Annex A

The main socioeconomic trends underlying the analysis

The socioeconomic trends that form the basis for the baseline and counterfactual simulation projections in this report are described in OECD (2015). Here, the most relevant information is reproduced.

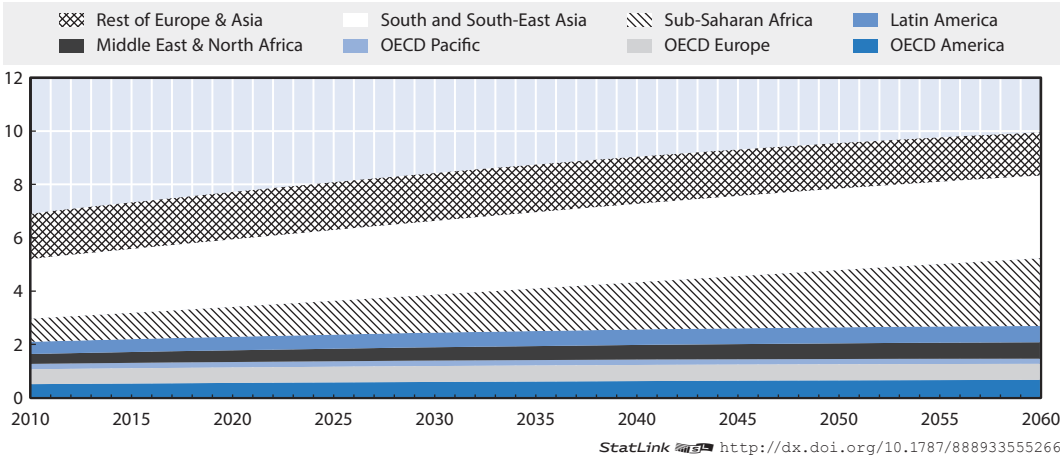
A baseline projection is characterised by an absence of new climate policies, the continuation of current policies for other policy domains (including energy) and plausible socio-economic developments, including demographic trends, urbanisation and globalisation trends.[1] A baseline projection is not a prediction of what will happen, but rather a plausible scenario describing a certain storyline for how these key trends affect future economic development in the absence of unexpected shocks. Chateau et al. (2011) describe the baseline calibration procedure in more detail, although the numerical calibration of the model has since been updated to reflect more recent data.

Demographic trends play a key role in determining long run economic growth. Projections of detailed movements in population by gender, age and education level determine future employment levels and human capital that drives labour productivity. While population and employment are correlated, the regional trends are differentiated by changes in participation rates for specific age groups (most prominently for people over the age of 65), changes in unemployment levels and changes in the age structure of the population (including aging).

Figure A.1 presents the baseline projection (excluding climate feedbacks) of total regional population, based on the medium variant projection of the United Nations' World Population Prospects database (UN, 2013) and EUROSTAT (2013) for European countries.[2] At global level, population will increase from around 7 billion people in 2010 to almost 10 billion people in 2060. Despite the large increase, population growth by the middle of the century is projected to be substantially lower than it currently is. While this is true in most world regions, population keeps increasing at a steep rate in Sub-Saharan Africa.

GDP growth is influenced by changes in labour, man-made capital and the use of land resources. In all cases, GDP growth is driven by a combination of increased supply of the production factors, changes in the allocation of resources across the economy, and improvements in the productivity of resource use (the efficiency of transforming production inputs into production outputs). Table A.1 shows the average GDP growth rates for the current decade (2010-20), the medium term (2020-40) and the long term (2040-60). In most countries, short-term growth is primarily driven by a variety of sources, depending on the characteristics of the current economy. These short-term projections are based on the official forecasts made by OECD (2014) and IMF (2014). In the longer run, a transition emerges towards a more balanced growth path in which labour productivity as a driver of economic growth is matched by increases in capital supply.

Figure A.1. **Trend in population by region, baseline projection**
(Billion people)



StatLink http://dx.doi.org/10.1787/888933555266

Source: UN (2013) as used in the ENV-Linkages model.

Table A.1. **Economic growth over selected periods by region**
(Average annual percentage GDP growth rates)

	2010-20	2020-40	2040-60
OECD America			
Canada	2.2	2.0	1.9
Chile	4.7	2.4	1.4
Mexico	3.6	3.4	2.5
USA	2.4	1.9	1.5
OECD Europe			
EU large 4	1.5	1.6	1.3
Other OECD EU	1.9	2.0	1.3
Other OECD	3.6	2.6	1.7
OECD Pacific			
Aus. & New Z.	3.2	2.6	2.1
Japan	0.9	1.0	1.1
Korea	4.0	2.3	0.6
OECD	2.2	1.9	1.5

	2010-20	2020-40	2040-60
Rest of Europe and Asia			
China	7.6	4.2	1.6
Non-OECD EU	2.2	2.5	1.7
Russia	3.6	2.1	0.9
Caspian region	6.3	4.8	2.6
Other Europe	2.4	3.3	2.0
Latin America			
Brazil	3.3	3.0	1.8
Other Lat.Am.	3.6	3.7	3.1
Middle East & North Africa			
Middle East	3.4	3.7	2.3
North Africa	3.9	4.9	3.2
South and South-East Asia			
ASEAN 9	4.8	4.2	3.1
Indonesia	6.1	4.6	3.3
India	6.6	5.8	3.6
Other Asia	4.2	4.2	3.7
Sub-Saharan Africa			
South Africa	4.9	4.2	1.9
Other Africa	5.9	6.5	6.0
World	3.5	3.1	2.2

StatLink http://dx.doi.org/10.1787/888933555418

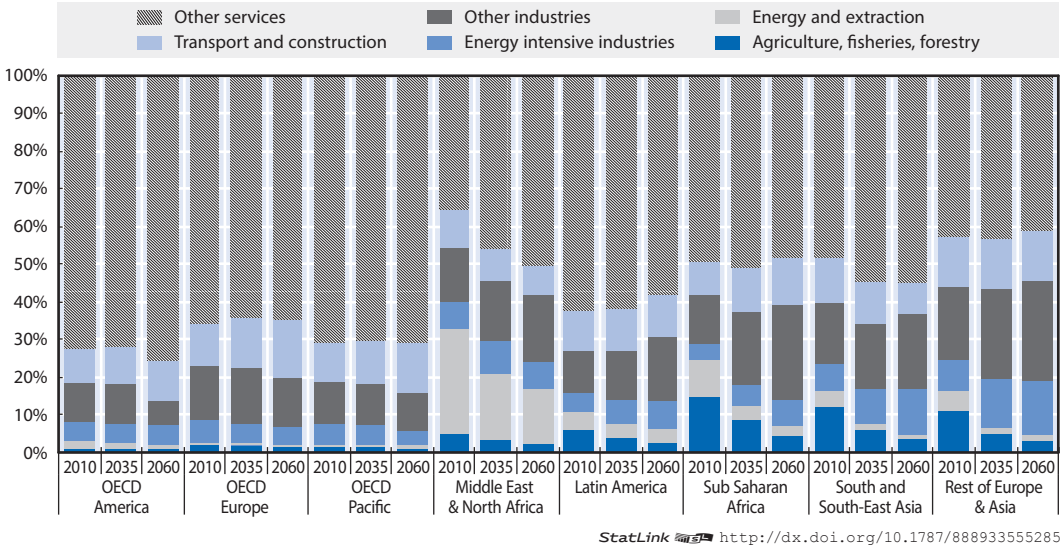
Source: OECD (2014) for OECD countries and ENV-Linkages model for non-OECD countries.

Table A.1 illustrates the main trends in economic development for the coming decades: continued slower growth in the OECD than in non-OECD countries (with a few exceptions), declining growth rates in emerging economies and relatively strong growth in Africa and most other developing countries.

For an understanding of the future economy, it does not suffice to look at the macro economy only. To name just a few examples, projected productivity increases vary between different sectors, increasing incomes imply a change in demand for various goods, there will also be changes in the preferences of consumers, and international trade patterns may gradually adjust to stabilise trade balances.

Figure A.2 shows how the sectoral structure in the OECD economies evolves, with the services sectors accounting for more than half of the GDP (i.e. value added) created in the future OECD economies. Generally, the shares of the various sectors in the economy tend to be relatively stable, although there are undoubtedly many fundamental changes at the sub-sectoral level that are not reflected here. The major oil exporters in the Middle East and northern Africa are projected to gradually diversify their economies and rely less on energy resources. In developing countries the trend for a decline of the importance of agriculture is projected to continue strongly. Given the high growth rates in many of these economies, this does not mean an absolute decline of agricultural production, but rather an industrialisation process, and, in many cases, a strong increase in services.

Figure A.2. **Sectoral composition of GDP by region, baseline projection**
(Percentage of GDP)



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Source: ENV-Linkages model.

Notes

1. More specifically, any policy that is not yet fully implemented, or that still requires an effort to be reached, is not included in the baseline. This assumption is only to provide a reference point for the assessments of the costs of inaction and the benefits of policy action, and does not reflect a view on the state of current climate policies.

2. Alternative population projections are available for the SSP scenarios (KC and Lutz, 2015); for example, in the medium SSP2 scenario, there is a stronger effect of female education on fertility than assumed here, leading to lower population levels later in the century. Using different population projections may substantially affect the numerical analysis in this chapter.

References

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