dwarfed by funding that maintains existing institutions (e.g. BAS and NCAS). Competitive funding has a number of advantages. It allows funds to be allocated directly to new research areas, rather than having to achieve desired changes through existing research programs of research institutions. It is likely to identify the best research proposals. It rewards active teams, who are likely to use the additional resources effectively. Also, increasing the share of competitive funding would allow increased industry engagement in the R&D process. Except for the funding of big international science facilities, all international funding is competitive, so why not establish and follow that practice at the national level.

Competitive funding is better executed by independent agencies than by ministries. Strategic technology programs could also be planned and executed for key industries by pulling together the stakeholders from both industry and research. The strategic planning and direction of such programs should be in the hands of industry, which best knows the challenges and opportunities it is facing and for whom success may be a matter of survival. These programs could then be partly funded through the competitive processes. They could also be linked with the EU technology platform programs, which aim to provide industries with the best information about new enabling and generic technologies.

- ***Encourage public-private partnerships in R&D:*** Public-private partnerships in R&D would help ensure that R&D carried out is relevant to business, and hence likely to have an economic impact through increased chances for commercialization. The government could promote public-private partnerships by making teaming up with industry increasingly a requirement for

public R&D funding—both for competitively allocated and for institutional funding. R&D projects between companies, and universities and research centers would be particularly important for SMEs that can ill-afford research departments and facilities of their own. Also, to ensure that R&D results yield economic benefits, applied research projects should routinely have corporate partners.

- ***Re-evaluate the role of the Bulgarian Academy of Science:*** All Bulgarian research institutes would benefit from a functional and impact evaluation, but the Bulgarian Academy of Science, because of its size and potential, needs it most urgently. The size of BAS, with its 87 research centers, is massive—one of the largest in Europe—and does not appear particularly well justified in the current economic and industrial context of Bulgaria. It also suggests that there is room for improving efficiency and effectiveness of government resources. Some of the equipment and facilities in these entities is obsolete and not conducive to contemporary research methods, and some units are doing research in areas and sectors, which are no longer viable. Thus, a significant, but careful, reorientation of BAS is recommended, along with a concerted effort to shift the research conducted by BAS increasingly towards applied R&D, in order to respond to the needs of clients, including industrial corporations. By a carefully planned and executed reform process, BAS could become more competitive, the quality of its research could be raised to an even higher level, and its impact on the Bulgarian economy and society could increase. In addition to the proposed re-evaluation of the role of BAS, efficiency gains might be achieved also by reviewing the roles and responsibilities of NCAS and other existing research entities under line ministries, which spend close to one-third of the government R&D budget. The role of NCAS could be very important given Bulgaria's agro-industrial potential.
- ***Introduce systematic evaluation of R&D policies, institutions, and programs:*** There is an urgent need to establish systematic, regular and independent evaluations of R&D policies, institutions, and programs in order to assess their functioning and impact, and to identify the needed adjustments and reforms. So far no evaluations seem to have been carried out. Also, regular periodic evaluations would need to be carried out of all funding mechanisms (such as NIF and NSF), to assess their instruments, operational methods, impact, and funding levels.
- ***Rethink the institutional R&D set-up.*** To keep up with the world and to become world-class in some niches, Bulgaria would be well-advised to rethink its institutional R&D set-up. The current dual structure—two parallel strategies, two responsible ministries, and two coordinating councils—raises concerns, since research and innovation are closely related, and links between them need to be strong. To promote horizontal coordination, the authorities may want to consider shifting to a more unified structure and elevating the coordination to a higher level of Government to give the issues greater prominence. R&D and innovation issues and activities are connected to the country's economic performance and will continue to grow in importance as Bulgaria's economy catches up with other EU economies, and approaches the technological frontier in an increasing number of sectors.

8.9 In the *medium term*, the following issues would need to be considered:

- ***Enhance industry-financed R&D:*** Enhancing industry investments in R&D offers the best way to improve the performance and economic impact of the Bulgarian R&D. Currently, R&D funding is unbalanced, with the government financing about two-thirds of all R&D investments. This is exactly the reverse of the EU15 average, if one group together direct funding of R&D from the budget with the indirect funding going through the universities. While Bulgaria's pattern of investment in R&D may be consistent with its stage in the transition process and level of income, to facilitate the country's shift to the next level of

development and to raise productivity, increased private sector R&D would be called for over time. The challenge is how to get the Bulgarian industry to find it in its interest to raise its R&D expenditures

Given Bulgaria's current industrial structure, a rapid increase in industry financed R&D is highly unlikely. It will take time. The government can best promote industry-financed R&D by providing an enabling environment. As discussed in previous chapters, this will include above all ensuring that the regulatory environment promotes competition and does not prevent entry and exit of firms, including those from abroad, since contested markets force firms to innovate and raise their productivity in order to stay afloat. There must be effective enforcement of intellectual property rights. And access to input markets such as capital, materials, and information needs to be unhindered. Finally, labor markets need to be flexible so that people can easily move from lower to higher productivity activities.

- ***Encourage university research:*** The reform options presented in the previous Chapter for the tertiary education system would not only improve education delivery, but also facilitate R&D. In addition, university research could be boosted by linking the educational curricula with research activities. This would help to introduce students to research methods, and increase their interest and competence in professional work after graduation. Also, thesis projects addressing development needs of companies should be actively encouraged. In addition to promoting a shift to more applied research and practical problem-solving, this would provide a recruitment channel for students and companies. As was discussed in Chapters 4-7, strengthening the links between the higher education system and labor markets is a priority.
- ***Introduce new competitive funding instruments:*** A portfolio of further competitive funding instruments best suited for particular needs could be developed over time. Universities, research institutes, and perhaps SMEs would benefit primarily from grants (such as NIF and NSF), perhaps in the form of vouchers, larger corporations may benefit from risk loans, and high technology companies may need risk and profit-sharing venture capital. However, if and when this is done, caveats presented under the recommendation to “enhance industry-financed R&D” should be kept in mind.

## 9. SUMMING UP BY CORE MESSAGES

9.1 To promote income convergence with other EU countries, Bulgaria needs to raise employment and productivity. This means taking action on several fronts. The analysis in this report points to four core areas for actions :

- Increase employment;
- Enhance labor mobility;
- Narrow the skill gap; and
- Strengthen R&D.

9.2 Bulgaria is doing well on the employment front (the first core message), but this is not yet true of the other three core messages—enhancing labor mobility, narrowing the skill gap, and strengthening R&D—which are all ways to increase productivity growth. Having a mobile labor force that moves from lower to higher productivity jobs and sectors as opportunities emerge is a core building block in the quest to raise productivity. Both product and labor market policies and regulations impact the mobility, and are thus the key levers to effect a change. Having a skilled and technically savvy labor force is in turn essential to effective adoption and adaptation of technologies, whereas R&D enhances technology transfer by helping firms to learn about technological advances.

9.3 All the reform options presented in the previous sectoral chapters can be mapped to the four core messages (see Table 9.1). Since some of the recommended reforms in product and labor markets would promote both employment and labor mobility, there is inevitable overlap among the recommendations in these two areas. By contrast, for the skill and R&D themes, the sector and theme mappings are the same.

**Table 9.1: Mapping of Reform Options by Core Messages**

Objective	Short-term Reform Options	Medium-term Reform Options
<b>Increase employment</b>	<p><u>Labor market policies:</u></p> <ul style="list-style-type: none"> <li>Revise labor legislation and regulations while complying with EU requirements</li> <li>Shift the emphasis of active labor market programs (ALMPs) to support job search and strengthen their monitoring and evaluation</li> <li>Revisit the mechanism for establishment of the minimum wage and its level</li> <li>Revisit the current eligibility and entitlement rules for the unemployment benefit</li> </ul>	<ul style="list-style-type: none"> <li>Reduce labor taxes further in a fiscally sustainable manner</li> <li>Strengthen labor market statistics</li> </ul>
	<p><u>Product market regulation:</u></p> <ul style="list-style-type: none"> <li>Minimize administrative burden on business, including barriers to entry of firms</li> </ul>	
<b>Enhance labor mobility</b>	<p><u>Labor market policies:</u></p> <ul style="list-style-type: none"> <li>Develop and encourage lifelong learning</li> <li>Revise labor legislation and regulations</li> <li>Shift the emphasis of active labor market programs (ALMPs) to job search and strengthen their monitoring and evaluation</li> </ul>	<ul style="list-style-type: none"> <li>Engage employers' associations</li> </ul>
	<p><u>Product market regulation:</u></p> <ul style="list-style-type: none"> <li>Minimize administrative burden on business, including barriers to entry of firms</li> <li>Continue privatization and abolish state's special voting rights in privatized companies</li> <li>Simplify further the licensing and permit system</li> </ul>	
<b>Narrow the skill gap</b>	<p><u>Primary and general secondary education:</u></p> <ul style="list-style-type: none"> <li>Establish a clear and credible timeline for reform implementation to facilitate school consolidation</li> <li>Monitor the impact of reforms and introduce external evaluation of learning outcomes</li> <li>Relax central regulations on teaching hours and class sizes</li> <li>Implement school-based management and delegated budgets</li> </ul>	<ul style="list-style-type: none"> <li>Reinvest savings in measures promoting quality of education and equitable access</li> </ul>
	<p><u>VET:</u></p> <ul style="list-style-type: none"> <li>Introduce per student financing to VET</li> </ul>	
	<p><u>Tertiary education:</u></p> <ul style="list-style-type: none"> <li>Base tertiary institution funding on actual student enrolments</li> <li>Strengthen university governance through establishment of Boards of Trustees and a Tertiary Education Council</li> <li>Strengthen links with labor markets</li> <li>Institute the Matura as access examination</li> </ul>	
	<ul style="list-style-type: none"> <li>Increase the share of competitive R&amp;D funding</li> <li>Encourage public-private partnerships in R&amp;D</li> <li>Re-evaluate the role of the Bulgarian Academy of Science</li> <li>Introduce systematic evaluation of R&amp;D</li> <li>Rethink the institutional R&amp;D setup</li> </ul>	
<b>Strengthen R&amp;D</b>	<ul style="list-style-type: none"> <li>Increase the share of competitive R&amp;D funding</li> <li>Encourage public-private partnerships in R&amp;D</li> <li>Re-evaluate the role of the Bulgarian Academy of Science</li> <li>Introduce systematic evaluation of R&amp;D</li> <li>Rethink the institutional R&amp;D setup</li> </ul>	<ul style="list-style-type: none"> <li>Start vocational secondary education only after completion of compulsory education</li> <li>Develop curricula for vocational schools that balance vocational and general studies</li> <li>Establish Occupationally-Oriented Regional Colleges</li> <li>Establish a National Qualifications Framework and Authority to strengthen lifelong learning</li> <li>Increase university tuition fees and establish a student loan scheme</li> <li>Introduce a performance-based component to tertiary institution funding</li> <li>Consolidate universities and tertiary institutions</li> <li>Strengthen evaluation and accreditation of universities and their programs</li> <li>Continued teacher and faculty training</li> <li>Enhance industry-financed R&amp;D</li> <li>Encourage university research</li> <li>Introduce new competitive funding instruments</li> </ul>

## **10. BUDGET AND CAPACITY IMPLICATIONS**

### **I. BUDGET IMPLICATIONS**

10.1 All the reform options suggested in this report could be carried out within Bulgaria's currently projected budget envelopes for 2007-09. Investment costs could largely be covered by grant funds available from EU. This would require some co-financing from Bulgaria's budget, but the total amount might be on the order of EUR15-20 million, which is roughly 0.06-0.08 percent of GDP. Even these amounts can likely be fitted into preliminary budget allocations for current Operational Programs (OP), since they are all compatible with the OP goals. Additional current running costs of the options taken together are miniscule compared to the potential savings. This leaves room for a good portion of savings to be kept by the ministries concerned to give them incentive to carry out the reforms rapidly and efficiently. The savings could be redeployed for other reform and quality enhancement measures. This implies the need for leadership to make the case for the proposed reforms and build consensus. Since Bulgarian leaders have already been thinking about and planning a number of these reforms, this should be feasible. This report has tried to estimate some of the pay-offs to the reforms, which can be substantial, and thus help with the process of setting priorities. The details are presented in Chapter 9 of the main report.

### **II. CAPACITY IMPLICATIONS**

10.2 Much of the success of the reforms proposed in this report will depend on the capacity of Bulgaria's institutions. Many of the reforms are complicated, and have to deal with vested interests. No matter how high the eventual pay-off to the proposed reforms might be, the short-term losers from the reforms are likely to resist them. Hence one needs leadership to explain the value of the reforms and reduce resistance, and for determined follow-through on implementation. That will involve many institutions and many individuals at all levels of government.

10.3 Available evidence suggests that in a number of ways the capacity of Bulgaria's institutions relative to that of other countries is lagging. Evidence to that effect was presented both in Chapters 3 and 9 of the main report, along with the identification of the specific areas of weakness. It is thus implementation capacity rather than the cost of reforms that is a cause for concern. However, even that is a relative matter. Various indexes of governance and implementation capacity are typically highly correlated with per capita GDP, so it is likely just a matter of time before the capacity of Bulgaria's institutions catches up with its per capita GDP. The problem for Bulgaria is that, because of the distance it has to travel to converge to EU15 and because of its demographic challenge, it has to overachieve on the productivity growth front, and thus also in terms of its institutional framework that would make the rapid catching up possible.



