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Public Policies for Human Development

Achieving the Millennium Development Goals in Latin America

Edited By

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Contents

Preface xi

About the editors xiv

About other contributors xv

1 Overview 1
Rob Vos, Marco V. Sánchez and Enrique Ganuza

2 Latin America and the Caribbean's challenge to reach the MDGs: financing options and trade-offs 17
Rob Vos, Marco V. Sánchez and Cornelia Kaldewei

3 MAMS: an economy-wide model for analysis of MDG country strategies—an application to Latin America and the Caribbean 71
Hans Lofgren and Carolina Díaz-Bonilla

4 Argentina 127
Martin Cicowiez, Luciano Di Gresia and Leonardo Gasparini

5 Bolivia 159
Wilson Jiménez, Mirna Mariscal and Gustavo Canavire

6 Chile 185
Raul O'Ryan, Carlos J. de Miguel and Camilo Lagos

7 Costa Rica 213
Marco V. Sánchez

8 Ecuador 245
Mauricio León, José Rosero and Rob Vos

9 Honduras 279
Maurizio Bussolo and Denis Medvedev

10 Mexico 307
Araceli Ortega and Miguel Székely

11 Nicaragua 329
Marco V. Sánchez and Rob Vos

12 Peru 365
Juan F. Castro and Gustavo Yamada

Index 387

List of tables and figures

Tables

2.1 Public debt-to-GDP ratio and debt sustainability in Latin America and the Caribbean, 1990-2006 27
2.2 Achievement of MDGs by 2015 under the BAU scenario in Latin America and the Caribbean 36
2.3 Required additional MDG-related public spending for achieving all MDGs simultaneously under alternative financing scenarios in Latin America and the Caribbean, 2000-2015 40
2.4 MDG financing strategies and required increases in tax or public debt burdens in Latin America and the Caribbean 44
2.5 "Feasible" financing strategies for the achievement of the MDGs in Latin America and the Caribbean 48
2.6 Labour market, inequality and poverty indicators 50
3.1 Stylized Macro SAM for MAMS 77
3.2 Accounts and cell entries in Stylized Macro SAM for MAMS 79
3.3 Determinants of non-poverty MDGs 92
4.1 Argentina: key macroeconomic indicators, 1980-2004 130
4.2 Argentina: poverty incidence according to different poverty lines, 1992-2004 132
4.3 Argentina: trends and targets of the MDG indicators 133
4.4 Argentina: results of the probit model estimated for primary school enrolment at mandatory age 138
4.5 Argentina: results of the probit model estimated for primary school completion 140
4.6 Argentina: results of the probit model estimated for secondary school completion 141
4.7 Argentina: results of the probit model estimated for higher education completion 142
4.8 Argentina: determinants of infant mortality 143
4.9 Argentina: main results of policy simulations, 2003-2015 145
5.1 Bolivia: main macroeconomic indicators, 1985-2006 161
5.2 Bolivia: indicators for monitoring MDGs and goals for 2015 164
5.3 Bolivia: Annual additional public spending required to meet the MDGs separately, under different financing scenarios, 2000-2015 173
5.4 Bolivia: additional public spending required annually in order to achieve MDGs for education, health, water and sanitation, simultaneously, under different financing scenarios, 2000-2015 174

5.5	Bolivia: results of the microsimulations in the baseline and all MDGs scenarios, 2000-2015	176
5.6	Bolivia: rate of growth in employment and labour income by type of worker in the baseline scenario and all MDGs scenarios under different forms of financing, 2000-2015	177
6.1	Chile: change in public social spending	189
6.2	Chile: change in indicators associated with the MDGs and targets to be reached by 2015	190
6.3	Chile: initial value and annual growth rate of key macroeconomic aggregates in two baseline scenarios, 2003-2015	196
6.4	Chile: achieving the MDGs in the two baseline scenarios	199
6.5	Chile: structure of factor incomes in the base year and in 2015 in the moderate baseline and MDG 2 scenarios	201
6.6	Chile: progress towards the MDGs by 2015 under different baseline assumptions for economic growth	202
6.7	Chile: poverty and income distribution in the base year and in 2015 in the baseline scenarios	204
7.1	Costa Rica: indicators of production, employment, external sector and public finances, 1985-2005	216
7.2	Costa Rica: public social spending by sector as a percentage of GDP, 1987-2004	218
7.3	Costa Rica: progress towards the MDGs, 1990-2005 and targets for 2015	219
7.4	Costa Rica: public spending on MDG-related services in the baseline and MDG scenarios, 2002-2015	230
8.1	Ecuador: Economic growth by sector, 1994-2004	247
8.2	Ecuador: Elasticities of the MDG module of MAMS	252
8.3	Ecuador: MDG achievement in the baseline scenario, 2001-2015	260
8.4	Ecuador: Simulated additional costs for achieving the MDGs separately and simultaneously, at the end of the period simulated and average for period as a whole	266
8.5	Ecuador: Selected macroeconomic results of some scenarios simulated with MAMS, 2001-2015	268
9.1	Honduras: Macroeconomic performance, 1980-2004	281
9.2	Honduras: Progress towards the MDGs	282
9.3	Honduras: Estimates of required infrastructure and MDG-related expenditures	285
9.4	Honduras: The structure of social spending on MDG-related services, 2004	286
9.5	Honduras: Macro variables in the baseline scenario, 2004-2015	289
9.6	Honduras: MDG achievement in the baseline scenario, 2004-2015	291

9.7 Honduras: Labour market dynamics in the baseline scenario, 2004-2015 292
9.8 Honduras: Trajectory towards the MDGs and government spending in the MDG scenario, 2004-2015 293
9.9 Honduras: Labour market dynamics in the MDG scenario, 2004-2015 295
9.10 Honduras: Macroeconomic performance under the MDG scenario, 2004-2015 295
9.11 Honduras: MDG performance and government spending when targeting MDG 7a-b only, 2004-2015 298
9.12 Honduras: MDG achievement and government spending when targeting MDGs 4-5 only, 2004-2015 299
9.13 Honduras: MDG performance and government spending when targeting MDG 2 only, 2004-2015 300
9.14 Honduras: Macroeconomic performance when scaled-up MDG spending is financed by domestic taxes, 2004-2015 302
9.15 Honduras: Macroeconomic performance when scaled-up MDG spending is financed by domestic borrowing, 2004-2015 302
10.1 Mexico: Overview of socio-economic indicators for the 1984-2004 period 310
10.2 Mexico: Executed public sector budget by programmes, 2004-2006 311
10.3 Mexico: Inequality and poverty indicators, 1984-2004 313
10.4 Mexico: Required government spending in the baseline scenario and the MDGs 4&5 scenarios with domestic resource mobilization, 2003-2015 321
11.1 Nicaragua: Macroeconomic indicators, 1990-2005 332
11.2 Nicaragua: Public spending earmarked to the poverty reduction strategy (PRS) and its financing, 2002-2007 336
11.3 Nicaragua: Poverty indicators, 1993-2005 and target for 2015 337
11.4 Nicaragua: MDG indicators, 1990-2004 and target for 2015 339
11.5 Nicaragua: Additional public spending per year required to attain the MDGs simultaneously or individually under alternative 351
12.1 Peru: Indicators for evaluating the MDGs (1991 and 2004) and targets for 2015 368
12.2 Peru: Real GDP, primary components of spending and savings-investment gaps in the baseline scenario, 2004-2015 371
12.3 Peru: MDG indicators in baseline scenarios and scenarios targeting one or two MDGs at a time only, 2004-2015 374
12.4 Peru: Required public spending to achieve the MDGs under alternative financing scenarios, 2004-2015 375

12.5 Peru: Summary of macroeconomic results in selected simulated scenarios 377
12.6 Peru: Summary of microsimulation results in base year and tax-financed MDG scenario 379

Figures

1.1 Progress towards the MDGs in East Asia and Latin America and the Caribbean, 1990-2005 2
2.1 Progress towards the MDGs in Latin America and the Caribbeana 19
2.2 Average tax revenues of central Governments in Latin America and the Caribbean and selected other countries and country groups, around 2005 24
2.3 Net employment and GDP growth in Latin America and the Caribbean, 1991-2006 30
2.4 Annual average difference of the RER and the export-to-GDP ratio under the "feasible" MDGs nancing scenario relative to the BAU scenario in Latin America and the Caribbean 46
2.5 Employment-output nexus under the BAU scenario and the "feasible" MDG nancing scenarios in Latin America and the Caribbean 51
2.6 Change in income poverty and per capita GDP growth under the BAU scenario and the 'feasible' MDG nancing scenarios in LAC 51
3.1 Labour market adjustment with endogenous unemployment 88
3.2 Logistic function for education 94
4.1 Argentina: per capita GDP at constant prices, 1980-2004 129
4.2 Argentina: Growth incidence curves, 1992-2004 136
4.3 Argentina: trends in public social spending, 1980-2004 150
5.1 Bolivia: Projection of MDG indicators in the baseline and targets for 2015 172
6.1 Chile: Changes in employment by type of worker in the two baseline scenarios, 2003-2015 198
6.2 Chile: Growth of nal government consumption spending in the "moderate" baseline and MDG 2 scenarios 200
7.1 Costa Rica: Percentage of the population that live on less than one dollar a day, 2002-2015 228
7.2 Costa Rica: Evolution of MDG indicators in the baseline scenario of MAMS, 2002-2015 229
8.1 Ecuador: GDP per capita (constant 2000 dollars) and growth rate, 1966-2006 246

8.2 Ecuador: Incidence of urban poverty, minimum wage, and real exchange rate, 1988-2005 248
8.3 Ecuador: Incidence of poverty and inequality in urban areas, 1988-2005 249
8.4 Ecuador: Trends in the determinants of the primary education goals in the base scenario, 2001-2015 260
8.5 Ecuador: Trends in the determinants of the health goals in the baseline scenario, 2001-2015 261
8.6 Ecuador: Labour supply in the base scenario, 2001-2015 262
8.7 Ecuador: Average real wage by type of worker in the baseline scenario, 2001-2015 263
8.8 Ecuador: Incidence of extreme poverty in the baseline and MDG scenarios under alternative nancing optionsa 270
9.1 Honduras: Growth incidence curve for the baseline and MDG scenarios 297
10.1 Mexico: External public debt and social spending, 1984-2004 311
10.2 Mexico: Total tax burden and main sources of tax revenue, 1995-2006 312
10.3 Mexico: Historical and simulated evolution of completion rates in primary education, 2003-20151 318
10.4 Mexico: Simulated evolution of child mortality per 1,000 live births, 2003-2015 318
10.5 Mexico: Simulated evolution of maternal mortality per 100,000 live births, 2003-2015a 319
10.6 Mexico: Simulated evolution of the percentage of the population with access to drinking water, 2003-2015 319
10.7 Mexico: Simulated evolution of the percentage of the population with access to basic sanitation, 2003-2015 320
10.8 Mexico: Observed and simulated income-tax rate, 1993-2015 322
10.9 Mexico: Evolution of international extreme poverty and national food poverty, 2003-2015 323
10.10 Mexico: Evolution of the Gini coefcient for labour income in the baseline scenario, 2003-2015 324
11.1 Nicaragua: Growth of real GDP and per capita GDP, 1990-2005 334
11.2 Nicaragua: Poverty indicators in the baseline scenario, 2000-2015 348
11.3 MDG indicators in the baseline scenario, 2000-2015 349
12.1 Peru: Progress towards MDG-related indicators in the baseline scenario, 2004-2015 373

6
Chile

Raul O'Ryan, Carlos J. de Miguel and Camilo Lagos

Introduction

Chile has committed to meeting its Millennium Development Goals (MDGs) by the year 2015. Over the last two decades, the country made great progress towards these goals, possibly more than any other country in Latin America.

This chapter looks at whether it is likely that Chile will be able to achieve the MDGs within the specified time period and —to the extent the country appears to be off track towards some of the goals—recommend specific policies to make their achievement possible. The analysis has been carried out by simulating alternative scenarios of economic growth and public spending through the year 2015. The simulations are conducted using the computable general equilibrium (CGE) model called MAMS, described in Chapter 3. The distributive repercussions of the various scenarios simulated with MAMS—working through the labour market—are also analysed using a microsimulation method described in Chapter 2 (See Appendix A2.1).

The next section describes Chile's economic performance and its progress thus far towards meeting the MDGs during the 1990-2005 period. The subsequent section analyses the main determinants of progress towards specific MDGs and the estimation of some key MDG-related elasticities of MAMS for Chile. The fourth section looks at the results obtained from comparing the achievement of the goals in a baseline scenario, where public spending increases at the same pace as that of recent years, with a series of scenarios where public spending is adjusted endogenously in order to achieve each of the goals separately, as well as to achieve all of them simultaneously. The minimum rates of economic growth required to achieve the goals or speed up the achievement of some of them are also determined. The fifth section analyses the distributive repercussions of the main policy scenarios analysed and the final section presents the main conclusions and policy recommendations.

Economic and social context for achieving the MDGs in Chile

Over the past 15 years, macroeconomic stability, improved social policies and targeted public spending have allowed Chile to make significant progress not only in terms of economic growth, but also in terms of many of the indicators used to monitor MDG progress towards pre-established targets. According to government officials, the country is in a position to be able to achieve many of the targets ahead of schedule (MIDEPLAN, 2005a). The following section looks at the social and economic context of public policies developed and the achievement of the MDGs.

Social and economic performance

Historically, growth in Chile has been based on renewable and non-renewable natural resources. Copper is the main export product, accounting for about 45 per cent of total exports in 2005 (DIRECON, 2006). A continuous process of export diversification has taken place in the last quarter century, however.

The last decade of the twentieth century was characterized by a high degree of economic and political stability. Prosperous growth was achieved in an environment of reliable institutions, continuity in economic policies, and strengthened market functioning, along with trade liberalization. These factors also attracted new foreign investment to Chile in spite of the economy's relatively small domestic market (ICEX, 2003).

The process of privatization of public services, initiated in the mid-1990s, has continued in the last 15 years. Policies have also promoted private investment in infrastructure, telecommunications, electricity and air transportation, and most domestic markets have been liberalized. Important trade agreements have been signed. Reforms have been made in the education system. At the same time, regulation of some key markets such as the electricity market and the capital market has been enhanced. As a result, domestic market functioning has become more efficient and import tariffs are close to zero for countries with whom Chile has trade agreements. Since the early 1990s—once development policies designed in the period of authoritarian government could be left behind—the State has also re-established its role as protector of the common good and has taken the lead on resolving pressing social and environmental problems.

All these factors have contributed to Chile's strong economic performance. Between 1995 and 2003, GDP grew at an annual average rate of 4.9 per cent (Central Bank, 2006), a much higher rate than in other countries of the region where economic growth barely hovered around 2 per cent during the same period (CEPAL, 2005a).[1] As a result, per capita GDP reached $7,000 at current prices in 2005, more than double that of 15 years earlier. Growth rates of 6.2 per cent in 2004 and 6.3 per cent in 2005 generated expectations that high growth

rates could be sustained, leading to average growth projections in some studies of around 5.5 per cent per year up to 2010 (Eyzaguirre, 2005).

These expectations have turned out to be too optimistic, however. GDP growth in 2006, which was at first expected to be around 5 per cent, ended up reaching only 4.4 per cent, and projections have become more conservative as a reflection of greater economic uncertainty. Current discussions suggest that, prior to the global crisis of 2008-09, the slowdown in growth was due to structural causes and that only fundamental macroeconomic and microeconomic reforms could reverse this trend.

A competitive exchange rate was an important variable driving strong growth of the Chilean export sector during the latter half of the 1980s. The real exchange rate depreciated by nearly 100 per cent between 1980 and 1990, contributing to the 98 per cent increase in Chilean exports in real terms during that period. Furthermore, in spite of the fact that the real exchange rate appreciated again by approximately 75 per cent in the late 1990s as compared to its 1990 value, exports still continued to grow by 9.3 per cent annually. Total exports increased by 165 per cent over the decade. In 1999, Chile adopted a floating exchange-rate regime, eliminating the exchange-rate band with respect to the dollar. In addition, in order to improve the competitiveness of the Chilean financial sector, restrictions on the foreign-exchange market were relaxed. Limits to capital outflows were eased and reserve requirements on capital inflows were eliminated.

The terms of trade improved during the mid-2000s, due to an unexpected sharp increase in the international price for copper, which rose 64 per cent between 2005 and 2006. Fiscal revenues have increased markedly as a result, leading to a fiscal surplus equivalent to 4.2 per cent of GDP in the first semester of 2006. Fiscal expenditures have remained stable. Starting in the year 2000, Chile's fiscal policy began to be guided by the structural balance rule, with the target of reaching a surplus of 1 per cent of GDP. The adoption of this policy has helped to strengthen public finances and modernize the country's macroeconomic framework, contributing to a stable financing for social policies (MIDEPLAN, 2005a). In fact, growth of central government debt represents a low fiscal risk in the medium term, due primarily to the low existing level of debt in relationship to GDP (around 6 per cent) and the prudent macroeconomic policy rules (OECD, 2005).

Other macroeconomic variables are also under control and are remaining within acceptable limits. Since the early 1990s, the Central Bank has made it a priority to meet annual inflation targets. As a result, inflation fell from 27 per cent in 1990 to 1.1 per cent in 2003 and was around 3 per cent in the mid-2000s.

Gross domestic investment has increased considerably, reaching an average of 26.2 per cent of GDP for the 1990-2003 period, 10 percentage points of GDP

more than in the 1980s. However, domestic savings have not grown very much and most of the increase in investment has been financed through external savings.

Good macroeconomic performance has also translated into real wage growth of 3.2 per cent per annum in the 1990s. Wage growth has been less than productivity growth, however. The unemployment rate on average fell markedly from 18 per cent in the 1980s to 6 per cent in the subsequent decade when approximately 1.4 million new jobs were created. Unemployment surged again to near 10 per cent between 1999 and 2004, despite government efforts to reduce it and despite sustained economic growth. In 2005, the rate of unemployment did fall somewhat to about 8 per cent.[2]

Social policies have undergone profound changes since the early 1990s as social policy action has been significantly strengthened (Schkolnik and Bonnefoy, 1994; Baytelman and others, 1999). During the 1980s, the prevailing idea was that of a "subsidiary social welfare state", when the delivery of public sector services was decentralized and the private sector was encouraged to take a greater role in the provisioning of social services. Universal social programmes were cut back and spending was targeted to specific objectives like the eradication of extreme poverty, protection for newborns and maintenance of basic services.

While social spending fell considerably in that period, better targeted spending contributed to greater progress in human development indicators, especially in terms of reductions in infant mortality and illiteracy and increased school enrolment. However, lower public spending did increasingly lead to a general deterioration in the access to and quality of social services and goods. Poverty levels also rose significantly. In 1987, nearly 45 per cent of the population lived in conditions of poverty—almost twice the incidence of 15 years earlier (Martin, 1998).

To redress these problems, the government shifted to an "integrated policy approach" in the 1990s.The new focus privileged social investment more than social welfare spending with the aim of establishing a greater balance between growth and macroeconomic stability, on one hand, and equity and poverty reduction, on the other. Changes in budgetary priorities and a reorientation towards social programmes, along with economic growth and a sustainable and counter-cyclical fiscal policy, have allowed Chile to maintain, if not increase, resources available for social spending even during periods of economic slowdown (MIDEPLAN, 2005a). Social expenditures increased from 61 per cent of total public spending to a share of 68 per cent in 2003, representing nearly 15 per cent of GDP (see Table 6.1). The social policy shift allowed the government to concentrate its efforts on the most disadvantaged sectors of the population and achieve greater efficiency in the use of fiscal resources.

Several flagship social programmes were developed, as discussed in Raczynski and Serrano (2005). About 400 such programmes were put in place

Table 6.1 Chile: change in public social spending (Percentage of GDP)

	1990-1991	1996-1997	2002-2003
Education	2.4	3.0	4.0
Health	1.9	2.4	3.0
Social security[a]	8.2	7.2	7.6
Housing	0.2	0.2	0.2
Total	12.7	12.8	14.8

Source: CEPAL (2006b).

[a] Includes spending on labour-related programmes.

with the participation of nearly 80 institutions. The most important programmes among these are: *Chile Solidario*, for the elimination of extreme poverty; *Chile Barrios*, with a goal of eradicating informal urban settlements in the country; *Origenes*, aimed at the rural indigenous population; *Chile Joven*, for vocational training; and *Plan AUGE*, aimed at reforming the Chilean health sector.

These programmes have contributed to the continuous trend of poverty reduction observed since 1990. In fact, the percentage of people living in poverty fell from 45 per cent to 18.8 per cent between 1987 and 2003.[3] However, income inequality has remained high in Chile. At the beginning of this millennium, the wealthiest 20 per cent of households received 15 times the income of the poorest 20 per cent, and the Gini coefficient was around 0.57. This degree of inequality is little different from that of the 1970s.

MDG progress

Chile's progress towards the MDGs has been recorded in two official reports: the government report (MIDEPLAN, 2005a) and the report of the Economic Commission for Latin America and the Caribbean (CEPAL, 2005b). The key findings of these reports are presented in Table 6.2 and examined in the below.

MDG 1: Eradicating extreme poverty and hunger

The percentage of the population whose income is less than the international poverty line of one dollar a day at purchasing power parity (PPP) dropped from 3.5 per cent in 1990 to 2.3 per cent in 2000. According to MIDEPLAN (2005a), if the target to be reached by 2015 is set at 1.7 per cent of the population, "extreme poverty would only need to be reduced by 0.04 percentage points per year to meet this target. Considering the speed at which the percentage of the population with an income of less than one dollar a day (PPP) was reduced between 1990 and 2000, it can be inferred that it is feasible to reach this target."

According to CEPAL (2005b), an extreme poverty line based on the cost of satisfying the basic food consumption needs of the population is "more relevant for measuring the magnitude of poverty and for identifying the most

Table 6.2 Chile: change in indicators associated with the MDGs and targets to be reached by 2015

MDG	Goal	Indicator	1990	2003	2015 (target)
MDG 1	Reduce by half, between 1990 and 2015, the percentage of the population whose income is less than one dollar a day (at PPP)	Percentage of the population living with one or less than one dollar a day	3.5	2.3	1.7
MDG 2	Ensure that all girls and boys complete the entire cycle of primary school.	Primary school completion rates (%)	84.5	81.6	100.0
MDG 4	Reduce by two-thirds the child mortality rate	Under-five mortality rates (per 1,000 live births)	19.3	9.6	6.4
MDG 5	Reduce the maternal mortality rates by three quarters between 1990 and 2015	Maternal mortality rate (per 100,000 live births)	40	19	10
MDG 7a	Reduce by half the percentage of people who lack sustainable access to drinking water by 2015	Percentage of households with access to drinking water in urban areas.	97.4	99.8[a]	99.9[a]
MDG 7b	Reduce by half the percentage of people who lack sustainable access to basic sanitation services by 2015.	Percentage of households with access to sewage systems in urban areas.	82.6	94.4	97.2[a]

Source: MIDEPLAN (2005b) for MDG 1; MINEDUC (2005) for MDG 2; CEPAL (2005b) for MDG 4; and MIDEPLAN (2005b) for MDGs 5, 7a and 7b.

[a] Since the goal was already achieved in 2003, for the purposes of simulation exercises using MAMS, the target was re-estimated using 2003 as the base year.

affected population groups." Extreme poverty as measured with these alternative thresholds also decreased significantly in Chile. According to the CASEN household survey, moderate poverty and extreme poverty, as measured by the official national lines, affected 38.6 per cent and 12.9 per cent of the population, respectively, in 1990. By 2003, these indicators had fallen markedly to 18.8 per cent and 4.3 per cent. On the basis of these trends, it can be asserted that by 2003 Chile had already met the internationally established target to halve extreme poverty.

MDG 2: Achieving universal primary education

As explained in MIDEPLAN (2005a), the net enrolment rate in basic education increased to 91 per cent in 2000 from 88 per cent in 1990, and the target is to reach 95.5 per cent by 2015.[4] At the same time, the percentage of students who begin first grade and complete fifth grade was 91.6 per cent in 2000, 8.4 percentage points less than the target.

CEPAL (2005b) estimates that net primary school enrolment decreased from 87.7 per cent in 1990 to 86.5 per cent in 2002.[5] The primary school completion rate rose, however, from 95.5 per cent in 1992 to 97 per cent in 2002. According to CEPAL, Chile is among the countries where, based on current trends, at least 95 per cent of the children that are under five today will finish primary school by 2015. At the same time, however, it indicates that efforts should be made to identify the households where children are least likely to finish primary school.

While enormous progress has been made in terms of coverage, results are not as auspicious with respect to retention rates. According to the Ministry of Education (MINEDUC, 2005), 84.5 per cent of those who entered first grade finished the primary school cycle (completing 8th grade) in 1990. By 2003, this rate had dropped to 81.6 per cent. Thus, the objective of the education policy should be to concentrate efforts not only on education coverage, but also on attaining 100 per cent retention.

Furthermore, the Chilean government has also proposed that by 2015, all girls and boys should be able to complete the entire education cycle through high school. This was formalized through a Constitutional Reform in 2003, when the government was entrusted with the responsibility of guaranteeing at least 12 years of schooling for all.

Most of the population of 15 to 24 years of age is already literate and by 2015 it is estimated that 99.8 per cent of this age group will be able to read and write (MIDEPLAN, 2005a).

Notwithstanding the improvements in access to education for lower income groups and the progress made in promoting gender equality,[6] the big challenges in the area of education continue to be the quality of education and the low coverage for preschool education. This situation is reflected in the results of international tests, according to which the acquired cognitive skills of Chilean children are under par. Inequalities also persist between socio-economic classes, regions and type of schools (private, subsidized or public) in terms of the quality of education received, as evidenced through school tests administered by the System for Measuring Educational Quality (SIMCE), and more recently through the University Selection Test (PSU).[7]

MDG 4: Reduce under-five child mortality

Over the last decade, Chile has made significant improvements in reducing child mortality. The under-five child mortality rate per 1,000 live births was reduced from 19.3 in 1990 to 9.6 in 2003, a decline of 75 per cent. At ongoing trends, it is expected that the rate will decline further to 6.4 in 2015.

MDG 5: Reduce maternal mortality

Maternal mortality rates have also fallen significantly since the 1990s, going from 40 to 17 deaths per 100,000 live births between 1990 and 2002. This 2002 number is quite a bit lower than the average of 87 deaths per 100,000 live births recorded for the Latin American and Caribbean region as a whole in 2000. Chile has made 70 per cent progress towards the target of reducing maternal mortality rates by three fourths between 1990 and 2015.

The progress report on the MDGs for Chile (MIDEPLAN, 2005a) indicates that the observed decrease in maternal mortality is associated with the impact of several programmes of the Ministry of Health. The Maternal Health Programme, which includes a series of prenatal check-ups that allow early detection of pregnancy-related pathologies, has been particularly effective. Other programmes, like family planning programmes, have helped reduce unwanted pregnancies.

MDG 7: Increase access to drinking water and basic sanitation services

In 2003, 99.8 per cent of all residential houses located in urban areas of the country were connected to public drinking water systems; reflecting an increase by 2.4 percentage points compared with coverage in 1990. In rural areas, coverage increased from 76.5 per cent in 1990 to 98.5 per cent in 2004.[8] The percentage of the urban population with access to the sewage system increased from 82.6 per cent in 1990 to 94.4 per cent in 2003, while coverage in rural areas expanded from 19.1 per cent to 40 per cent in the same period.

There has also been a spectacular increase in wastewater treatment. In the early 1990s, Chile had wastewater treatment levels of less than 5 per cent, comparable only to countries with much lower levels of development. However, water treatment has expanded dramatically since, reaching 35 per cent in 2001 and close to 80 per cent in 2005. It is expected that more than 95 per cent of all wastewater will be treated by 2010.

Determinants of MDG-related achievements in MAMS

MAMS was used to simulate the impact of alternative policies aiming at the achievement of the MDGs (see Chapter 3). A special module of this model links a set of socio-economic variables or determinants with the indicators used to monitor progress towards these goals. To quantify this link, a series of

elasticities needs to be estimated. For the case of Chile, the estimations have been documented in detail in O'Ryan and others (2007).[9] Below we provide a summary and justify the chosen values for these elasticities as these were used to calibrate the MDG module of MAMS.

Education

In MAMS, a series of macroeconomic and social variables are assumed to determine progress towards improving completion rates of primary education. Elasticities quantify the impact of these determinants of educational behaviour of individuals by educational category on achievement towards MDG 2. In the case of Chile, these were estimated using data from the Ministry of Education (children who passed, failed, graduated and enrolled in first year); information from the Ministry of the Interior (infant mortality at the district level, average public spending and investment per district); and the 2003 CASEN household survey.

From these data sets, it was possible to estimate the influence of the variables with the greatest effect on student enrolment and retention (that is, the decision to begin primary school at the correct age, passing a grade, and completing one cycle and going on to the next). Results show that public infrastructure provision and the reduction of infant mortality have only a minor impact on decisions to enter the school system or on later education-related behaviour. The main reason for this is that Chile has already achieved high rates of primary school enrolment and very low infant mortality rates. The wage premium and household consumption also have a relatively weak effect, but greater than that of the previously mentioned determinants.[10] Finally, the level of public spending in education per student comes out as a positive and significant determinant of decisions to enter the school system and for continuing in the system.

Data limitations, both in quantity and quality, did not permit full model specification and may explain the lack of sufficiently robust econometric results on the determinants of primary school performance. However, it was possible to make plausible inferences regarding the sign of the parameters and the range in which the values should move, which in most cases were consistent with the opinion of experts in the field of education. The final elasticities for the key relationships, plugged into MAMS, were based on a combination of the empirical results indicated above, the expert opinion on the relative importance of each factor in education-related decisions and a sensitivity analysis conducted with the CGE model.

MAMS also requires the estimation of a series of basic educational indicators, including average rates for students that pass a grade, drop out, repeat, continue their studies and graduate in each education cycle, as well as the number enrolled in each grade and cycle per year, children who enter first grade at age seven, and new students entering each educational cycle, among others. These indicators were computed with official information from the Ministry of Education (MINEDUC, 2005) and from CEPAL-UNESCO (2005).

Mortality

The determinants of mortality for children under five were estimated using district-level data for 2003 from the Ministry of Health and the 2003 CASEN survey. The results suggest there is a negative—yet not in all cases statistically significant—relationship between infant mortality and the following determinants: access to basic sanitation and drinking water, per capita household income (as a proxy for per capita consumption), average district levels of investment in health and some infrastructure variables like the number of primary health care units per capita. However, only the level of investment in health per district—used as a proxy for household spending on health for which no data were available—was found to be statistically significant.[11] For lack of better information, and considering that the sign and absolute and relative magnitudes of the estimated coefficients appeared plausible, the decision was made to use the estimated values as reported in O'Ryan and others (2007), but allowing for some adjustment following sensitivity analysis and consistent calibration of the full CGE model.[12]

The very low maternal mortality rate did not allow us to estimate the determinants that influence the reduction of that indicator with the required statistical rigour, so the decision was made to assume determinants and related elasticities are similar to those of child mortality, on the basis of a general understanding from international studies that there tends to be a high correlation between the determinants of trends in both mortality rates.[13]

In summary, in order to calibrate the MDG module of the MAMS model, it is assumed that all of the variables considered previously are weakly correlated with mortality among children under five and with maternal mortality. This assumption is reasonable for the Chilean case, since the mortality rate is very low (see Table 6.2), and corresponds to isolated cases generally associated with high risk situations and not to specific socio-economic variables.

Drinking water and basic sanitation

In order to quantify the influence of the determinants of drinking water coverage and those of access to sewage systems, data from the 2003 CASEN survey and statistics from the Ministry of the Interior (Infopais) were used. The elasticities obtained indicated that access to drinking water and sewage systems is positive and strongly correlated with total consumption of both services (1.13); and positive, but weakly correlated with public investment in sanitation services (0.025) and with per capita household consumption (0.096). In addition, the probabilities of having access to drinking water and sewage systems are very similarly correlated to the aforementioned determinants, which is not surprising given the high coverage of the two services in urban areas (see Table 6.2). The urban areas without coverage of these services tend to border on rural areas, so coverage in these areas may be expected to improve along with the expansion of drinking water and sewage networks in rural areas.

General equilibrium analysis

Progress towards the MDGs in Chile was examined by analyzing the general equilibrium results obtained through MAMS. In addition to the elasticities associated with the econometrically-estimated MDG models and another series of related parameters mentioned previously, MAMS for Chile was solved by using also the following sources of additional data: a Social Accounting Matrix (SAM); elasticities that characterize the behavioural relationships associated with decisions around trade, production, spending and savings; and the growth levels and rates of some exogenous variables. Having made due reference to these additional inputs for the calibration of the model, the rest of this section focuses on the analysis of the simulated scenarios.

SAM and additional data for model calibration

The SAM for Chile that was used to provide MAMS with an accounting framework was constructed for 2003 by updating an earlier SAM built around the 1996 input-output matrix (Central Bank, 2003).[14] The 2003 SAM provides a realistic picture of the structure of the Chilean economy in that year and its accounts follow the structure of the prototype matrix of MAMS (see Chapter 3). The matrix has a separate entry for the copper sector, however, given its importance in the Chilean economy and because copper is produced almost entirely for export. In MAMS, natural resources are specified where appropriate as an additional production factor and this feature was used in the specification of the production function for the copper sector in the model for Chile. Another peculiar characteristic of the Chilean SAM is that "water and sanitation" are provisioned through the private sector rather than the public sector, owing to the fact that this type of infrastructure has been either given in concession or has been privatized. Consequently, the public policy impact on water and sanitation goals has not been modelled. This does not affect the analysis of assessing the resources needed to achieve the MDGs, however, since the targets for water and sanitation were already met in 2003, well ahead of time. These and other details about the construction of the SAM, as well as the matrix itself, are presented in O'Ryan and others (2007).

The behavioural elasticities for trade, production, consumption and savings were derived from existing sources, including the elasticities used in the calibration of the ECOGEM-Chile model (O'Ryan and others, 2001, 2003, 2006), as well as those found in international literature. Some adjustments were made to the parameters derived this way during the calibration process of MAMS but ensuring that values were kept within possible and plausible ranges.[15] The model also uses a series of parameters and annual exogenous growth rates that are essential to its functioning. For example, for the definition of a baseline scenario under moderate economic growth assumptions introduced in

the following section, government expenditures grow 4.5 per cent annually, consistent with the performance of the six years preceding 2005 and existing projections (Central Bank, 2005). The labour force was calculated by economic activity and skill level based on information from the 2003 CASEN survey and assuming an average annual population growth of 1 per cent, consistent with demographic statistics provided by CELADE-CEPAL.

Baseline scenario

After calibrating and solving the model, two baseline scenarios were defined for MAMS for Chile, for the 2003-15 period. The great uncertainties in growth prospects and related uncertainties regarding the feasible growth of public spending are the main reasons to have two baselines. In the first, "moderate" baseline scenario, GDP and public spending are assumed to grow by 4.5 per cent per year, while in the second, "optimistic" baseline, both variables grow at the same rate by 5.5 per cent per year. MAMS's initial macroeconomic closure rules—used in all country studies of this volume—come into play in the generation of both baseline scenarios, and they only vary in the scenarios for reaching the goal of primary education which is analysed further below (see Chapter 3).

Table 6.3 shows the annual growth rates of key macroeconomic aggregates under both baseline scenarios. In the moderate baseline, the annual growth rate for domestic absorption is greater than that of GDP (4.8 per cent versus 4.5 per cent), consistent with stronger growth of imports than of exports and with an appreciation in the real exchange rate (by 3.5 per cent between 2003 and 2015). Foreign savings and substitution of domestic with external public

Table 6.3 Chile: initial value and annual growth rate of key macroeconomic aggregates in two baseline scenarios, 2003-2015

	Initial value in 2003 (billions of pesos)	Annual growth rate (per cent)	
		Moderate scenario	Optimistic scenario
GDP	50,731	4.5	5.5
Household consumption	31,230	4.9	5.8
Government consumption	6,314	4.5	5.5
Investment	10,769	5.1	6.3
Private	9,132	5.4	6.5
Public	1,638	3.3	5.1
Exports of goods and services	18,553	4.3	5.2
Imports of goods and services	16,529	5.0	6.1

Source: MAMS for Chile.

debt make it possible to maintain a robust growth in private consumption and investment in spite of the fiscal pressure which is also greater.

Production in the natural resources sector grows by more than average economic growth (5.2 per cent and 6.0 per cent, respectively, in the moderate and optimistic baseline scenarios) because of the higher relative profitability of this sector. The water and sanitation sectors would expand at a lower rate than the economy as a whole (2.6 per cent and 3.4 per cent, respectively), reflecting that most of the population in Chile has already been covered by these services. Output in most other activities (agriculture, industry and services) grows at more or less the same rate as the economy as a whole in both baseline runs. The provision of private health and education services expands at slightly higher than annual average growth rates (4.8 per cent and 5.3 per cent, respectively, for the two scenarios), owing to the above-par profitability of these private services.

As mentioned in the sixth section, the rate of unemployment did not fall in the 1999-2004 period. Depending on their skill level, workers were affected differently by unemployment. In 2003, for example, the unemployment rate of workers with only primary education was 6 per cent while that of workers with secondary and tertiary education was 9 per cent and 12 per cent, respectively, much higher than the "natural" rate of unemployment which has been estimated at around 5 per cent for the 1990s (MIDEPLAN 2005b). For this reason, and considering the strong influence of adjustments in employment and wages on poverty and income distribution, the labour market was modelled in detail, following the MAMS specifications, including the possibility of unemployment.

The composition of the labour supply depends on the level of schooling of the workers, who may be unskilled, semi-skilled or skilled, and is therefore determined by the graduation rates of each education cycle. If graduation from a particular educational cycle increases, the supply of the associated labour category increases and, *ceteris paribus*, the market rate for wages falls. The model assumes that there is a "reservation" (minimum) wage that is sensitive to changes in the employment rates by skill level. The higher the employment rate (or the lower the unemployment rate), the stronger the upward adjustment of the reservation wage for each labour category. Wages respond relatively slowly to changes in prices, according to the relationship established by other elasticities in the model (O'Ryan and others, 2007). In addition, the demand for labour (by occupational category) depends on output in each economic sector. After matching this demand with supply of labour, the model determines the degree of unemployment for each occupational category.

Figure 6.1 shows the change in unemployment for the two baseline scenarios. Unemployment rates for unskilled and semi-skilled workers drop abruptly in the first three years in both scenarios. This is broadly consistent with observed data for late 2006, which recorded an unemployment rate of 5.8 per cent for unskilled workers. The unemployment rate of 9 per cent recorded for semi-skilled

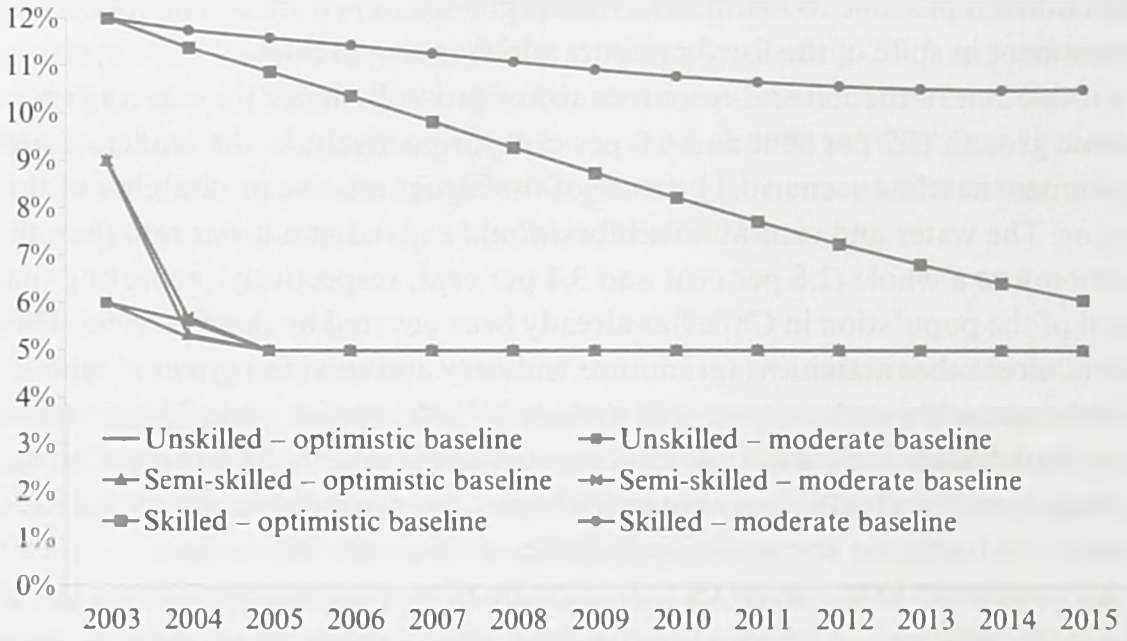

Figure 6.1 Chile: Changes in employment by type of worker in the two baseline scenarios, 2003-2015

Source: MAMS for Chile.

workers turned out to be a little greater than that predicted by the model's baseline. Unemployment among workers with the highest skill levels shows a somewhat different simulated trend: it falls gradually, though more substantially in the optimistic scenario. With an annual economic growth of 4.5 per cent in the moderate scenario, unemployment for skilled workers remains worrisome at above double digits in 2015.

Real wages increase throughout the simulation period in both baseline scenarios. Unskilled and semi-skilled workers gain in this sense. In the moderate baseline scenario, for example, their average remunerations grow by 6.7 per cent and 5.9 per cent per year, respectively, in contrast to the remuneration of skilled workers, which only grows by 0.2 per cent per year. At this pace, in 2015 the wage gap between unskilled and skilled workers decreases 9.7 times and that between semi-skilled and skilled workers falls 8.1 times as compared with the gap that existed in the base year.

These variations in labour incomes are explained by both supply and demand factors. As the average level of schooling rises, the growth in the supply of unskilled labour decelerates and starts falling short of demand for this type of workers. Their wages increase as a consequence. Increased demand for skilled workers keeps the wages for these workers from falling even as their supply increases with improved education outcomes. In the moderate scenario, the total number of employed people would rise from 5.9 million in 2003 to 6.8 million in 2015. The number of unskilled workers would remain constant at around 1.6 million, that of semi-skilled workers rises slightly (from 3.4 million to 3.6 million), while that of skilled workers would almost double (from 900,000 to 1.6 million).

Will the MDGs be reached with the assumed rate of growth in public spending in the baseline scenarios? As Table 6.4 shows, Chile's goals will be reached even before 2015 in both baselines, except for the target for primary education, which would be almost reached in the optimistic scenario, but fall somewhat short in the moderate baseline. This makes it possible to come to a first and important conclusion: considering the expected growth rates for the country and the public policies that have been applied for more than 15 years now, almost all of the internationally set MDG targets have already been achieved or are within close reach in Chile.

Table 6.4 Chile: achieving the MDGs in the two baseline scenarios[a]

Goal	Moderate scenario	Optimistic scenario
Primary education	98.1%	99.2%
Under-five child mortality	Reached in 2006	Reached in 2006
Maternal mortality	Reached in 2005	Reached in 2005
Water	Reached in 2008	Reached in 2007
Sanitation	Reached in 2008	Reached in 2007

Source: MAMS for Chile.

[a] MDG 1 for extreme poverty is examined in detail in the following section.

Policy scenarios for achieving the MDGs

This section looks at scenarios that are alternatives to the baseline scenarios, in which increased public spending and its financing will assure that all MDGs will be reached. In Chile's case, the exercise is relevant only for the target for primary education, which, as mentioned, is not met in the baseline scenarios. The results of these scenarios are only examined with respect to the moderate baseline scenario, since the results of the MDG scenario differ very little from those obtained by the more optimistic baseline. While the model allows consideration of four alternative mechanisms for financing the new public spending required to reach the goals, only increases in direct taxes or internal borrowing are considered relevant options in the case of Chile.[16]

The results of these new scenarios are detailed in Appendix A6 (Table A6.1). In terms of the main components of the output on the demand side, it can be seen there is very little variation with respect to the baseline scenario. Results also show that the greater public effort required to achieve the goal here set for MDG 2 has only minor repercussions on the rest of the economy given that Chile is so close to meeting this goal. The simulation results also suggest there would be a small reduction in the average GDP growth rate for the period with respect to the baseline scenario, which is explained by the "crowding-out effect" of increased public spending on private consumption in the case of the tax-financing scenario, or of private investment in the case of domestic borrowing. As Figure 6.2 shows, the final consumption spending of the government must be frontloaded—to immediately enrol those children at the relevant age for primary school—at a rate

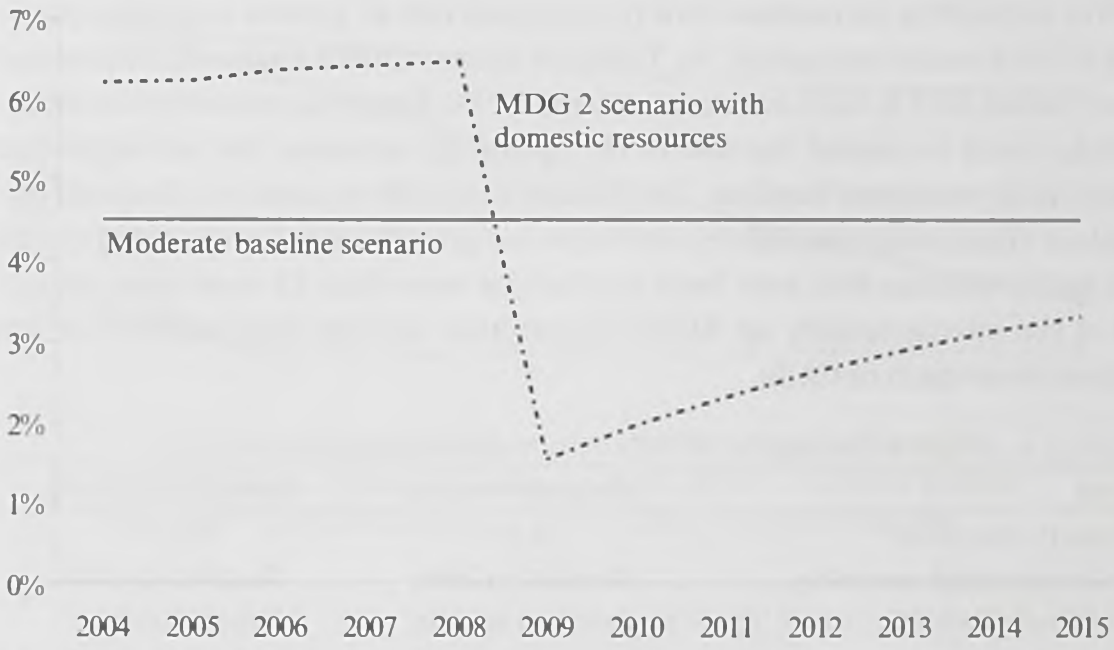

Figure 6.2 Chile: Growth of final government consumption spending in the "moderate" baseline and MDG 2 scenarios
Source: MAMS for Chile.

that is two percentage points per year higher than in the baseline during the first five years of the simulation period (2004-08), after which it can grow at lower rates. If the official social discount rate is applied,[17] the additional final consumption spending of the government aimed at meeting the primary education goal for 2015 comes out 2.3 per cent higher than that of the baseline scenario. Public investment would also need to increase—in tandem with frontloaded final consumption spending—at a rate slightly above that of the moderate baseline scenario through the year 2008 in order to converge to the baseline path thereafter. During that 2004-08 period of spending frontloading, public investment increases on average by almost 1 per cent per year. Relative to GDP, the additional required public spending (with respect to the baseline scenario) to achieve the education goal is minimal, amounting to just 0.003 per cent per year.

Nonetheless, under the tax-financing scenario there would be a visible impact on direct tax rates. In order to reach the goal for primary education, direct tax revenue must increase in the first five years of the simulation period (through 2008), after which this source of government income could be allowed to gradually fall again. Direct tax revenue should be 22 per cent higher on average during the 2005-10 period as compared with the baseline. In the subsequent period of five years till 2015, they could be allowed to drop on average by 6 per cent with respect to the baseline. As a result, direct tax income would need to be 8.5 per cent higher than in the baseline on average for the whole period. Should this apparently strong impact on direct taxes be considered politically less desirable, the alternative would be to try and finance the strategy towards achievement of MDG 2 through domestic borrowing. This option would not increase

outstanding public debt substantially and would not affect economic growth or consumption any differently than in the tax-financing scenario.

Turning to the dynamics of the labour and capital markets, the moderate baseline suggests that by 2015 a slight substitution of capital for labour would have taken place, mainly benefiting unskilled and semi-skilled workers, as compared with the base year 2003 (see Table 6.5). As this leads to a rise in wages for these categories of workers, the policies and growth patterns currently in place would tend to close existing wage gaps. In the scenarios in which the primary education goal is achieved, there is a slight, but further increase in the income share of unskilled labour and there is also a slight increase in the share of capital with respect to the baseline. These shifts would be to the detriment of the income share of skilled workers. The shifts are mainly on account of a reduction in the supply of unskilled labour following further progress towards the education target. This puts upward pressure on the wages of unskilled workers and this effect dominates the employment effect.

Table 6.5 Chile: structure of factor incomes in the base year and in 2015 in the moderate baseline and MDG 2 scenarios (percentage)

	Unskilled workers	Semi-skilled workers	Skilled workers	Capital
Base year (2003)	5.8	14.4	24.3	55.5
Baseline scenario (in 2015)	7.2	17.7	24.3	50.8
MDG 2 scenario with direct taxes or domestic borrowing (in 2015)	7.3	17.7	23.8	51.2

Source: MAMS for Chile.

Minimum growth requirements for achieving the MDGs

The previous evaluations assume that the annual growth rate of the economy is 4.5 per cent. MAMS for Chile was also used to explore alternative, more pessimistic, baseline scenarios. It is found that there are two economic growth rates that mark the difference as to whether the MDGs will be met or not (see Table 6.6). Should the economy grow at 3.5 per cent per year, all of the goals can still be met except that associated with MDG 2 (as well as that of eradicating extreme poverty, as explained ahead). As shown above, achieving MDG 2 requires an economic growth rate higher than that of the most optimistic scenario in the absence of additional public policy action. If average annual growth is between 1.5 per cent and 3.5 per cent, the goals for water and sanitation would no longer be met. If the economy grew at less than 1.5 per cent per year, the under-five mortality rate would also not be met. These results show the importance of assuring high and sustained growth rates, which should also allow an increase in social spending in order to facilitate achievement of the agreed upon development goals.

Table 6.6 Chile: progress towards the MDGs by 2015 under different baseline assumptions for economic growth[a]

	Base year (2003)	Target for 2015	Annual GDP growth rate (%) in the baseline scenario							
			1.0	1.5	2.0	2.5	3.0	3.5	4.5	5.5
Percentage of children who begin primary school and complete it on time	81.6	100.0	90.0	92.0	93.0	95.0	96.0	97.0	98.0	99.0
Under-five mortality rate (per 1,000 live births)	10.0	6.0	7.0	6.0 (2015)	5.0 (2011)	5.0 (2009)	5.0 (2008)	5.0 (2008)	5.0 (2007)	5.0 (2007)
Maternal mortality rate (per 100,000 live births)	19.0	10.0	10.0 (2005)	10.0 (2005)	10.0 (2005)	10.0 (2004)	10.0 (2004)	10.0 (2004)	10.0 (2004)	10.0 (2004)
Percentage of households with access to drinking water.	98.0[b]	99.0[b]	97.2	97.5	98.0	98.5	98.9	99.2 (2011)	99.4 (2008)	99.5 (2007)
Percentage of households with access to basic sanitation	94.4	97.2	92.2	93.2	94.4	95.6	96.8	97.8 (2011)	98.9 (2008)	99.4 (2007)

Source: MAMS for Chile.

[a] The year in which the target is achieved is in parentheses.

[b] Since the goal was reached in 2003, and given the most pessimistic indicator for that year (99.1%), the maximum gap for achieving the 100% goal was established as one percentage point. Because of this, and with the goal of facilitating a convergence in the scenarios simulated through MAMS, 98% coverage was established as a starting point with a goal of increasing it by one percentage point by 2015.

MDG achievement as a legacy of the bicentennial

In the year 2010, Chile will celebrate the bicentennial of the constitution of the first Governing Board *(Junta de Gobierno)*. This is serving as a milestone for achievements of public policies. In this context, the spending requirements for reaching all of the MDGs by the end of 2010, and the economic impact of doing so, has also been examined. The moderate baseline scenario, in which the economy grows by 4.5 per cent annually, is used as a reference for this exercise. The analysis is focused on reaching the primary education goal since the other goals are expected to have been reached before 2010.

In order to reach the primary education goal in 2011, public spending in education must be frontloaded in even greater amounts starting from the first year of the simulation period (2004), considering the primary education cycle lasts eight years. With this spending frontloading, the share of government consumption in GDP increases almost two percentage points in the 2003-05 period and should remain higher than that of the baseline scenario through 2011. The fiscal adjustments required in 2004 are significant: government consumption spending must increase by 33 per cent and public investment by 40 per cent with respect to 2003.

When the spending is financed with domestic resources (direct taxes or borrowing), a "crowding-out" effect is observed with greater public spending, reducing private consumption especially during the first years. Private consumption would fall as a share of GDP by almost two and a half points in the 2003-05 period and by a little more than one point between 2005 and 2010. Both GDP and domestic absorption show an average growth similar to that of the baseline scenario.

Finally, results show that speeding up the achievement of MDG 2 to 2011, in addition to requiring a greater public effort, would generate a slight delay in the achievement of the other goals if financed through domestic resource mobilization. For example, MDG 4 could have been reached in 2007 instead of in 2006 if the primary education target would have been reached earlier. A similar delay would apply in the case of the target associated with MDG 5, but not in the case of water and sanitation.

Impact on poverty and income distribution

In order to examine the distributive impacts of the various scenarios, the microsimulation methodology described in Appendix A2.1 from Chapter 2 was applied. The 2003 CASEN survey (MIDEPLAN, 2005b) provided the micro dataset for implementing this methodology. Several poverty lines were used to estimate alternative poverty measures once the full distributive impacts had been accounted for: one dollar a day at PPP (308 Chilean pesos a day at the 2003 exchange rate); two dollars a day at PPP (615 Chilean pesos a day at the 2003 exchange rate); the

national extreme poverty line (20,000 Chilean pesos a month); and the national moderate poverty line (38,000 Chilean pesos a month).[18]

Baseline scenarios

The target for MDG 1 is to reduce by 50 per cent extreme poverty measured through the international poverty line of one dollar per day at PPP between 1990 and 2015. For Chile, this means reducing the extreme poverty incidence from 3.2 per cent to 1.7 per cent of the population. By 2003, extreme poverty by that measure had decreased to 2.5 per cent. As Table 6.7 shows, the target is met quite easily under the two baseline scenarios as the extreme poverty incidence would fall to 0.9 per cent in 2015. There would be an equally strong reduction in the other poverty indicators. For example, when measured with the 2-dollar-a-day poverty line, the poverty incidence would drop by 7.4 and 7.5 percentage points, respectively, in the moderate and optimistic baseline scenarios. This means that maintaining the already existing social policy efforts in Chile, as well as the projected growth rates, would be sufficient to achieve the MDG goal for extreme poverty.

The reduction of poverty in the moderate scenario is explained by increases in both per worker labour income and per capita household income of around 5 per cent per year. It is notable that the annual growth in labour income for women (5.3 per cent) is higher than average, surpassing the rate of labour income growth for male workers by 0.5 percentage points.

As shown in the previous section, total employment grows at an annual average rate of 1.2 per cent and job growth for skilled workers is faster than that for semi-skilled and unskilled workers (4.4 per cent, 0.5 per cent and 0.0 per cent,

Table 6.7 Chile: poverty and income distribution in the base year and in 2015 in the baseline scenarios

		2015	
Indicators for poverty and inequality	**Base year (2003)**	**Moderate scenario**	**Optimistic scenario**
Incidence of poverty (% of the population)			
1-dollar-a-day poverty line at PPP	2.50	0.90	0.90
2-dollar-a-day poverty line at PPP	9.33	1.93	1.80
Gini coefficient			
Labour income	0.54	0.49	0.48
Per capita household income	0.56	0.47	0.46
Average monthly labour income (Chilean pesos)	285,820	512,865	588,327
Women	218,993	409,224	467,724
Men	325,975	575,142	660,797
Average monthly per capita household income (Chilean pesos)	113,660	202,920	234,146

Source: MAMS for Chile and microsimulations using the 2003 CASEN survey.

respectively). As a result, wage growth for unskilled and semi-skilled workers is stronger than that for skilled workers.

These simulation results may seem optimistic, but are consistent with the results of the more recent 2006 CASEN survey, which reveals a notable decline in poverty indicators as well as improvements in the income distribution. In fact, between 2003 and 2006, poverty measured through the national poverty line fell from 18.7 per cent to 13.7 per cent, and the Gini coefficient for per capita household income (before transfers) fell from 0.57 to 0.54.

Poverty and income distribution effects of achieving MDG 2

No matter which financing mechanism is used, achieving the target for primary education would only slightly change the results of the (moderate) baseline scenario for poverty and income distribution. Inequality as measured through the Gini coefficient of per capita household income would fall slightly, reaching 0.46 in 2015 compared with 0.47 in the baseline. The incidence of poverty measured using the one-dollar-a-day poverty line would fall to 0.80 per cent by 2015 compared with 0.85 per cent in the baseline and to 1.9 per cent (compared with 1.93 per cent in the baseline) when measured by the two-dollar-a-day poverty line. These outcomes are mainly driven by further improvements in the real wages of unskilled and semi-skilled workers. Thus, the increase in public spending associated with achieving the primary education target strengthens the positive effects of the baseline scenario to some extent.

Conclusions and policy recommendations

Chile has made visible progress towards the MDGs since 1990, specifically in the areas of poverty eradication, access to primary education, reduction of child and maternal mortality and access to drinking water and sewage systems. The fact that Chile has enjoyed both macroeconomic and political stability since the 1990s has contributed significantly to this progress. Increased public spending, especially through targeted social spending, during this period of democratic governments has also been fundamental. The better targeting of social spending is especially essential for understanding the progress made thus far in Chile and for the results it hopes to achieve by the year 2015.

Given that it is not easy to maintain high economic growth rates for a prolonged period of time, this study looked at the evolution of MDG indicators under alternative growth scenarios. A scenario of a moderate GDP and public expenditure growth of 4.5 per cent is seen as consistent with Chile's policy of fiscal austerity and structural budget rule, which closely links the evolution of both variables in order to maintain macroeconomic stability.

The conclusion that emerges from the results of the moderate growth scenario is that the MDG targets, except for one, will almost definitely be achieved if the

current public policy is maintained. The primary school completion rate would reach 98.1 per cent by 2015 in this scenario, just short of the target. The targets set for the other goals would be met during the first few years of the simulation period. In other words, if they have not been met yet, the goals are well within reach in the case of Chile.

The situation at the starting point for the model, the year 2003, goes a long way towards explaining these results. Increased social spending and reforms in education have opened up great opportunities, in particular for the poorest sectors of the country. In terms of access to primary and secondary education, Chile's indicators are quite satisfactory. There are a few pending issues to deal with, however. One is the fall in retention and graduation rates observed in recent years. Another is that the quality of education services must be improved, especially in the case of public schools. Indicators are also showing a lack of access to preschool education.

Significant progress has also been made in reducing child and maternal mortality in the last decade. According to the modelling exercise carried out, the MDG targets for reducing maternal and child mortality will be met within three years from the base year, if current policies are continued. Chile's increase in health system coverage and the high level of births attended to by professionals, among other things, lead us to believe that current mortality rates are explained in large part by situations of specific vulnerability (for example, extremely premature births in the case of child mortality and complications in pregnancy or miscarriage in the case of maternal mortality). In order to improve the mortality rates beyond the MDG targets, additional policies targeted at high-risk groups would be required. The costs of enacting these more focused and specialized interventions would be exponentially higher. Unfortunately, the aggregate modelling used in this study cannot be used to determine whether Chile should spend its resources towards this objective or if it should use its resources for other social priorities.

Soon there will be 100 per cent coverage and access to potable water in both urban and rural areas. In fact, the baseline scenario of moderate growth suggests that Chile should have reached the targets for drinking water and sewage systems by 2008. In addition, one of the main achievements since the 1990s has been the spectacular increase in wastewater treatment. This service reached around 80 per cent of the population in 2005, even though coverage was close to zero just a decade earlier. Current policies aimed at reaching a coverage of 95 per cent of the population by 2010.

The percentage of poor people living on less than one dollar a day in 1990 decreased significantly to around 2.3 per cent of the population by 2003. This is not only quite low by Latin American standards, but it is also very close to the target for 2015 (1.7 per cent). In spite of economic growth and targeted policies, however, income distribution has remained highly skewed in Chile and ranks

among the least equal in Latin America. Between 2003 and 2006, there was only a small reduction in inequality.

The baseline scenario of moderate growth shows that the percentage of the population with income of less than one dollar a day has been substantially reduced. In fact, findings show that it will drop to 0.9 per cent by 2015, so it appears that the target for extreme poverty can be easily met if economic growth can be sustained, at least at a moderate pace. Importantly, income inequality at the household level falls under the simulated scenarios, suggesting a possible break with historic trends of unchanged, high inequality. Both of these results can be explained by two important effects in the labour market. One is an expected increase in the demand for labour in the most dynamic sectors of the economy, generating a decline in the rate of unemployment. On the supply side, the simulation results project a relative stagnation in the supply of unskilled labour and a rapid increase in the supply of skilled labour. As a result, the wages of unskilled and semi-skilled workers rise at an annual average rate that is higher than that of workers with higher skill levels. This also allows for an increase in the average wage level and for a reduction in the wage gap between skilled and less skilled workers.

These results depend a great deal on the assumed rates of growth of GDP and public spending. If public spending were to drop below 3 per cent per year, the targets for coverage of drinking water and sanitation would not be met with existing patterns of resource allocation. If economic growth were to fall to, say, 1 per cent per year, the target for reducing the child mortality goal would no longer be met either.

Reaching the target for primary education would require a small increase in public spending compared with the moderate baseline scenario, and the related increase in government expenditures would only have modest macroeconomic repercussions. The required increase in taxation to finance the new spending would be quite significant, though, suggesting the government may prefer to resort to domestic borrowing instead in order to mobilize the required additional resources. The MDG 2 scenario does not alter to any significant degree the outcomes for income distribution of the moderate baseline scenario, though it does help to reduce poverty a slight bit further.

Given this auspicious panorama, it is worth asking whether Chile might be able to achieve its primary education goal ahead of time, for example by the time of its bicentennial (end of 2010). The modelling shows that, if this were to happen, the other targets would still be met before the bicentennial, though some of them might be achieved one year later. However, the immediate fiscal cost would be quite significant due to significant frontloading of additional spending and could, with time, destabilize public finances.

In summary, Chile does not require much additional public spending to meet the MDGs. Public spending and GDP would by and large suffice if it continues

to grow at current rates until 2015. To also achieve the primary education goal, some additional efforts are needed in that area over the next few years. At the same time, future analysis and policy discussions should expand beyond the modelling of this study to include such aspects as: the insertion of women in the labour market; improvements in access to public health services and in the quality of (public) education; and the promotion of sustainable development.

Appendix A6

Table A6.1 Chile: detailed results of the moderate baseline and MDG 2 scenarios under different forms of financing, 2003-2015

		MDG 2 scenario with:		
	Baseline scenario	**direct taxes**	**external borrowing**	**domestic borrowing**
Key macroeconomic aggregates (annual average growth rate for 2003-2015)				
GDP at factor cost	4.53	4.51	4.53	4.51
Total absorption	4.8	4.8	4.7	4.8
Household consumption	4.9	4.9	4.9	4.9
Government consumption	4.500	4.105	4.117	4.105
Investment	5.1	5.0	5.0	5.0
Private	5.4	5.3	5.3	5.3
Public	3.3	3.1	3.1	3.1
Exports of goods and services	4.3	4.3	4.4	4.3
Imports of goods and services	5.0	5.1	5.0	5.1
MDG-related public spending (percentage of GDP in 2015)				
Final consumption				
Primary education	2.1	1.5	1.5	1.5
Health	2.5	2.5	2.5	2.5
Water and sanitation	0.0	0.0	0.0	0.0
Investment				
Primary education	0.01	0.01	0.01	0.01
Health	0.01	0.10	0.10	0.10
Water and sanitation	0.00	0.00	0.00	0.00
Savings and financing (percentage of GDP in 2015)				
Revenues from direct taxes	5.7	5.0	5.7	5.7
Government savings	2.3	2.2	2.8	2.7
External savings	1.5	1.5	0.9	1.5
Government domestic borrowing (flow)	0.1	0.1	0.1	-0.4
Government foreign borrowing (flow)	0.3	0.3	-0.2	0.3

Table A6.1 (cont'd)

	Baseline scenario	MDG 2 scenario with: direct taxes	external borrowing	domestic borrowing
Public domestic debt (stock)	6.2	6.2	6.2	11.3
Public foreign debt (stock)	7.7	7.7	12.1	7.7
Labour market (Annual average growth rate for 2003-2015)				
Employment	1.2	1.1	1.1	1.1
Unskilled workers	0.0	-0.1	-0.2	-0.1
Semi-skilled workers	0.5	0.6	0.6	0.6
Skilled workers	4.6	4.4	4.4	4.4
Wage per worker	4.4	4.3	4.3	4.3
Unskilled workers	6.7	6.9	7.0	6.9
Semi-skilled workers	5.9	5.8	5.9	5.8
Skilled workers	0.2	0.1	0.1	0.1

Source: MAMS for Chile.

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Notes

1 Economic growth was spectacular between 1989 and 1998 when the country grew at a remarkable rate of 8 per cent per year.

2 Unemployment among workers with tertiary education is considerably higher than the national average and reached 12.5 per cent in 2003. Unemployment among unskilled and semi-skilled workers, on the other hand, was 6 per cent and 10 per cent respectively (MIDEPLAN, 2005b). The unemployment rate for youth (workers between 15 and 24 years of age) is double the average, reaching 17.5 per cent in 2005. Furthermore, a breakdown shows a high level of inequality according to income levels and gender; the poorest quintile has an unemployment rate of 39 per cent and women have 30 per cent higher probability of becoming unemployed than men (ECLAC, 2006a).

3 Even though the methodologies used to measure poverty are not strictly comparable for those two years, there is no doubt that there has been a significant reduction in poverty as measured through the nationally defined poverty line.

4 Basic education includes basic primary education (1st to 6th grade, according to the CINE-97 classification) and the first two years of secondary education (7th and 8th grades). It is worth highlighting that the net enrolment rates for Chile at the primary school level tend to be systematically lower than those of most countries. This is because the annual school cycle begins in early March but children turning six after March 31st would not be allowed by Chilean law to enroll in 1st grade until the following year. Therefore, the low net enrolment rates recorded do not necessarily mean that children are not incorporated into the education system (MIDEPLAN, 2005a).

5 CEPAL (2005b) also warns that the number for Chile underestimates the net primary school enrolment rate by around ten percentage points because the cohort it uses in its calculation includes all 6 year old children but according to current laws, most children turn seven while they are in first grade.

6 One result of greater access to education for the poorest sectors is that in the first decile, youth between the ages of 15 and 24 have 2.5 times more years of study than their grandparents and 1.5 times more than their parents. In terms of gender equity, the enrolment of girls in high school is 1.02 times greater than that of boys. At the level of higher education, the ratio of women to men grew from 0.81 to 0.87 between 1990 and 2000.

7 A report of the OECD (2004) provides a complete and independent evaluation of educational policies in Chile since 1990, identifying the primary problems and making a series of short-, medium- and long-term recommendations.

8 CEPAL (2005b) estimates a much lower coverage, with 59 per cent of the rural population having access to drinking water in 2002.

9 Microeconometric estimations were carried out to select the values of the key elasticities of the MDG module of MAMS. The data utilized came from the 2003 CASEN socioeconomic determination survey and from the data bases of the Ministry of Health (MINSAL), Ministry of Education (MINEDUC) and Ministry of Development and Planning (MIDEPLAN). The best information available was used to confirm the ranges in which these parameters likely move.

10 A study by Sapelli and Torche (2004) concludes that the income variable is a significant determinant but with little influence on drop-out rates.

11 The use of aggregate data at the district level and the already low infant mortality rates in Chile explain, in large part, the results obtained.

12 Castañeda (1985) evaluates the determinants of the decrease in infant mortality rates in Chile between 1975 and 1982, showing results that are consistent with those used.

13 For more detail, see MIDEPLAN (2005b).

14 A new input-output matrix for 2003 was published in 2006, but it was not yet available when this study was being conducted. The 1996 SAM, on the other hand, was carried out in the framework of the ECOGEM-Chile project (for more details, see O'Ryan and others, 2001, 2003, 2006).

15 The values of all elasticities and other key parameters used in MAMS for Chile are documented in O'Ryan and others (2007).

16 The scenario of financing through foreign aid is not realistic given the relatively high level of Chile's development. At the same time, it is also believed that it would not make much sense to finance the new public spending required through external debt, since there is already a high level of achievement of the goals in the baseline scenario.

17 MIDEPLAN applies a discount rate for the evaluation of the social impact of projects of 8 per cent.

18 The two national lines were calculated as the population weighted average of the urban and rural poverty lines established by MIDEPLAN.

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