Measuring Well-being in Mexican States

OECD

OECD Better Life Initiative

Measuring Well-being in Mexican States

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BETTER POLICIES FOR BETTER LIVES

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Please cite this publication as:
OECD (2015), *Measuring Well-being in Mexican States*, OECD Publishing, Paris.
http://dx.doi.org/10.1787/9789264246072-en

ISBN 978-92-64-24606-5 (print)
ISBN 978-92-64-24607-2 (PDF)

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Foreword

Local circumstances affect individual well-being, the cohesiveness of societies and opportunities for a better future. With the How's Life in Your Region project, a part of the Better Life Initiative, the OECD launched in 2014 an innovative approach to measuring the quality of life at regional and local levels and understanding what needs to be done to achieve greater progress for all.

Well-being indicators are a powerful instrument for helping governments identify where improvements are needed, prioritise areas for public intervention, and, ultimately, build trust in the ability of governments to bring change and improve people's lives.

Mexico is the first country to have used the OECD Regional Well-Being Framework to develop objective and subjective indicators for twelve dimensions covering material conditions and quality of life for the 31 Mexican states and the Federal District. This report provides evidence on well-being trends and drivers, disparities across states, and specific snapshots for each Mexican state. It uses the twelve well-being dimensions and 35 indicators chosen by the National Institute of Statistics and Geography of Mexico (INEGI) in consultation with state representatives and other federal agencies.

The report offers a useful basis for better understanding local assets and constraints for regional development in Mexico. It also discusses how these data can help shape the policy debate and reformulate local and national policies.

Beyond the benefits for Mexico, this project can provide an example for other countries wanting to pursue a similar comprehensive approach to understanding drivers of well-being in their countries and measuring disparities within their regions.

Acknowledgements

This report is part of the work on How's Life in Your Region? produced by the OECD Public Governance and Territorial Development Directorate under the leadership of Rolf Alter and its Regional Development Policy Division led by Joaquim Oliveira Martins. The report was made possible through the support of the National Institute of Statistics and Geography (INEGI) of Mexico.

The OECD Secretariat is grateful to the co-ordinating team at INEGI, led by Norberto Roque Díaz de León, and including Alberto Ortiz Trillo, Oscar Gasca Brito and Jessica Meléndez Contreras. The Secretariat would also like to acknowledge the representatives of the Mexican states in the National Advisory Board of the National System of Statistical and Geographic Information, Arturo Jaramillo Díaz de León, David Rogelio Campos Cornejo, Orlando Muñoz Flores, Susana Saldaña Cavazos and Ricardo Becerra Laguna, who shared perspectives with the OECD delegation at the INEGI-hosted workshop on 20 May 2015 and co-ordinated the consultation with the Mexican states' authorities. Special thanks to Martha Moreno Pérez and Enrique Minor Campa from the National Council for the Evaluation of Social Development Policy (CONEVAL) for providing the data on poverty and their valuable comments to the manuscript. The OECD Secretariat would also like to thank Paola Gadsden de la Peza from the Ministry of Finance of the State of Morelos and Roberto Martínez, Head of the OECD Mexico's Centre.

This report was co-ordinated by Monica Brezzi and drafted by Monica Brezzi and Marcos Aurelio Díaz Ramírez from the Regional Development Policy Division of the OECD Directorate of Public Governance and Territorial Development. Matteo Mazziotta and Adriano Pareto (National Statistical Office of Italy) contributed to Chapter 3. Eric Gonnard and Daniel Sánchez Serra are kindly acknowledged for their help with the data. The manuscript has benefited from comments from OECD colleagues and national delegates to the OECD Working Party on Territorial Indicators.

Jennifer Allain, Ulrike Chaplar and Jennifer Kilbourne are kindly acknowledged for preparing the manuscript for publication.

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Acronyms and abbreviations

BIARE	Self-reported well-being survey *Módulo de Bienestar Autorreportado*
CNPV	National Population and Housing Census *Censo Nacional de Población y Vivienda*
CONAPO	National Population Council *Consejo Nacional de Población*
CONEVAL	National Council for the Evaluation of Social Development Policy *Consejo Nacional de Evaluación de la Política de Desarrollo Social*
ENIGH	National Survey of Household Income and Expenditures *Encuesta Nacional de Ingresos y Gastos de los Hogares*
ENOE	National Survey of Occupation and Employment *Encuesta Nacional de Ocupación y Empleo*
ENVIPE	National Survey of Crime, Victimization and Perception of Public Safety *Encuesta Nacional de Victimización y Percepción sobre Seguridad Pública*
HDI	Household disposable income
IMSS	Mexican Social Security Institute *Instituto Mexicano del Seguro Social*
INE	Institute for National Elections *Instituto Nacional Electoral*
INEGI	National Institute of Statistics and Geography (Mexico) *Instituto Nacional de Estadística y Geografía*
LGDS	General Law of Social Development *Ley General de Desarrollo Social*
MCS	Socio-economic Conditions Module *Módulo de Condiciones Socioeconómicas*
mg/m^3	Microgram per cubic metre
MXN	Mexican peso
PISA	Programme for International Student Assessment
$PM_{2.5}$	Atmospheric particle matter (diameter of 2.5 micrometres or less)
PPP	Purchasing power parity
STPS	Ministry of Labour and Social Welfare *Secretaría del Trabajo y Previsión Social*
SALUD	Ministry of Health *Secretaría de Salud*
SEP	Ministry of Public Education *Secretaría del Educación Pública*
USD	United States dollar

For some figures, the following abbreviations are used for the Mexican states and the Federal District:

AGU	Aguascalientes	MOR	Morelos
BCN	Baja California	NAY	Nayarit
BCS	Baja California Sur	NLE	Nuevo Leon
CAM	Campeche	OAX	Oaxaca
CHH	Chihuahua	PUE	Puebla
CHP	Chiapas	QTO	Queretaro
COA	Coahuila	ROO	Quintana Roo
COL	Colima	SIN	Sinaloa
DIF	Federal District	SLP	San Luis Potosi
DUR	Durango	SON	Sonora
GUA	Guanajuato	TAB	Tabasco
GRO	Guerrero	TAM	Tamaulipas
HID	Hidalgo	TLA	Tlaxcala
JAL	Jalisco	VER	Veracruz
MEX	State of Mexico	YUC	Yucatan
MIC	Michoacan	ZAC	Zacatecas

Executive summary

Over the last 15 years, Mexico has improved its performance in many of the dimensions that are essential to a good life, notably in health outcomes, access to basic services and quality of housing. Further efforts are now required to improve performance in other areas, such as education, safety, poverty reduction and quality of jobs, where Mexico still fares poorly in international comparisons. In addition, stark differences in outcomes exist across its states. To offer one example of the work that lies ahead on both fronts: only about 44% of Mexico's labour force has at least secondary education, 30 percentage points below the OECD average, while the education gap between the Federal District (58%) and the state of Chiapas (27%) is the second largest disparity within any OECD country except for Turkey.

In the past ten years, lagging states have narrowed the gap with the rest of the country in health, accessibility to services and housing. Regional differences in accessibility to services and health have narrowed since 2000, mainly thanks to the reduction of maternity and infant mortality rates and better access to basic services in the lagging states. At the same time, safety, income and jobs have worsened on average in the country. Extremely poor conditions concentrated in a number of states, such as Guerrero and the State of Mexico, explain the deterioration of security over the past five years, while the worsening in the employment situation, although less severe than the security situation, have been spread across a majority of states in the past ten years. Income has deteriorated since 2008, and in states where income has increased, inequalities have also increased.

Accurate measurement of performance at both the national and sub-national levels is a prerequisite for effective policy design and implementation. The OECD work on Measuring Regional Well-Being, launched in 2014 as part of the OECD Better Life Initiative, comprises a set of well-being indicators and analysis for a better understanding of well-being trends and drivers in the 362 regions in OECD countries. Building on this initiative, the National Institute of Statistics and Geography (Instituto Nacional de Estadística y Geografía, INEGI) has developed a one-stop website to measure well-being in the 31 Mexican states and the Federal District in 12 topics spanning material living conditions and quality of life (Sitio de Indicadores de Bienestar por Entidad Federativa). INEGI's website and this accompanying report offer a useful base for better understanding local assets and constraints for regional development. It provides a valuable tool for all stakeholders in Mexico to track performance at the federal and state levels as well as an example for other countries wanting to develop multi-dimensional well-being metrics to monitor sub-national differences.

The OECD framework on Measuring Regional Well-Being demonstrates how these indicators can be included in policy design and implementation at all levels of government to improve people's lives. It provides examples of well-being initiatives launched by regions and cities around the world, aimed at improving the effectiveness and coherence of policies to increase regional competitiveness and improve quality of life. These initiatives cannot be pursued in isolation; they require an open and participative process with all the relevant stakeholders to adapt well-being metrics to the strategic objectives of the region, connect the measurement with policy dialogues, and

mobilise citizens in an open debate to identify priorities and evaluate results. This report provides indications on how INEGI's measurements can become a strong foundation for regional well-being initiatives in Mexico.

Main findings

Large differences across the Mexican states and the Federal District exist on most dimensions of well-being. Living in one of the worst-faring states, as compared to living in one of the country's best-ranking states presents numerous disadvantages. These include a four times greater likelihood of being at risk of poverty, four fewer years of life expectancy, about seven times greater likelihoods of abandoning school and of working longer hours for lower pay, and a three times a greater likelihood of feeling unsafe in one's municipality.

Income disparities between and within Mexican states are among the highest in the OECD. The household disposable income in the Federal District is three times higher than that of Chiapas, the largest regional gap in OECD countries. Income inequality within states is also high compared to other OECD countries, although it decreased in 21 of the 31 Mexican states and the Federal District in the period 2008-14. Poverty is still a concern in many states, as is deprivation of a range of basic services. According to Mexico's multi-dimensional poverty indicator, a measure of monetary and non-monetary poverty, as much as 76% of population in Chiapas was living in poverty in 2014, while in Nuevo Leon, the state with the lowest poverty rate, it was 20%.

The rural-urban divide explains some of the regional differences. Rural regions, characterised by the predominance of agricultural activities and relatively low population density, have higher informal labour rates, less access to basic services and a higher incidence of poverty than urban areas. The number of poor people in urban areas, however, has increased in recent years, reaching 38 million in 2014, which corresponds to two-thirds of Mexico's poor, and the urban population is not significantly better off in the access to health services than the rural population.

Educational improvements will have a strong impact on reducing inequalities in many outcomes. Having a secondary school degree in Mexico can mean four more years of life expectancy compared to those with only a basic education, and seven years more in Chihuahua, the Federal District and Sonora. An increase of 10 percentage points of the labour force with at least a secondary education is associated with a reduction in informal employment by 14 percentage points, a relation that has been stable over the past decade.

States with similar levels of gross domestic product per capita differ substantially on many well-being outcomes. Monitoring the many factors that shape well-being in each state can help understand local assets and capacity to improve living conditions. For example, the obesity rate in high-income states varies from 43% of adults in Campeche and Tabasco to 39% in Nuevo Leon and 34% in the Federal District. States have progressed at very different speeds in dimensions where Mexico as a country has generally improved. Maternal mortality rates, for example, have been more than halved in Quintana Roo and Queretaro in the period 2000-13, while they worsened in Baja California Sur and Campeche.

Well-being indices provide a quick snapshot of states' relative performance. A summary picture of well-being in Mexican states is obtained by normalising and aggregating the indicators for each dimension into a single score. Scores are defined on a relative scale, with the national averages at the most recent year equal to 100, which

allows direct comparison among well-being dimensions and over time in a state. Baja California Sur, Sinaloa and Tamaulipas perform better than Mexico in all 12 of the well-being dimensions in the latest year, while in the state of Guerrero only the civic engagement and governance dimension is above the country value.

In the past ten years, well-being in Mexico has improved in every dimension except safety, jobs and income. During the same period, disparities between regions have narrowed in health, accessibility to services, housing and environment thanks to the improvement in lagging regions.

Chapter 1.

Why measure regional well-being?

This chapter presents the OECD framework to measure the drivers of well-being and assess disparities within a country. It details how this framework has been adapted in Mexico to develop a system of well-being indicators for the 31 Mexican states and the Federal District. The chapter also discusses the ways this statistical evidence can inform and shape policy in Mexico.

Over the last 15 years, Mexico has improved its performance in many dimensions that are essential to a good life, notably on health outcomes, access to basic services and quality of housing. Particular efforts are now required to improve performance in other areas, such as education, safety, poverty reduction and quality of jobs, where Mexico fares poorly in international comparisons and stark differences exist across its states that drag down the national performance. About 44% of Mexico's labour force has at least a secondary education, 30 percentage points below the OECD average, and the gap between the Federal District (58%) and the state of Chiapas (27%) is the largest within country disparity among OECD countries after Turkey. Similarly, in the past eight years, Yucatan experienced around 2 homicides per 100 000 people annually, a value close to that of the OECD average, while it was 46 times higher in Chihuahua. Sub-national indicators provide a more complete picture of people's living conditions than national averages, and they can help governments at all levels to identify where improvements are needed and prioritise areas for public intervention.

Most of the factors that affect people's daily lives are determined locally. Citizens' experiences with local levels of government often have an immediate impact on people's well-being and trust in the capacity of public institutions to address pressing challenges. State and municipal governments in Mexico hold important responsibilities for policies in education, health, transport, poverty alleviation and community's amenities, with 47.5% of total public spending carried out by sub-national governments (40% on average in the OECD area). Therefore, measuring well-being at the regional and local levels and regularly publishing well-being indicators can provide a basis for sharing knowledge about living conditions, raising social awareness on specific issues and promoting social change.

The National Institute of Statistics and Geography (Instituto Nacional de Estadística y Geografía, INEGI) decided in 2015 to develop a one-stop website to measure well-being in the 31 Mexican states and the Federal District building on the OECD Better Life framework (*Sitio de Indicadores de Bienestar por Entidad Federativa*). In the short term, INEGI's main aim is to raise awareness on the territorial differences in many well-being dimensions by integrating statistical information already available from different surveys within a common well-being framework. On a long-term basis, INEGI's overarching objective is to provide a comprehensive tool to state and local policy makers, political leaders and citizens to better understand living conditions, gauge progress in various aspects of the economy and society, and use these indicators to improve the design and implementation of policies.

This report offers a picture of well-being in Mexican states, highlighting local strengths and areas of improvement and provides an analysis of trends to better understand progress in the various dimensions of well-being. The report aims at increasing the knowledge on the local outcomes that matter to people's lives and helping national and local policy makers to use this knowledge to improve the coherence and quality of policies.

Many regions and cities have launched well-being initiatives aimed at improving the effectiveness and coherence of policies for regional competitiveness and quality of life. The state of Morelos, for example, designed its development plan around a set of clear baselines and targets in different dimensions of well-being over a time frame corresponding to the state government mandate. Extensive consultations within the state government and with other stakeholders were carried out to select the indicators according to policy priorities, identify actions and responsibilities for the implementation, and set up evaluation mechanisms (OECD, 2014a). Although the use of well-being

indicators in policy making is beyond the purview of INEGI, the experience of Morelos shows the important role that INEGI can play by both providing a sound, comprehensive and common well-being dataset that allows comparison across states and over time, and assisting local policy makers in making use of the available information.

How is regional well-being measured?

INEGI's measurement of well-being in Mexican states builds on the conceptual framework of the OECD Better Life Initiative and in particular on the *Regional Well-being Database* (OECD, 2014b). The OECD framework understands current well-being as a multi-dimensional concept that provides a comprehensive picture of the most relevant aspects of people's lives, focuses on outcomes (rather than inputs and drivers), and is informative of average living conditions as well as inequalities among groups of the population and places where people live (Box 1.1). To make this framework operational, a set of indicators comparable for the 362 regions in OECD countries (generally corresponding to the first tier of sub-national government) was developed covering nine well-being dimensions: income, jobs, housing, health, access to services, education, civic engagement and governance, environment, and safety (www.oecdregionalwellbeing.org).

Box 1.1. **OECD Regional Well-Being Framework**

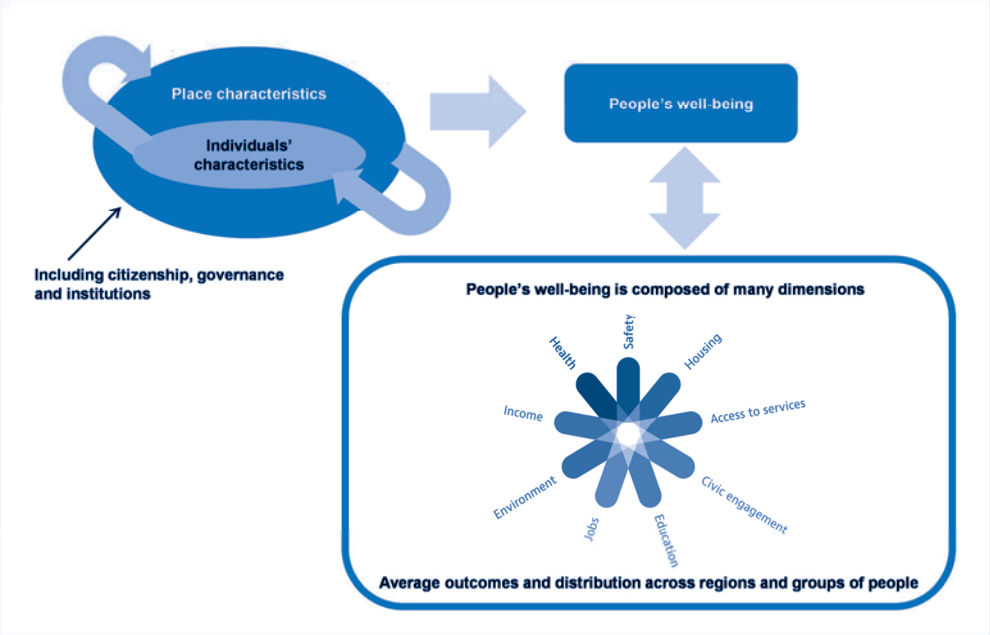
The OECD work on measuring regional well-being includes the publication *How's Life in Your Region* (OECD, 2014a), the interactive web-tool with indicators for the 362 OECD regions and 7 in-depth case studies on how regions have used well-being metrics in different phases of the policy-making process.

The OECD framework on measuring regional well-being builds on the Better Life Initiative at the national level and adds some distinctive features:

- It measures well-being where people experience it. It focuses on individuals and on place-based characteristics, since both have an impact on people's current well-being and future opportunities.
- It concentrates on well-being outcomes that provide direct information on people's lives rather than on inputs or outputs. Outcome indicators can help policy makers and citizens to focus on the feature of well-being that policies are expected to improve.
- It is multi-dimensional and includes both material dimensions and quality of life aspects. If possible, self-reported experiences of well-being (subjective indicators) should be included.
- It assesses well-being outcomes not only through averages but also by how they are distributed across regions and groups of people.
- Well-being outcomes depend also on citizenship, institutions and governance. Policy design and its implementation can improve well-being outcomes.
- It takes account of interactions among the different well-being dimensions. Because well-being dimensions can influence each other, policy design should build on these complementarities, rather than working in separate sectors, to achieve greater improvements and manage possible trade-offs.
- It looks at the dynamics of well-being over time, at its sustainability and at the resilience of different regions.

Box 1.1. **OECD Regional Well-Being Framework** (*continued*)

Figure 1.1. **Visualisation of the OECD Regional Well-Being Framework**



Source: OECD (2014b), *How's Life in Your Region?*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264217416-en; www.oecdregionalwellbeing.org; www.oecd.org/regional/how-is-life-in-your-region.htm.

Twelve well-being dimensions constitute Mexico's regional well-being measurement: three dimensions were added to the above nine dimensions used in the OECD Regional Well-being Framework. These are "work-life balance", "community (social connections)" and "life satisfaction", which in the OECD database are available only at national level for lack of comparable data at the sub-national level. These three dimensions are measured through self-reported indicators collected through a comprehensive INEGI survey to measure subjective well-being, which was extended to the state level in 2014. Other self-reported indicators were included to complement objective ones in the dimensions of safety, health, and civic engagement and governance.

INEGI, in collaboration with the OECD, led a consultation with state representatives and other federal agencies (the National Council for the Evaluation of Social Development Policy, CONEVAL) to select the set of indicators for measuring the 12 well-being dimensions. While having indicators to benchmark Mexican states with other international regions was considered important, the O*ECD Regional Well-being Database* was further expanded to include phenomena specifically important for Mexico, such as obesity, informal employment or secondary school dropout students, or where the differences across Mexican states and municipalities are large, such as quality of working conditions or access to basic services in their homes. According to the INEGI-led consultation, well-being indicators in Mexican states should meet the following requirements:

- Focus on broad achievements and assets for regional development with figures that mean something to the general public as well as to more specialist audiences.
- Be sensitive to policy interventions so that the indicators could be useful to the design and evaluation of state and local policies.
- Be reliable, statistically validated, regularly collected through a consistent instrument and updated in future years. A limited time-lag, with published values referring to no more than two to three years earlier, was considered important, although not a priority.
- Available for all 31 states and the Federal District together with the national value, preferably with different points in time to monitor changes. The possibility to further detail the indicator by population groups (gender, age, etc.) or location (municipalities, rural regions, etc.) was considered important, although not a priority for the first release of the well-being database.
- Be in a limited number to help their dissemination and use for decision making. For dissemination purposes, the well-being indicators should be clearly identified as a single database and with links to other sets of territorial indicators (such as the *Sitio de Indicadores de Bienestar por Entidad Federativa*).
- Include self-reported indicators (subjective measures) to complement objective indicators.

The final set of 35 indicators, presented in Chapter 2, was determined through a holistic assessment of validity, statistical robustness and considerations on the responsiveness of indicators to policy interventions. A trade-off exists between adding many indicators to reflect the priorities of different stakeholders and to keeping the well-being dataset to a manageable size to promote its use in decision making. Mexico decided to introduce measures of subjective well-being (e.g. life satisfaction, satisfaction with one's health, and the feeling of safety) also to reduce such a tension, since subjective measures capture one of the most important impacts of policy, namely whether people feel better off. The United Kingdom, for example, has placed much emphasis on measuring personal subjective well-being also at the sub-national level as a "common currency" of policy impact and then established a What Works Centre to understand drivers of well-being and the role of institutions and governance (What Works Network, 2014).

The discussion on well-being indicators in Mexico also identified data gaps to complete in future years. These include both measurements in specific areas, such as environment, transport, economic and social inequalities, as well as improvements in the collection of indicators at different territorial scales. Compared to other countries, Mexico can already rely on rich statistical information to measure well-being outcomes at sub-national level that includes objective and subjective measures. Moreover, the availability of an integrated catalogue of geo-referenced data, as well the *participatory cartography* project through which territorial information will be updated with the contribution of citizens, represent a sound base to further improve measurement of living conditions at different territorial scales. At the same time, such improvements will depend largely on the capacity to mobilise a wide range of data sources and methods beyond those available through official statistics, including administrative data, geographic information systems and open data. While the final choice of dimensions and indicators represent the best available information today, INEGI should promote discussions

involving federal, state and local ministerial agencies, statistical offices and experts to detail a medium-term statistical agenda to fill data gaps in the measurement of regional well-being. Some priorities for such an agenda are suggested at the end of Chapter 3.

The INEGI-led consultation showed the importance of an inclusive process to select well-being dimensions and indicators, and further discussions should be organised within the states involving a broad constituency to make these indicators policy relevant. INEGI could help to put in place mechanisms for continuous dialogue with local stakeholders to allow for a critical assessment of results, facilitate policy adjustments when necessary and increase accountability at the state-level.

What this report offers

Chapter 2 explores well-being across the Mexican states and the Federal District, according to 35 indicators spanning the 12 dimensions: jobs, income, housing, accessibility to services, education, health, civic engagement and governance, environment, safety, social connections, work-life balance, and subjective well-being (life satisfaction). It highlights general patterns and current differences among states in Mexico, together with trends over recent years to gauge improvements.

The results highlight large regional differences in most indicators. Living in one of the worst-faring states, as compared to living in one of the country's best-ranking states, can mean being four times as likely at risk of poverty, four fewer years of life expectancy, about seven times greater likelihood of abandoning school before completing secondary education, being seven times as likely to be working long hours for very low pay, and having three times a greater likelihood of feeling unsafe in one's municipality.

Rural-urban divide explains some of the regional differences. The population in rural areas, characterised by the predominance of agricultural activities and relatively low population density, have higher informal labour rates, less access to basic services and a higher incidence of income poverty than those living in urban areas. The number of poor people in urban areas, however, has increased in recent years, reaching 38 million in 2014, which corresponds to two-thirds of Mexico's poor, and the urban population is not significantly better off in the access to health services than the rural population.

Inequalities go beyond income. Improving education outcomes in Mexico, for example, will have a strong impact on reducing inequalities in many outcomes. Having a secondary school degree in Mexico can mean four more years of life expectancy compared to those with only a basic education, and seven years more in Chihuahua, the Federal District and Sonora. An increase of 10 percentage points of the labour force with at least a secondary education is associated to a reduction in informal employment by 14 percentage points, a relation that has been stable over the past decade.

Monitoring the many factors that shape well-being in each state is important, as states with similar levels of gross domestic product (GDP) per capita can differ substantially in well-being outcomes. Among the highest GDP states, for instance, in Campeche and Tabasco 43% of the adult population is obese, while it stands at 39% in Nuevo Leon and 34% in the Federal District. Only 18% of people in the Federal District considered the judicial system not corrupt compared to more than one-third of the population in Campeche, Nuevo Leon and Tabasco. Similarly, among the lowest GDP states, in Tlaxcala maternal mortality rates are half the values found in Chiapas, Guerrero and Oaxaca and the share of good-quality houses in Tlaxcala is twice as high as in the other three states.

States have different capacity to improve living conditions, as the divergent state patterns show in areas of well-being where Mexico has generally improved in recent years. Maternal mortality rates, for example, have been more than halved in Quintana Roo and Queretaro in the period 2000-13, while they worsened in Baja California Sur and Campeche. In 2012, 15-year-old students in Durango and Tlaxcala had improved on the PISA mathematics assessment the equivalent of about 1.5 years of schooling from 2003, while the average academic performance in Colima and the Federal District worsened.

Chapter 3 discusses ways to improve the dissemination of well-being indicators and ultimately their use for decision making. It offers a summary picture of well-being in Mexican states obtained by normalising and aggregating the indicators for each dimension into a single score. Scores are defined on a relative scale, with the national averages at the most recent year equal to 100, which allows direct comparison among well-being dimensions and over time in a state. Baja California Sur, Sinaloa and Tamaulipas perform better than Mexico in all of the 12 well-being dimensions in the latest year, while in the state of Guerrero only the dimension civic engagement and governance is above the country value. In recent years, Mexico has improved in all of the well-being dimensions with the exception of income, safety and jobs. Extremely poor conditions concentrated in a number of states explain the deterioration of safety over the past five years, while the worsening in the job and income dimensions – although less severe than the security situation – has been spread across a majority of states in the past ten years.

It would be misleading, however, to consider a state performance on the 12 dimensions of well-being as separate outcomes whose improvement is under the responsibility of a single sectoral ministry at the federal or state level. Well-being dimensions are interlinked and this report provides many examples of these interactions in Mexican states. Synergies among well-being dimensions require integrated and coherent policy responses, and alignment across sectors and levels of government towards a common vision about societal progress. To reflect the fact that well-being outcomes have an impact upon each other, aggregated well-being measures are presented for each state. Chapter 3 provides the background to the choice of these composite well-being indices and the methodological details for their construction.

How can the results of this project be used?

The INEGI's website and this accompanying report offer a useful base for a comprehensive approach to measuring well-being at sub-national level and a better understanding of local assets and constraints for regional development. It can be used by other countries wanting to develop multi-dimensional well-being metrics to monitor sub-national differences. It can also help INEGI to reflect with other federal and local agencies in Mexico on methodological improvements and priorities to fill the data gaps; as well to discuss with other countries' national statistical offices how to detail a medium-term agenda to improve internationally comparable measures at territorial level.

Publishing and disseminating these indicators regularly will provide a further impulse to inform and shape the policy debate. INEGI plans to gather citizens' feedback and inputs on the expected results. To ensure a large representation of different population groups, such a survey could be run as part of the Digital Inclusion Program launched by the Ministry of Telecommunications and Transport. Notwithstanding the means with which to engage citizens, the well-being indicators should be presented in a way that is

easy for a non-technical audience to understand and act upon, for example with relative scores summarising each well-being dimension, as presented in the report, or other ways currently under consideration in INEGI.

The ultimate aim of improving the statistical information to measure well-being at the sub-national level is to support state and local governments to monitor strategic objectives, clarify responsibilities across and within different levels of government and different groups of stakeholders, increase co-ordination among policies and put in place the actions to leverage complementarities and manage trade-offs between the various policies bearing on a given well-being outcome. Regions and cities, in Mexico as elsewhere, have launched well-being initiatives aimed at improving the effectiveness and coherence of policies for regional development. These initiatives cannot be carried out in isolation; they require a participative open process with all of the relevant stakeholders to adapt well-being metrics to the strategic objectives of the region, connect the measurement with policy dialogues, and mobilise citizens in an open debate to identify priorities and evaluate results (OECD, 2014b).

In the coming months, INEGI's well-being measurement and this report can support local government efforts to design a well-being centred strategy, notably in three ways. First, disseminating the available information together with a narrative on what the well-being outcomes mean in the different states and localities. Second, helping state and local policy makers to select the indicators the most relevant to policy objectives and encourage dialogue with municipalities and local stakeholders to setting targets to monitor progress towards expected results. Finally, INEGI can help to improve the use of information produced locally that may be relevant to monitor and evaluate policy results, connect it with national surveys and support open data in local administrations.

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Chapter 2.

The geography of well-being in Mexico

This chapter provides an assessment of well-being in Mexican states through evidence in 12 dimensions covering both material conditions and quality of life. The analysis examines the extent of disparities between states and, when possible, of inequality within states. Progress on well-being is tracked through the changes observed in the past 10-15 years in Mexico and in each state for each of the 35 statistical indicators used for the 12 well-being dimensions. In addition, synergies and trade-offs among the various dimensions of well-being in Mexico are highlighted. Finally, the chapter explores the drivers of subjective well-being (life satisfaction) in the Mexican states.

Introduction

This chapter provides an overview of well-being in the 31 Mexican states and the Federal District to analyse common patterns and understand drivers, identify specific areas where improvements are needed and gauge progress over time. The chapter is organised around 12 well-being dimensions that comprise both material conditions such as income, jobs and housing, and non-monetary conditions, such as education, health, environment, access to services, safety, civic engagement and governance, work-life balance, and life satisfaction.

Building on the OECD Better Life framework, the National Institute of Statistics and Geography of Mexico (Instituto Nacional de Estadística y Geografía, INEGI) has developed a one-stop website to measure well-being that became public in October 2015. The 12 well-being dimensions published on the website coincide with the 9 used in the *OECD Regional Well-Being Database* to which are added the other 3 dimensions used in the OECD Better Life Index at the national level: life-satisfaction, social connections, and work-life balance. Table 2.1 presents the set of 35 indicators that INEGI will use to benchmark well-being in Mexican states. All of the indicators of the *OECD Regional Well-Being Database* are included on Mexico's website to allow international comparisons with other sub-national regions in the OECD area (Box 2.1). The other indicators were chosen through a consultation with federal and state representatives, to complement information on issues of relevance for Mexico's development and well-being (for example maternal mortality rate or informal employment).

INEGI's website offers a useful base for a comprehensive approach to measuring well-being at sub-national level and a better understanding of local assets and constraints for regional development. Compared to other studies on sub-national well-being, for the first time, subjective indicators (such as life satisfaction) and self-reported measures are included together with objective indicators. Mexico's measurement of regional well-being provides an unprecedented tool for all stakeholders in Mexico to track performance at the federal and state levels, and offers a model that can be followed by other countries wanting to develop multi-dimensional well-being metrics to monitor sub-national differences.

Box 2.1. **How are regions defined?**

The main geography used in this report refers to the 31 Mexican states and the Federal District. They correspond in the OECD classification to the territorial level 2 (or TL2 regions) that comprises 362 administrative regions in 34 countries corresponding to the first administrative tier of sub-national government. The OECD Regional Well-Being indicators are available for these 362 regions.

Urban and rural areas in Mexico are localities with a population above, or below, 2 500 inhabitants, respectively (CONEVAL, 2012).

Levels and distribution of income are also computed for metropolitan areas according to the EU-OECD definition. This definition identifies functional urban areas as densely populated municipalities and adjacent municipalities with high levels of commuting towards the densely populated urban cores. Metropolitan areas are the functional urban areas with a population above 500 000 people. According to this definition, there are 33 metropolitan areas in Mexico among the 281 in 30 OECD countries. It should be noted that the national definition identifies 59 metropolitan areas (*zonas metropolitanas*) in Mexico on the base of the population Census of 2005 (INEGI, 2012).

Table 2.1. **Dimensions and indicators to measure well-being in the Mexican states**

Dimension	Indicator name	Description of the indicator
Housing	Rooms per person*	Average number of rooms per person in the household
	Quality of housing	Percent of houses with ceilings made of durable materials
Income	Equivalised household disposable income*	USD PPP (constant prices of 2010)
	Gini of household disposable income per capita	Gini index on a scale of 0 to 1
	Poverty rate	Percent of people in multi-dimensional poverty (moderate + extreme)
	Extreme poverty rate	Percent of people in multi-dimensional extreme poverty
Jobs	Employment rate*	Percent of persons in employment as a share of population aged 15 years and older
	Unemployment rate*	Percent of persons in unemployment as a share of the labour force
	Informal employment rate	Percent of persons working in the informal economy as a share of the employed population
	Index of critical conditions of the working population	Percent of employees who work less than 35 hours per week, or work more than 35 hours per week and have a salary lower than the minimum wage, or work more than 48 hours per week and have a salary lower than twice the minimum wage
Accessibility to services	Household broadband access*	Percent of households with broadband connection
	Dwellings with access to basic services	Percent of households with good quality of services (piped water, drain lines and electricity)
	Access to health services	Percent of people with access to public health services
Safety	Homicide rate*	Homicides per 100 000 people
	Perception of unsafety	Percent of people who feel unsafe in their locality or neighbourhood
	Crime rate	Crimes per 100 000 people
	Trust in the police	Percent of people who consider that the state police is effective or very effective
Education	Educational attainment*	Percent of labour force with at least a secondary education
	School dropouts	Number of dropouts over total enrolled students (secondary education)
	Student skills	Average OECD-PISA score in mathematics
Environment	Air pollution*	Concentration of $PM_{2.5}$ in µg/m³
	Waste disposal	Percent of solid waste that is disposed in controlled areas
Civic engagement and governance	Voter turnout*	Percentage of people who vote with respect to the registered people to vote
	Civic and political participation	Percent of people who participate in a political party, NGO or volunteer in a philanthropic association
	Perception of absence of corruption in the judicial system	Percent of people who perceive judges as not corrupt
	Trust in law enforcement	Percent of people who perceive that criminals are always punished
Health	Life expectancy at birth*	Average years a person can expect to live
	Infant mortality rate	Number of deaths of children younger than 1 year old per 1 000 born alive
	Maternity mortality rate	Maternal death per 100 000 born alive
	Self-reported health	Average self-reported satisfaction with health on a scale of 0 to 10
	Obesity rate	Percent of people with obesity (for the 20 years or older population)
Life satisfaction	Satisfaction with life	Average self-reported satisfaction with life on a scale of 0 to 10
Work-life balance	Satisfaction with time for leisure	Average self-reported satisfaction with time available to do what one likes on a scale of 0 to 10
	Employees working very long hours	Percent of employees who work more than 48 hours per week
Community (social connections)	Quality of support network	Percent of people who have at least one friend to rely on in case of need

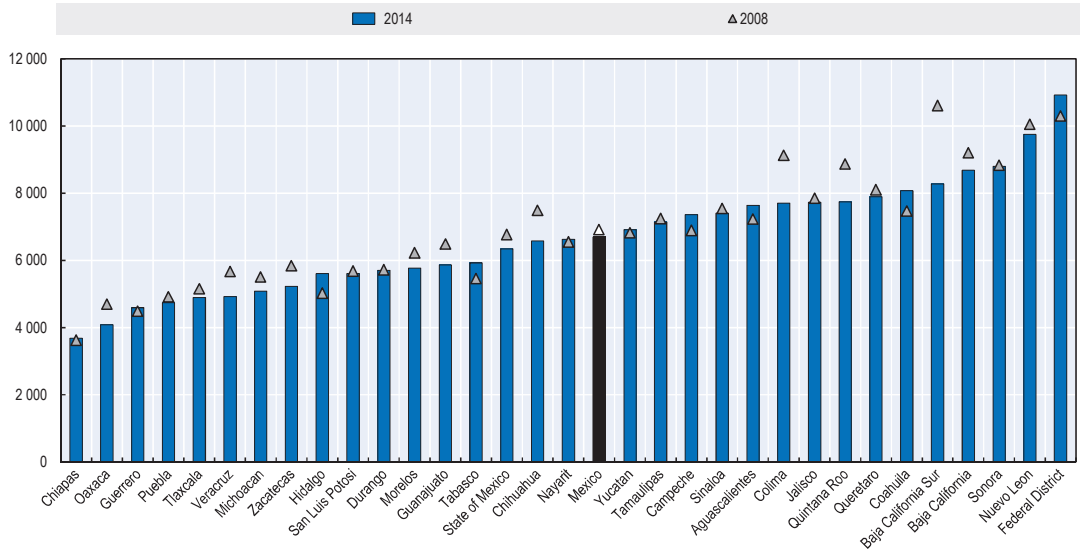
Note: All of the indicators are available through the INEGI portal *Sitio des Indicadores de Bienestar por Entidad Federativa (*http://www3.inegi.org.mx/app/bienestar). Indicators with a "*" are also available for the 362 regions of the OECD countries via the *OECD Regional Well-being Database* at: www.oecdregionalwellbeing.org.

Income

Income is an important component of individual well-being; it allows people meet their basic needs, such as adequate housing, clothing and nutrition, as well to make choices about their lives and future well-being. In 2014, the average household disposable income (HDI) – i.e. the income available to people after taxes and transfers – in Mexico was around USD 6 700, less than one-third of the OECD average. Variations among Mexican states are the largest among OECD countries, with the average disposable income per household in the Federal District around three times higher than that in Chiapas. Between 2008 and 2014, household disposable income decreased in many Mexican states and by an average of 3% cumulatively in the country. Hidalgo is the state with the largest relative growth rate in income from 2008 to 2014 (11.5%), while Baja California Sur had the largest relative decline (-21%) (Figure 2.1).

Figure 2.1. **Household disposable income**

Per equivalent household; constant USD PPP, 2010 reference year



Note: The household disposable income is divided by the square root of household size to obtain the income per equivalent household.

Source: Authors' elaboration based on INEGI (2014a) data.

In addition to the level of disposable income, indicators of income inequality (Gini index of household disposable income) and poverty (the multidimensional poverty rate and the multidimensional extreme poverty rate) were selected. The state rankings according to the four indicators are shown in Table 2.2.

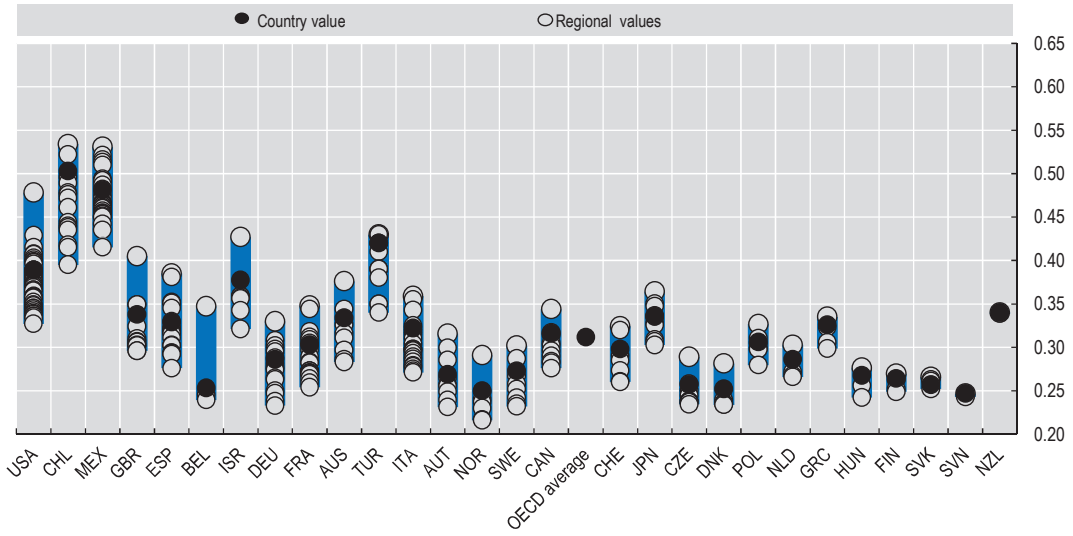
Table 2.2. **Income: State rankings**

	Equalised household disposable income	Gini index of household disposable income per capita	Multidimensional poverty rate	Multidimensional extreme poverty rate
Top five states (higher well-being), 2014				
1	Federal District	Tlaxcala	Nuevo Leon	Nuevo Leon
2	Nuevo Leon	Baja California	Federal District	Federal District
3	Sonora	Durango	Baja California	Aguascalientes
4	Baja California	Guanajuato	Sonora	Baja California
5	Baja California Sur	Michoacan	Coahuila	Jalisco
State with the most improvement in 2008-14				
	Federal District	Chihuahua	Durango	Guerrero
Bottom five states (lower well-being), 2014				
28	Tlaxcala	Federal District	Michoacan	Puebla
39	Puebla	Yucatan	Puebla	Veracruz
30	Guerrero	Oaxaca	Guerrero	Guerrero
31	Oaxaca	Chiapas	Oaxaca	Oaxaca
32	Chiapas	Puebla	Chiapas	Chiapas
State that lost the most ground in 2008-14				
	Baja California Sur	Puebla	Morelos	Morelos

Note: The state with the most improvement and the one that lost most ground refer to the absolute change in the period considered. The period for the indicators of multidimensional poverty and multidimensional extreme poverty is 2010-14.

In international comparisons, the difference across Mexican states in income inequality is the third highest among OECD countries after the United States and Chile (Figure 2.2).

Figure 2.2. **Regional values of Gini index for household disposable income, 2010**



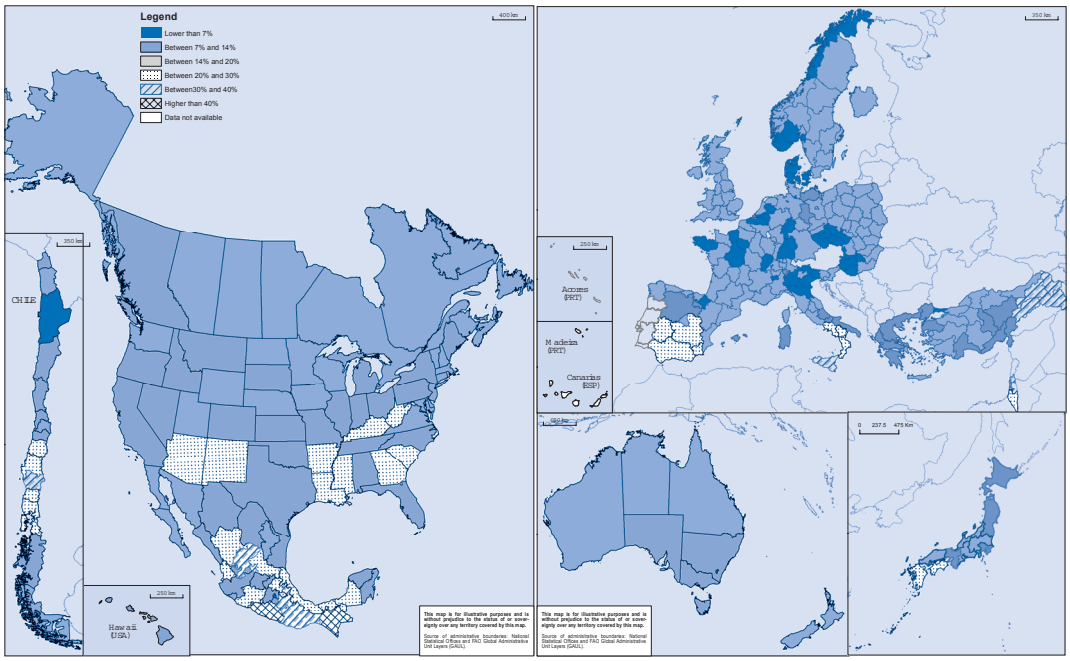
Note: Countries are ordered by the difference between maximum and minimum values of the Gini coefficient for the regional household disposable income. Each point in the graph represents a region. The Gini index is a measure of income concentration that ranges from 0, representing perfect equality, to 1, where all income flows to a single person.

Source: OECD (2014a); OECD (2015a), http://dx.doi.org/10.1787/region-data-en.

More recent data available for Mexico show that the Gini index of household disposable income in Puebla was 0.57 in 2014, while in Tlaxcala it was 0.41. Income inequalities within states decreased in 21 of the 31 Mexican states and the Federal District between 2008 and 2014. The highest decrease of the Gini index was in Chihuahua. During the same period income inequalities increased the most in Puebla (CONEVAL, 2015).

The *OECD Regional Well-Being Database* provides estimates of relative income-poverty rates in OECD regions, with poverty lines set at 60%, 50% and 40% of the national median income. According to these estimates, the income-poverty rate in Mexico was 27.4% in 2010, ranging from 5.4% in the Federal District to 48.9% in Chiapas, the largest inter-regional difference among OECD countries (Figure 2.3).

Figure 2.3. **Regional relative poverty rates across OECD regions, circa 2010**



Note: Poverty rates, with the poverty line defined at 50% of the national median income. This document and any map included herein are for illustrative purposes and without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

Source: OECD (2015a), http://dx.doi.org/10.1787/region-data-en.

Beyond income based measures, poverty may mean deprivation from a range of basic services, such as education, health, food, heating, etc. The marked territorial dimension of poverty implies that policies to fight poverty would benefit from a better understanding of its determinants and how the various dimensions play out in the different regions. In Mexico, the National Council for the Evaluation of the Social Development Policy (Consejo Nacional de Evaluación de la Política de Desarrollo Social, CONEVAL) is tasked by the General Law of Social Development to measure poverty according to a multidimensional definition that includes economic conditions (household disposable income) and deprivation according to six social rights dimensions: social security, food, health, education, quality of the dwellings, and basic services of the dwelling (Box 2.2).

According to the multi-dimensional poverty indicator, around 55 million people, corresponding to 46.2% of the Mexican population, lived in poverty in 2014.[1] The incidences of monetary poverty increased in the period 2010-14, while the percentage of people with deprivation in any of the six social dimensions decreased (CONEVAL, 2015).

Box 2.2. **Measuring poverty in Mexico: CONEVAL's multidimensional approach**

Following the approval in 2004 of the General Law of Social Development (Ley General de Desarrollo Social, LGDS), the National Council for the Evaluation of the Social Development Policy (Consejo National de Evaluacion de la Politica de Desarrollo Social, CONEVAL) has produced national and state level estimates of poverty according to a multidimensional methodology every two years since 2008. These measures were extended to municipalities in 2010 with a plan of updating them every five years. The number and share of people in poverty are estimated by CONEVAL using the INEGI Socio-Economic Conditions Module of the National Survey on Income and Expenditure (Encuesta Nacional de Ingresos y Gastos de los Hogares, ENIGH).

The definition of poverty is based on two domains: economic well-being, measured by household income, and social rights, measured as deprivation in six essential services: social security, education, health, food, quality of dwellings and basic services of dwellings. In addition, the LGDS requires providing an analysis of the territorial context that gives rise to poverty. For this reason, indicators of income inequality and social polarisation are computed for every state and municipality, in addition to the incidence, depth and intensity of poverty.

The population in poverty is defined as the population with disposable income below a national threshold and being deprived of at least one of the six social indicators. The population in extreme poverty is the one whose income cannot ensure adequate nutrition and that is deprived of at least three of the six social indicators. Each of the six social rights is measured by a single binary indicator referring to individuals, for example lack of mandatory basic education, and then combined in a single index with equal weights.

In addition to the population in poverty, whether for income or social deprivation, CONEVAL also estimates the population *income vulnerable* (below the economic threshold and with no social deprivation), *social deprivation vulnerable* (above the economic threshold and with at least one social deprivation) and finally, the population that is neither poor nor vulnerable. According to the latest data, in 2014 46% of Mexicans were poor, 26% were social deprivation vulnerable, 7% income vulnerable and the remaining 21% were neither poor nor vulnerable.

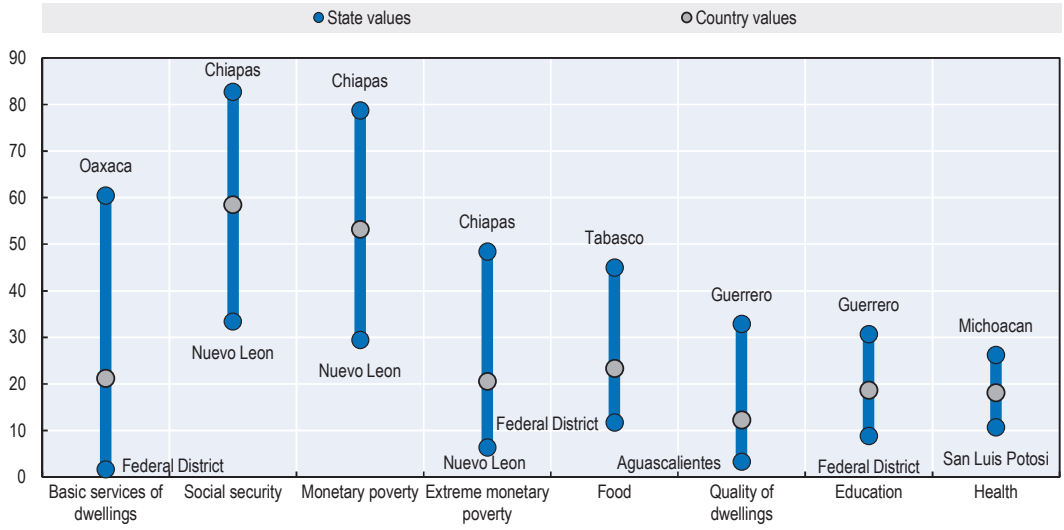
Source: Adapted by CONEVAL (2015).

According to the CONEVAL figures, the share of population in poverty varied between 20.4% in Nuevo Leon and 76.2% in Chiapas in 2014. The poverty dimensions with the largest inter-regional differences are the lack of basic services in the dwellings (59 percentage points between the Federal District and Oaxaca) and the lack of social security (49 percentage points between Nuevo Leon and Chiapas) (Figure 2.4). The government has started to overhaul several social programmes to increase income protection for different population groups. With the introduction of the Unemployment Insurance[2] and the Universal Pension System, Mexico will move towards a universal social security system, independent of employment status. A new programme, Prospera, has been announced to complement the conditional transfers of Oportunidades with active labour market policies, scholarships for college or technical college and facilitated access

to financial education, savings, insurance and credit. These reforms are key priorities to reduce poverty and inequalities (OECD, 2015b).

Figure 2.4. **Variation by state of population in multidimensional poverty, 2014**

Percentage of population in monetary poverty, extreme monetary poverty and lack of six services; minimum and maximum state values



Source: Authors' elaboration based on data from CONEVAL (2015).

Income inequalities in metropolitan areas

Differences in household income levels and inequalities among the Mexican states often reflect differences between rural and urban areas. The incidence of poverty and extreme poverty is higher in rural areas than in urban ones. At the same time, more than two-thirds of Mexico's poor lived in urban areas in 2014, corresponding to 38 million people. The lack of access to health services hit rural and urban areas with similar incidence, while deprivation from the other five social dimensions is always higher in rural areas than in urban ones.

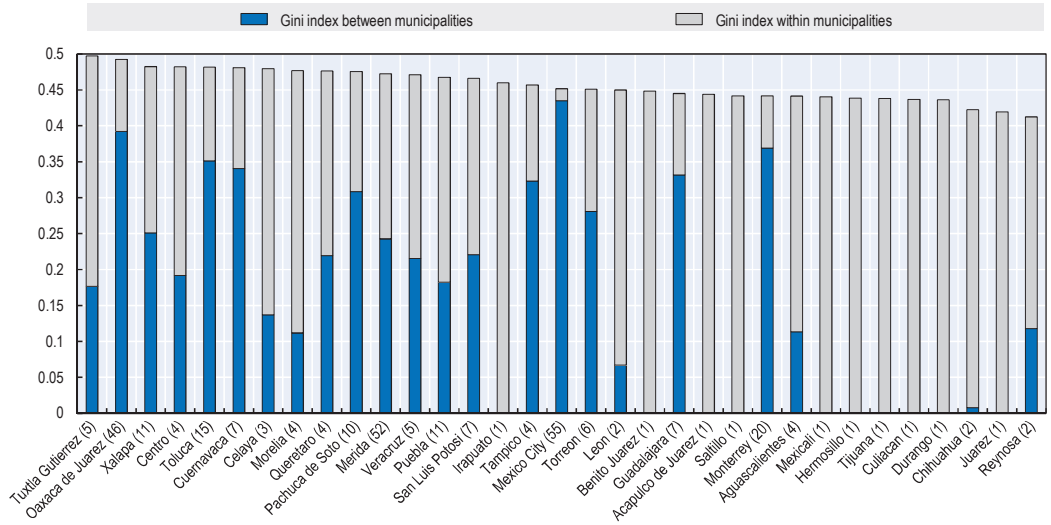
On average the disposable income of a household living in a metropolitan area was 1.7 times higher than that of a household living outside a metropolitan area in 2010. However, large variations exist between the 33 metropolitan areas of Mexico: the household disposable income (HDI) per equivalent household varied between USD 6 000 in Acapulco de Juarez to almost USD 11 000 in Monterrey in 2010.[3] The income advantage of metropolitan areas compared to non-urban areas is stronger in poorer states (the correlation between the household disposable income per state and metro income premium is -0.63).[4] For instance, the household disposable income per capita in the metropolitan areas of Tuxtla Gutierrez (in Chiapas), Oaxaca de Juarez (in Oaxaca), Puebla (in the state of Puebla), Centro (in Tabasco) and San Luis Potosi (in the state of San Luis Potosi) is more than twice the disposable income per capita of the people living in the same state outside the metropolitan areas. While the household disposable income per capita in the metropolitan areas of Torreon (state of Coahuila), Reynosa (state of Tamaulipas), Tijuana and Mexicali (in Baja California), is very close to that of the rest of the respective state (Boulant and Brezzi, forthcoming).

In 2010, the Gini index of household disposable income varied from 0.5 in the metropolitan area of Tuxtla Gutierrez to 0.41 in the metropolitan area of Reynosa (Figure 2.5). The Gini index, calculated on the overall population, can be decomposed in the sum of two indices measuring the contribution to inequality within the municipalities and the contribution to inequality between the municipalities of a metropolitan area. More than three-quarters of income inequality is due to inequality between the municipalities in Mexico City, Monterrey, Oaxaca de Juarez and Guadalajara, meaning that the low (or high) income populations are concentrated in disadvantaged (or advantaged) municipalities in the metropolitan area (Figure 2.5). Because of data limitation, however, the economic segregation of the metropolitan areas (the between- municipality component) may be overestimated. [5] In contrast with the metropolitan areas in the United States, income inequality in Mexican metropolitan areas does not seem positively associated to the population size or the income level of the city (Martin Prosperity Institute, 2015; Boulant and Brezzi, forthcoming).

In line with the rest of the country, the incidence of lack of social security in metropolitan areas is the highest of the six social deprivations included in the multi-dimensional poverty. In all of the metropolitan areas, at least 40% of the population lacks social security, with the exceptions of Saltillo (29%), Monterrey (36%) and Chihuahua (37%). Lack of social security is highly correlated to the lack of access to healthcare and to the informality of the labour market, as discussed below.

Figure 2.5. **Gini index of household disposable income in metropolitan areas, 2010**

Contribution to metropolitan area's inequality due to within and between municipalities' inequalities



Notes: Metropolitan areas are ordered by decreasing value of the Gini index. Numbers in parenthesis after the metropolitan area's name indicate the number of municipalities included in a metro area. The Gini index is a measure of income concentration that ranges from 0, representing perfect equality, to 1, where all income flows to a single person. The Gini index is here decomposed as the sum of two components measuring the contribution of inequality within the municipalities and the contribution to inequality between the municipalities of the metropolitan area. The former component is the weighted average of the Gini index of each municipality with weighs equal to the relative population and income of each municipality. The between component of the Gini coefficient is partially dependent on the number of municipalities in the metropolitan area and it could be overestimated because for lack of data the residual part of the Gini decomposition is not computed (for details on the decomposition see Boulant and Brezzi, forthcoming).

Source: Authors' elaborations based on data from CONEVAL (2015).

Jobs

The dimension of jobs is measured by four indicators comprising information on the labour market activity and on the quality of jobs. In addition to the two indicators used in the *OECD Regional Well-Being Database*, employment rate and unemployment rate, the indicators on *inf*ormal employment rate and the index of critical conditions of the working population have been added. Quintana Roo, Guerrero, Coahuila and Queretaro are the states with the best performance in 2014, respectively, on the four indicators chosen. Veracruz, the Federal District, Oaxaca and Chiapas are the states with the worst values. In the same vein, while Guerrero, Yucatan, Jalisco and Tabasco were the states with the most improvement in the period 2005-14; Quintana Roo, Baja California, Guerrero and Baja California were the states with the slowest progress (Table 2.3).

Table 2.3. **Jobs: State rankings**

	Employment rate	Unemployment rate	Informal employment rate	Index of critical conditions of the working population
Top five (higher well-being), 2014				
1	Quintana Roo	Guerrero	Coahuila	Queretaro
2	Colima	Yucatan	Nuevo Leon	Nuevo Leon
3	Baja California Sur	Oaxaca	Chihuahua	Chihuahua
4	Sonora	Chihuahua	Baja California	Jalisco
5	Yucatan	San Luis Potosi	Baja California Sur	Baja California
State with the most improvement in 2005-14				
	Guerrero	Yucatan	Jalisco	Tabasco
Bottom five (lower well-being), 2014				
28	Tabasco	Queretaro	Puebla	Guerrero
29	Chiapas	Durango	Tlaxcala	Oaxaca
30	Zacatecas	Tabasco	Chiapas	Puebla
31	Queretaro	State of Mexico	Guerrero	Tlaxcala
32	Veracruz	Federal District	Oaxaca	Chiapas
State that lost the most ground in 2005-14				
	Quintana Roo	Baja California	Guerrero	Baja California

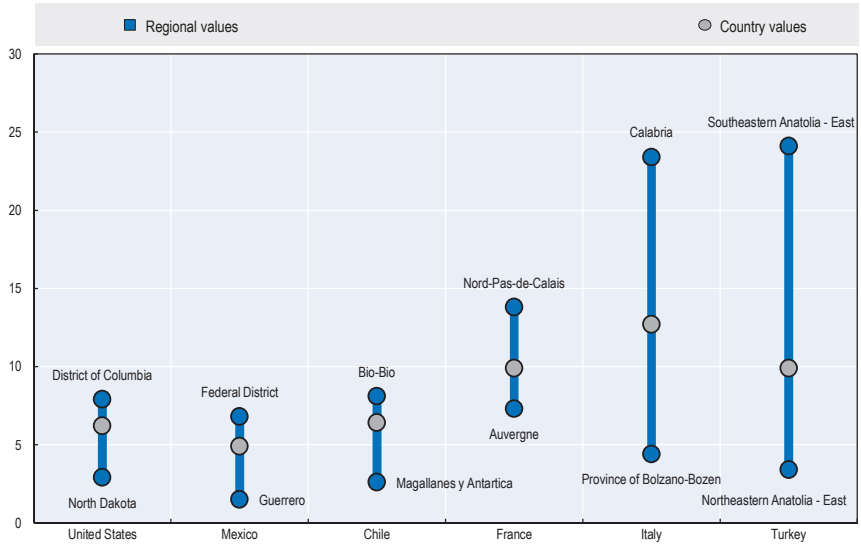
Note: The state with the most improvement and the one that lost most ground refer to the absolute change in the period considered.

Unemployment in Mexico is low relative to the OECD average (4.9% and 7.3% respectively in 2014). Inter-regional differences in the unemployment rate in Mexico are among the lowest in OECD countries (Figure 2.6 panel A), around 5 percentage points between the Federal District (6.8%) and Guerrero (1.5%) and did not significantly change in the period 2005-14, although the unemployment rate has been on the rise in most of the Mexican states. The employment rate of the population aged 15 years and over in Mexico varied between 66.6% in Quintana Roo to 51.3% in Veracruz in 2014, a regional gap considerably lower to that the ones observed in other OECD countries, such as the United States, Turkey, Italy, Chile and France (Figure 2.6 panel B).

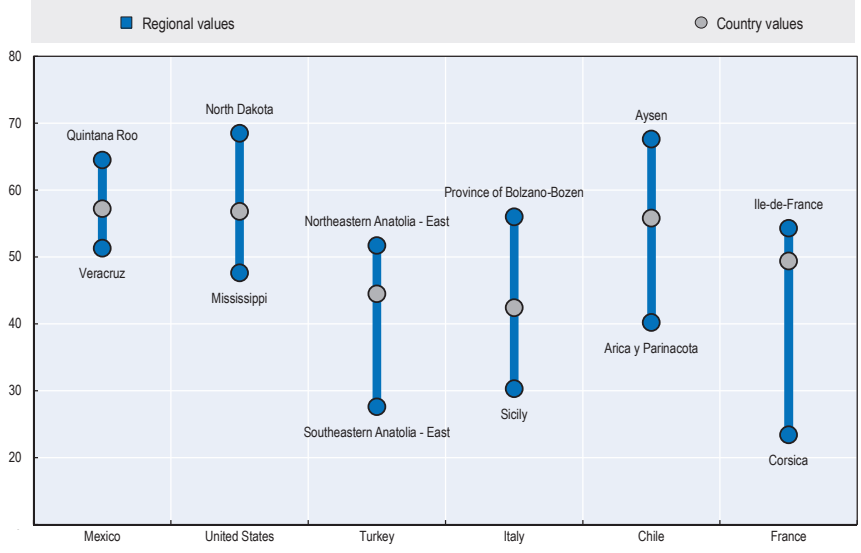
Figure 2.6. **Regional differences in unemployment and employment, 2014**

Mexico and selected OECD regions

Panel A: Unemployment rate



Panel B: Employment rate



Note: Unemployment rate is computed as the ratio between the unemployed and the labour force in a region. The employment rate is computed as the ratio between the employed aged 15 and over and the population in the age group 15 years and over.

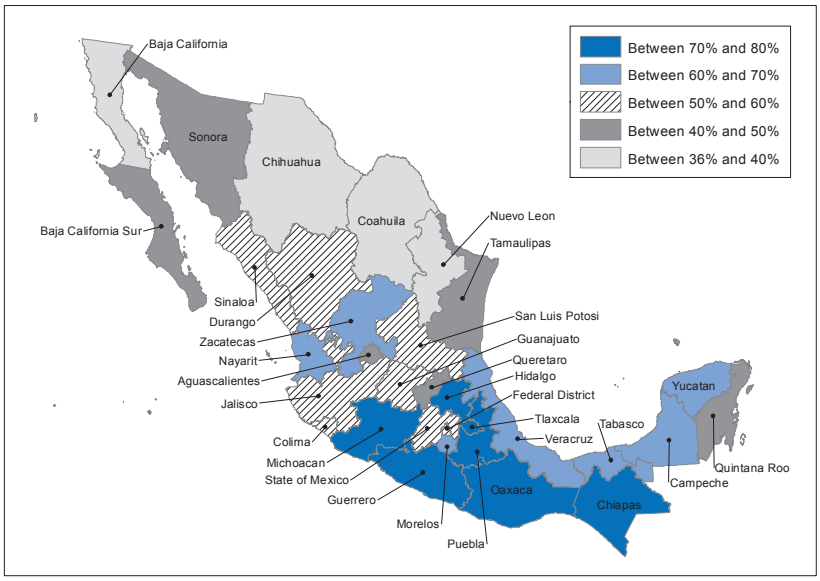
Source: Authors' elaboration based on INEGI (2014b)'s data and OECD (2015a), http://dx.doi.org/10.1787/region-data-en.

The figures above can be misleading of the labour market situation because of the higher level of informality in Mexico compared to OECD countries. Fifty-eight percent of workers had an informal employment relationship in 2014 and this share has not significantly changed since 2005. States with higher informality display a lower

unemployment rate, signalling that the unemployed enter the informal sector and more so in the most recent years.[6] Promoting formal employment is essential to deliver stronger economic growth together with a better sharing of the benefits of increased prosperity among social groups and across places. In 2013, the Ministry of Labour and Social Welfare (Secretaría del Trabajo y Previsión Social, STPS) has launched a broad campaign to promote the formalisation of jobs, encourage better compliance from employers of their obligations regarding the registration of workers at the Mexican Social Security Institute (Instituto Mexicano del Seguro Social, IMSS), and advise workers on labour rights. The *Programa para la Formalización del Empleo* set up by the STPS targets mainly medium and large size firms to promote the registration to the social security. The Fiscal and Social Security Reform proposed during 2013 contains a proposal to strengthen the social security provisions by implementing an Unemployment Insurance Program that will encourage the creation of formal jobs by maintaining the current costs of social security for employers (G20, 2014).

In the states of Chiapas, Guerrero and Oaxaca almost eight out of ten workers had an informal employment relationship in 2014, while less than four out of ten workers did in Baja California, Chihuahua, Coahuila and Nuevo Leon. The comprehensive labour reform law introduced in 2012 contains initiatives to stimulate formal employment by adding new types of contracts that give access to social benefits, although the reduction of informality seems still rather limited. Specific state programmes have been implemented to fight informality, such as the Q-Network in Queretaro to formalise public transportation drivers or JALE in Nuevo Leon to link training to labour market needs (ILO, 2014). The highest decrease in informal employment between 2005 and 2014 is found in Jalisco (-6 percentage points), while in Guerrero informal employment has increased the most (2.4 percentage points) (Figure 2.7).

Figure 2.7. **Informal employment in Mexican states, 2014**

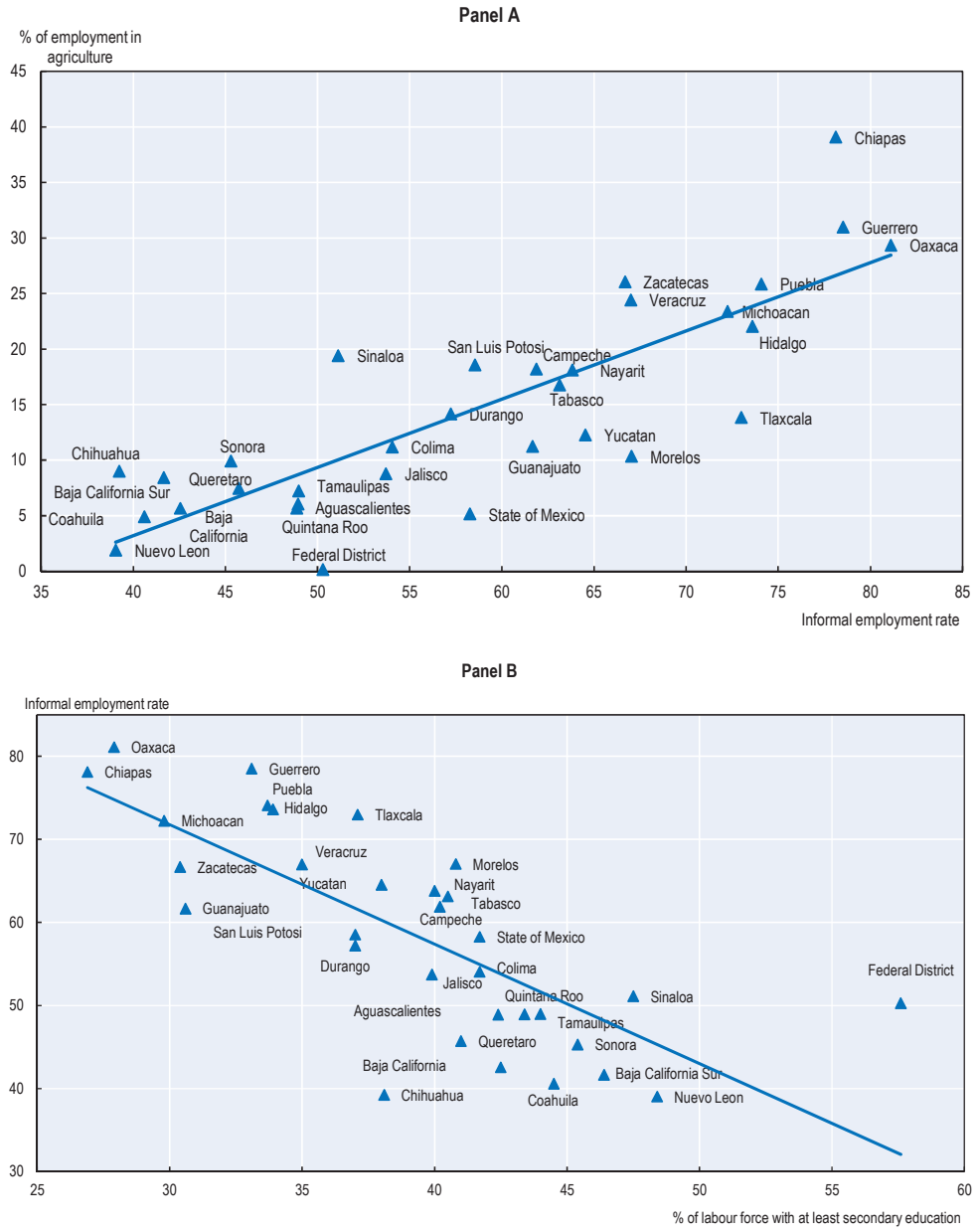


Note: This document and any map included herein are for illustrative purposes and without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

Source: Authors' elaboration based on INEGI (2014b)'s data.

Informality has a clear geographic pattern in Mexico. Southern states, characterised by a large share of agricultural activities, low population density and a small urban population, have higher informality rates (Figure 2.8, panel A). Informality is also negatively correlated with the level of education: an increase of 10 percentage points of the labour force with at least a secondary education corresponds to a reduction in informal employment by 14 percentage points, and this relation has been stable over the past decade (Figure 2.8, panel B).

Figure 2.8. **Informal employment, employment in agriculture and educational attainment, 2013**



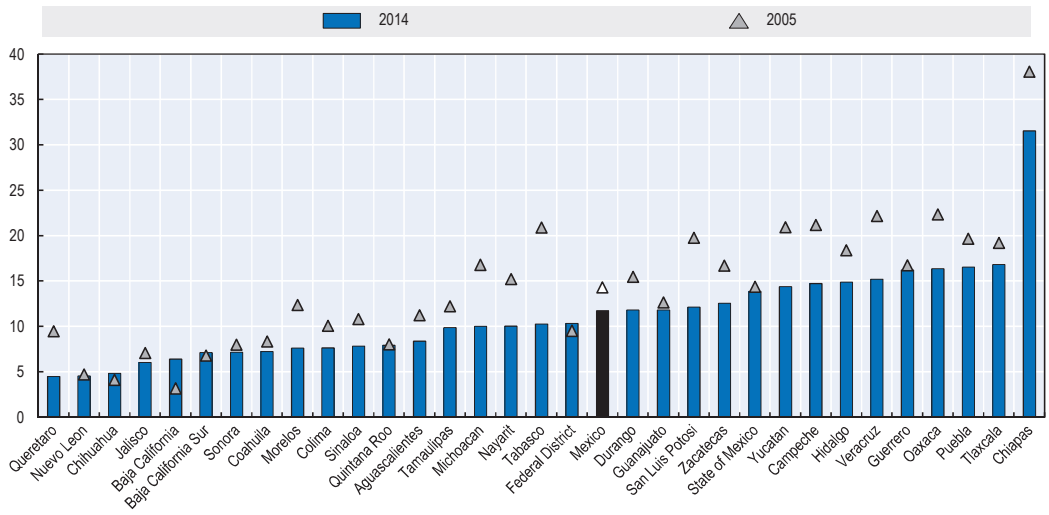
Note: The educational attainment of the labour force in panel B refers to the year 2010.

Source: Authors' elaboration based on INEGI (2014b)'s data and OECD (2015c), http://dx.doi.org/10.1787/region-data-en.

Poor job quality is a major policy concern in Mexico, in particular for what regards earnings.[7] The index of critical conditions of the working population developed by CONEVAL and INEGI provides a measure of the share of employed who work less than 35 hours per week not by choice, who work more than 35 hours per week and have a salary lower than the minimum wage, or who work more than 48 hours per week and have a salary lower than twice the minimum wage. According to this index, in 2014 more than 30% of employment in Chiapas qualifies as in critical conditions, while only 5% in Chihuahua, Nuevo Leon and Queretaro does. Improvements have occurred in many states since 2005 and Tabasco has halved the incidence of workers in critical conditions (from 21% to 10%). During the same period, however, the working population in critical conditions increased in Baja California (from 3% to 6%), the Federal District, Chihuahua and Baja California Sur (Figure 2.9).

Figure 2.9. **Population working in critical conditions**

% of employed in critical working conditions over total working population



Notes: The index of critical conditions of the working population is computed as the percentage over total employed of the employed who work less than 35 hours per week not by choice, who work more than 35 hours per week and have a salary lower than the minimum wage, or who work more than 48 hours per week and have a salary lower than twice the minimum wage.

Source: Authors' elaborations based on INEGI (2014b)'s data.

Housing

Housing conditions can have an important impact on people's well-being. The consultation led by INEGI with state representatives underlined the importance of including in the housing dimension some measures of quality of the dwellings and financial considerations in addition to the indicator on the number of rooms per person used for international comparisons in the *OECD Regional Well-Being Database*. Currently, however, there are no data on housing affordability at the sub-national level; therefore the two indicators retained are the average number of rooms per person, and the percentage of houses with ceilings made of durable materials.

Table 2.4. **Housing: State rankings**

	Number of rooms per person	Houses with ceilings of durable material
Top five (higher well-being), 2010		
1	Federal District	Aguascalientes
2	Chihuahua	Federal District
3	Nuevo Leon	Sinaloa
4	Coahuila	Tlaxcala
5	Baja California	Jalisco
State with the most improvement in 2000-10		
	Queretaro	Yucatan
Bottom five (lower well-being), 2010		
28	Campeche	Veracruz
29	Quintana Roo	Guerrero
30	Oaxaca	Oaxaca
31	Chiapas	Tabasco
32	Guerrero	Chiapas
State that lost the most ground in 2000-2010		
	Baja California Sur	Zacatecas

Note: The state with the most improvement and the one that lost the most ground refer to the absolute change in the period considered.

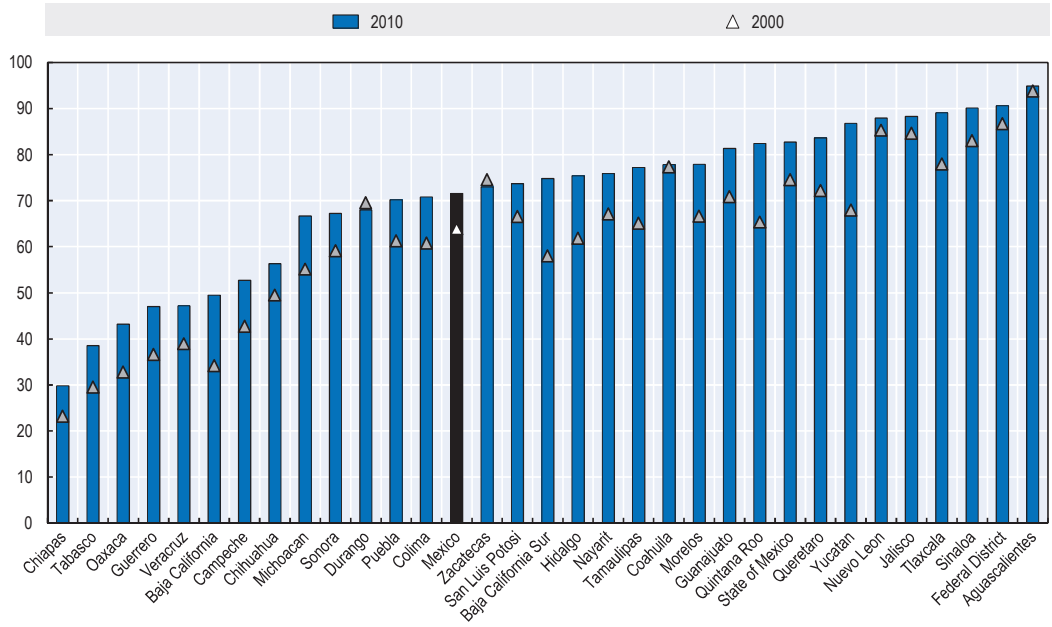
The average number of rooms per person in the household provides indications on the crowded living conditions of people that may have negative effects on the health of the members of the household. The lack of space for children can have detrimental effects on the development of their cognitive, social and emotional skills and can also contribute to the intergenerational transmission of well-being inequality (Solari and Mare, 2012). The number of rooms per person varied between 0.7 in Guerrero and Chiapas to 1.15 in the Federal District. Only 44 out of the 362 OECD regions had on average less than one room per person in 2010; half of them are Mexican states. Living conditions in terms of space has, however, improved in all of the 31 Mexican states and the Federal District in the period 2000-10.

Mexico has made significant progress in facilitating the access to housing to low-income households and in transitioning to formal housing development since the 1970s with the creation of two publicly backed housing agencies. However, since in many cases housing development occurred without regard for urban development plans, it also led to poor-quality houses, far from good schools, hospitals or public transport, imposing long commutes and costly travel to carry out daily activities in metropolitan areas. Partly as a consequence of these policies, urban expansion in Mexican metropolitan areas has been inefficient and costly, and has contributed to social segregation (OECD, 2015d).

Regarding the quality of housing, targeted federal and state programmes such as "Piso Firme", helped increase the number of houses with floors made of durable materials (from 80.4% in 1990 to 93.8% in 2010) and thus reducing differences among states. Currently, large regional differences can still be observed in the share of houses with ceilings made of durable materials. In 2010, less than one out of three houses in Chiapas had ceilings made of durable materials, while in Aguascalientes this figure was close to 95% (Figure 2.10). All Mexican states, with the exception of Durango and Zacatecas, improved in terms of this indicator in the period 2000-10. The largest improvement was observed in Yucatán (from 68% to 87%). On the other hand, more efforts, with programmes such as "Techo Digno", have to be pursued in states like Chiapas, Tabasco,

Oaxaca, Guerrero, Veracruz and Baja California, where less than 50% of the dwellings have ceilings made of durable materials (Figure 2.10).

Figure 2.10. **Percent of houses with ceilings made of durable materials**



Source: Authors' elaboration based on data from INEGI (n.d.a).

The indicators of quantity (rooms per person) and quality (houses with a durable ceiling) are positively correlated across the Mexican states in the years 2000 and 2010; however, monitoring both indicators can help target the types of improvements needed. For example, whereas Chihuahua and Baja California have good levels of number of rooms per person (respectively, the second and fifth highest values in the country), they fare poorly on quality of housing (25th and 27th in the state rankings, respectively).

Health

Being in good health is not only one of the most important determinants of quality of life but also contributes to the development of other well-being dimensions, such as capacity to pursue education, opportunity to find a job and adequate social connections, for instance. Poor health is consistently associated with lower satisfaction with life as a whole.

In international comparisons, Mexico fares poorly on life expectancy at birth, the indicator used in the *OECD Regional Well-Being Database*. To better understand health outcomes and how specific challenges play out across states, four more indicators were added to life expectancy at birth: infant mortality rate, maternity mortality rate, percentage of adults with obesity, and the subjective indicator on self-reported satisfaction with health. Nuevo Leon (for the first three indicators), Queretaro and Baja California Sur are the states with the highest performance in 2014, respectively in the selected indicators; while Chihuahua, Puebla, Campeche, Yucatan and Oaxaca are the worst off (Table 2.5).

Table 2.5. **Health: State rankings**

	Life expectancy at birth	Infant mortality rate	Maternal mortality rate	Adult obesity	Self-reported health
Top five (higher well-being), 2013					
1	Nuevo Leon	Nuevo Leon	Nuevo Leon	Queretaro	Baja California Sur
2	Federal District	Coahuila	Jalisco	Chiapas	Nuevo Leon
3	Baja California Sur	Sinaloa	Colima	State of Mexico	Sonora
4	Colima	Aguascalientes	Tlaxcala	Hidalgo	Sinaloa
5	Aguascalientes	Colima	Aguascalientes	Guerrero	Chihuahua
State with the most improvement in 2000-13					
	Chiapas	Chiapas	Quintana Roo	Zacatecas	–
Bottom five (lower well-being), 2013					
1	Baja California	Chihuahua	Yucatan	Oaxaca	Morelos
2	Oaxaca	Guerrero	Chiapas	Tabasco	Guerrero
3	Guerrero	Tlaxcala	Guerrero	Campeche	Puebla
4	Chiapas	State of Mexico	Chihuahua	Baja California Sur	Veracruz
5	Chihuahua	Puebla	Campeche	Yucatan	Oaxaca
State that lost the most ground in 2000-13					
	Chihuahua	Nuevo Leon	Baja California Sur	Oaxaca	–

Note: The state with the most improvement and the one that lost most ground refer to the absolute change in the period considered. The latest available year for life expectancy is 2014 and the change is computed on the period 2000-14. The latest available year for the obesity is 2012 and the change is computed on the period 2006-12. The only available year for the self-reported health is 2012.

Compared to the OECD average, life expectancy at birth in Mexico is five years shorter (75 years in 2014). A similar difference is observed within the country, 76 years in the state of Nuevo Leon and 72 years in the state of Chihuahua (OECD, 2014a and OECD, n.d.). Life expectancy at birth has increased in all states over the last 24 years, resulting in a cumulative national gain of 4.2 years. During the same period, life expectancy in Chiapas has increased by around 6 years, while in Sinaloa by only 2.4 years.

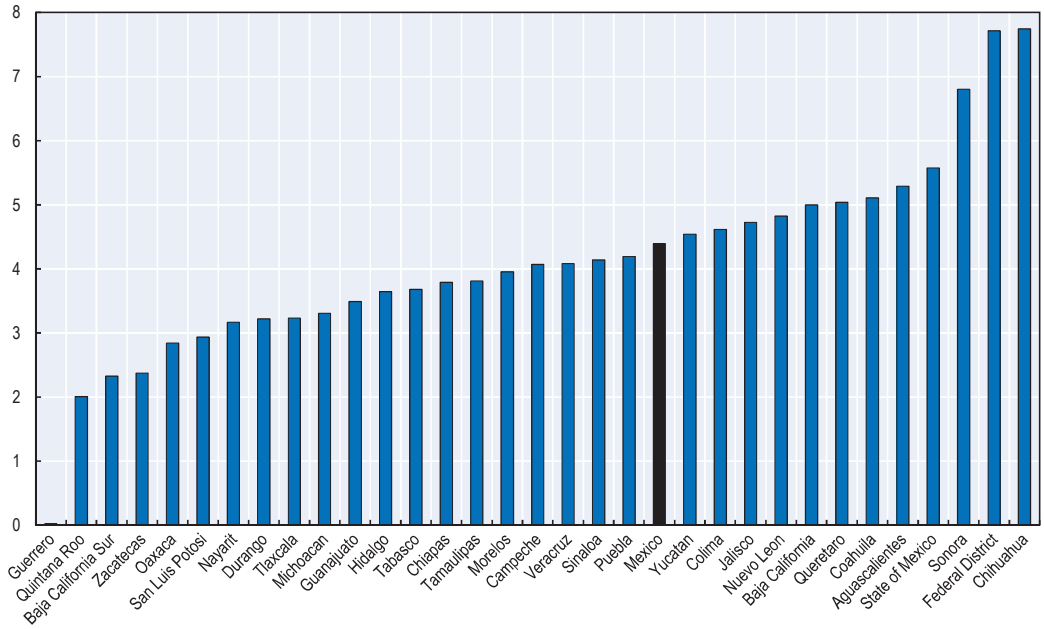
Life expectancy in Mexico varies also by socio-economic status as measured for instance by education level. On average, people with the highest level of education can expect to live 4.1 years more than people with the lowest level of education at age 25. These differences in life expectancy by education are particularly pronounced in Chihuahua and the Federal District (7.7 years) and in Sonora (6.8) (Figure 2.11).

Gains in life expectancy at birth in Mexico are also to be attributed to the health policies of the last 20 years. They include the increased immunization coverage, prenatal care and the introduction in 2004 of the universal health care coverage *Seguro Popular* to complement health insurance that was previously entitled only through employment status. However, the healthcare provision in Mexico is highly fragmented and it translates into differences in access and quality of practice across states, depending on the share of population affiliated to the different providers (OECD, 2015b).

With a rate of 13 deaths per 1 000 live births in 2013, infant mortality is still an important concern in Mexico compared to most OECD countries where the infant mortality rate was below 4 deaths per 1 000 live births. Among OECD countries for which sub-national data are available, Mexico displays the largest regional differences in infant mortality, followed by the United States, Canada, Spain and the Slovak Republic (OECD, 2013a). In the state of Puebla (16 deaths per 1 000 live births), the infant mortality rate is two times higher than in Nuevo Leon. Infant mortality rates are high also in Chihuahua, Guerrero, Tlaxcala and the State of Mexico, all above 14 deaths per 1 000 live births.

Figure 2.11. **Gap in life expectancy by educational attainment at age 25, in years, 2008-12**

Difference between life expectancy (in years) at age 25 between those with a secondary or higher education and those with lower than a secondary education



Note: "Lower than secondary education" corresponds to no education, pre-primary, primary and lower secondary (code X, 0, 1 or 2 in the ISCED 97); while "secondary or higher education" groups upper, post-secondary non-tertiary, and first and second stage of tertiary education (code 3, 4, 5 or 6 in the ISCED 97).

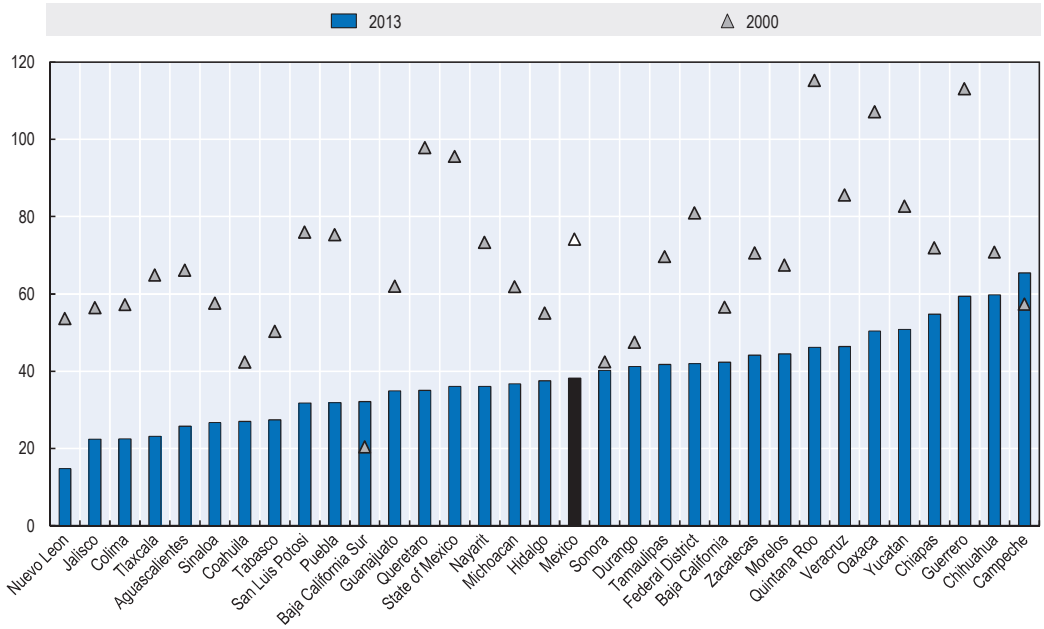
Source: Authors' elaboration based on data from INEGI (n.d.a and n.d.c) and CONAPO (n.d.).

Maternal mortality in Mexico has dramatically improved, decreasing from 74 deaths for 100 000 live births in 2000 to 38 deaths for 100 000 live births in 2013. The value is, however, well above the other OECD countries (OECD (2015e) *Health Status Statistics*). In 14 states and the Federal District, the maternal mortality rate was above 40 deaths per 100 000 live births in 2013 and only in Nuevo Leon was it below 15, a value comparable to that of Chile and Turkey. Quintana Roo and Queretaro have registered the largest gains, reducing the maternal mortality by more than 60 percentage points in the period 2000-13 (Figure 2.12).

About 32% of Mexican adults were obese in 2012, the second highest rate in the OECD, after the United States' (36.5%). Obesity rates have increased steadily since 2006 as has the difference among states due to a faster deterioration in the worst off states. In 2012, 45% of adults in Yucatan were obese, while 25.4% were in Queretaro (Figure 2.13). Mexico launched one of the most comprehensive government strategies to address the problem in 2013, including awareness-raising, healthcare, regulatory and fiscal measures. The obesity rates available by state can help to better target prevention programmes at the state level. A number of states have indeed started piloting the use of new technologies and non-economic incentives for physicians, with the objective of increasing uptake and compliance to medical prescriptions for people with diabetes, high blood pressure and other related chronic diseases (OECD, 2014b).

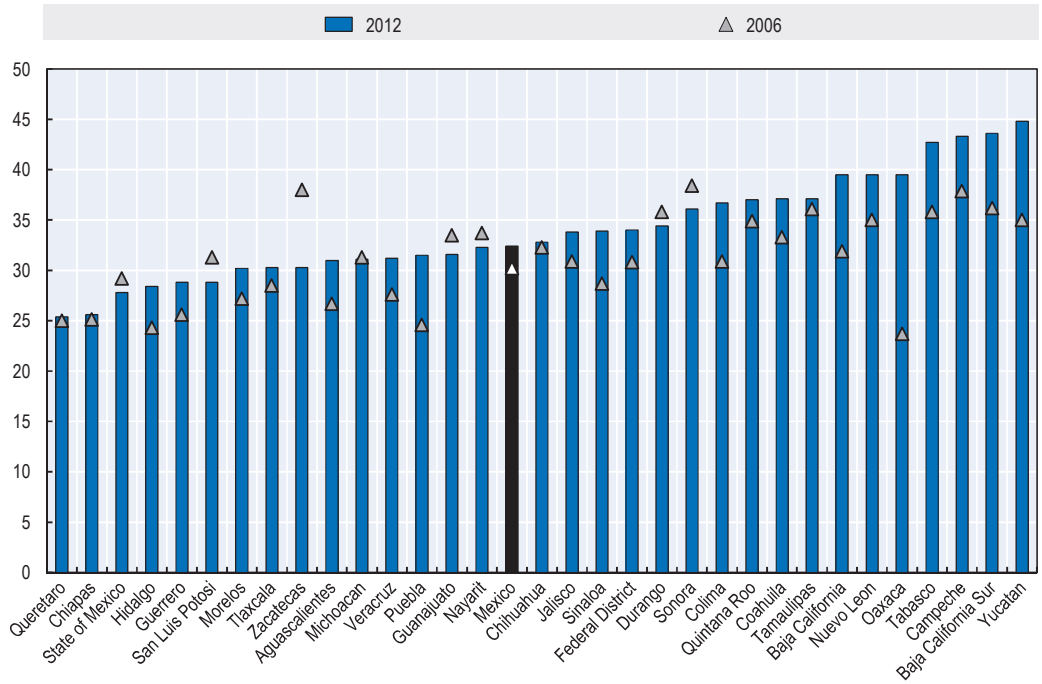
Figure 2.12. **Maternal mortality rate**

Number of maternal deaths per 100 000 live births



Source: Authors' elaboration based on data from SALUD (n.d.a) and CONAPO (n.d.).

Figure 2.13. **Percent of obese adults in Mexico**



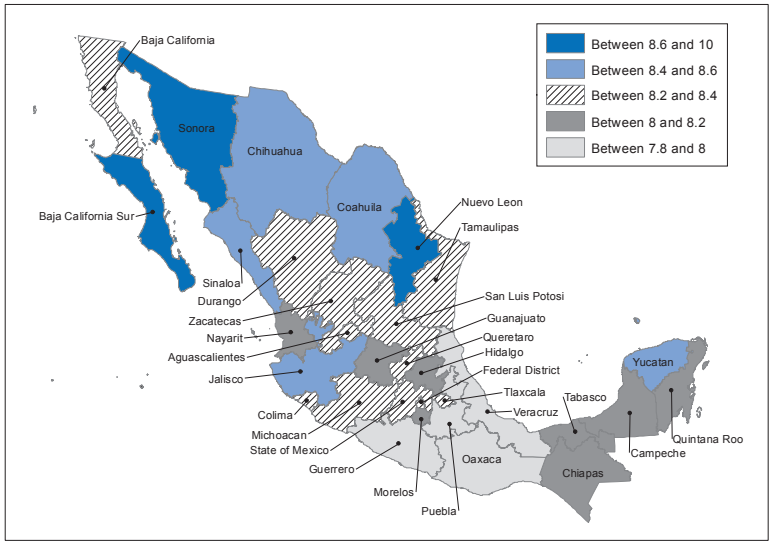
Note: Data refer to people aged 20 years old or older.

Source: Authors' elaboration based on data from SALUD (n.d.b).

Self-reported health provides a complementary perspective on people's health status. INEGI was one of the first national statistical offices to introduce a comprehensive survey to measure subjective well-being, recently extended to provide values also at sub-national level (Box 2.4). Among the health indicators, self-reported health has the smallest variation between Mexican states and it is positively correlated with life expectancy at birth. On average, people in Oaxaca, the state with the lowest average health satisfaction, rate their health as 7.9 on a scale from 0 to 10, while in Baja California Sur the average value is 8.8 (Figure 2.14).

Figure 2.14. **Average self-reported health, 2012**

Satisfaction with one's health on an increasing scale from 0 to 10



Note: State values are the average of individual's self-reported satisfaction with their own health on a scale from 0 to 10. This document and any map included herein are for illustrative purposes and without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

Source: Authors' elaboration based on data from INEGI (2012).

Accessibility to services

Measuring accessibility to services allows to better understand how place-based factors affect individual well-being. The geographical proximity to the place where a given service is provided, the ability to afford such a service, the social and institutional arrangements conducive to use a service, all have an impact on an individual's opportunity and well-being and they may vary according where a person lives (OECD, 2014a). The accessibility to services dimension of the OECD Regional Well-being framework refers to the provision of both basic services (e.g. public utilities and health services) that contribute to a decent standard of living in terms of material conditions as well as services that improve the quality of life, such as education, cultural and natural amenities, information and communication technologies, transport, etc. Better access to transport, including a broad choice of transportation modes, for example, helps individuals to reach places of employment and leisure, and to reduce their commuting time.

To measure accessibility to services in the Mexican states, three indicators have been selected: the percent of households with connection to broadband, that coincides with the indicator used in the *OECD Regional Well-Being Database*; the percent of dwellings with access to basic services (piped water, drain lines and electricity); and the percent of people with access to public health services. While the two first indicators refer to geographical limitation in the access to services mainly related to material conditions (the first one for an advanced service and the second one for basic services), the third indicator reflects the economic and institutional limitations to access a service that determine non-material conditions such as health. All three indicators of access to services have improved in Mexico in the recent years. However, large regional disparities still exist and targeted actions in those states and areas lagging behind would contribute to significant changes nationally. In the latest available year, the state of Nuevo Leon, the Federal District and the state of Campeche fare the best in the three selected indicators respectively, and Chiapas, Guerrero and Puebla fare the worst (Table 2.6).

Table 2.6. **Access to services: State rankings**

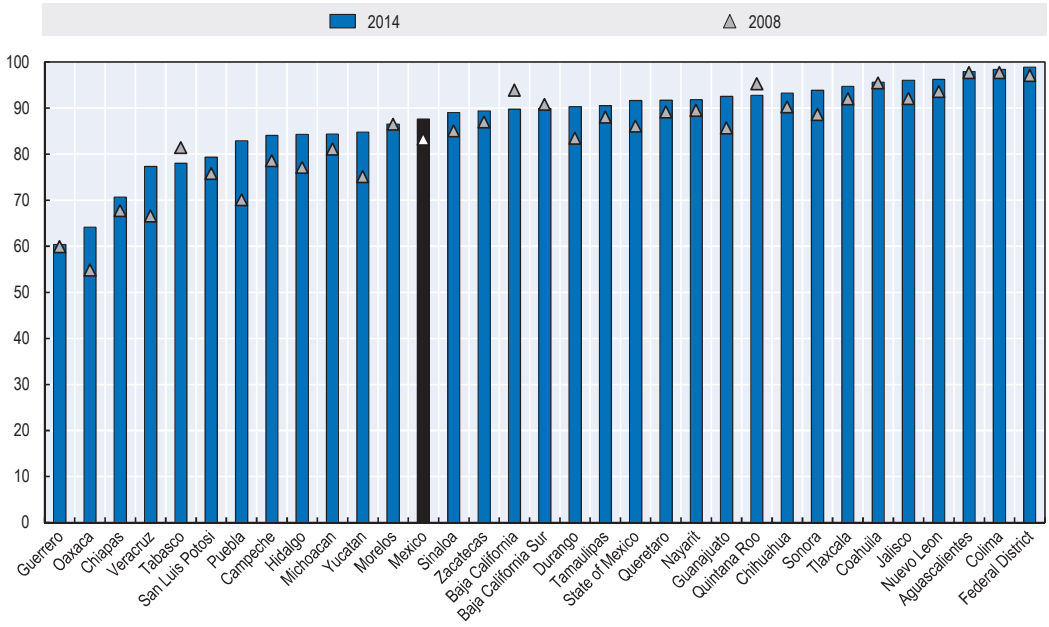
	Households with broadband access	Dwellings with access to basic services	Percent of people with access to public health services
Top five (higher well-being), 2014			
1	Nuevo Leon	Federal District	San Luis Potosi
2	Federal District	Colima	Campeche
3	Baja California	Aguascalientes	Aguascalientes
4	Quintana Roo	Nuevo Leon	Colima
5	Sonora	Jalisco	Nuevo Leon
State with the most improvement in 2008-14			
	Nuevo Leon	Puebla	Guerrero
Bottom five (lower well-being), 2014			
28	Michoacan	Tabasco	Federal District
29	Veracruz	Veracruz	Chiapas
30	Guerrero	Chiapas	Puebla
31	Oaxaca	Oaxaca	Veracruz
32	Chiapas	Guerrero	Michoacan
State that lost the most ground in 2008-14			
	Chiapas	Baja California	Colima

Note: The state with the most improvement and the one that lost the most ground refer to the absolute change in the period considered. The period considered for the indicator on broadband connection is 2010-14.

A broadband connection is an important requirement for having access to information, job possibilities and to other services that shape people's quality of life. While access to a broadband connection has been improving rapidly in all OECD countries including Mexico, regional variation in Mexico is the fourth largest among OECD countries. In 2014, only 10% of households in Chiapas had a broadband connection while more than 50% did in the Federal District and in the states of Nuevo Leon and Baja California (OECD, 2014b and OECD, n.d.).

The dwellings with access to basic services (which include piped water, drain lines and electricity) vary largely within Mexico. In 15 states and the Federal District, more than 90% of the households have access to these services, while in the state of Guerrero only 60.4% do (Figure 2.15). A clear rural-urban divide still exists in the access to basic services, with urban dwellings better served than rural ones (the share of urban population is significantly and positively correlated with the access to basic services across states).

Figure 2.15. **Percentage of dwellings with access to basic services**

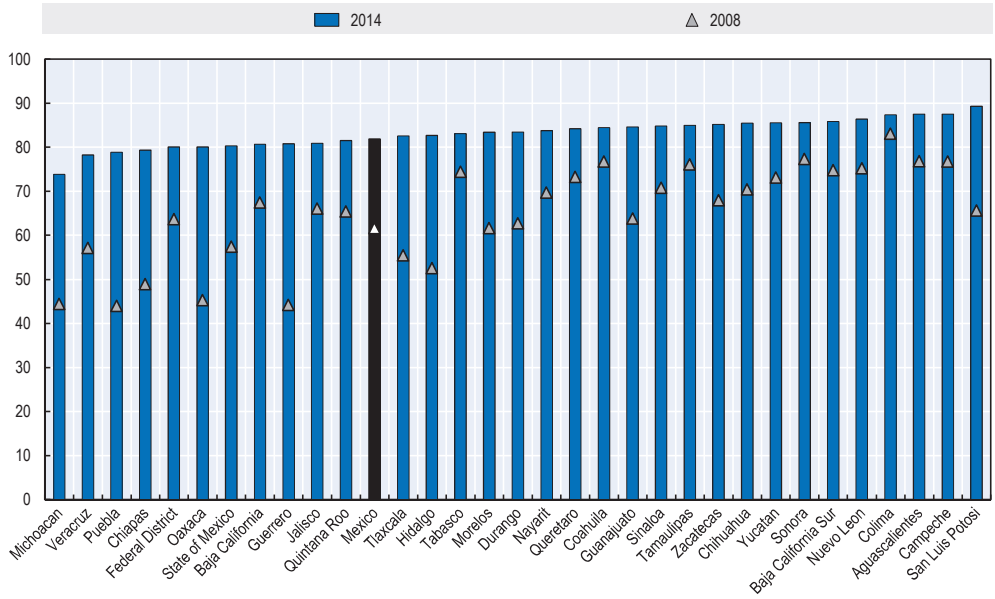


Note: Basic services include piped water, drain lines or septic tank, and electricity. The percentage refers to the dwellings that have all the three basic services.

Source: Authors' elaboration based on data from INEGI (2014a).

Accessibility to public health services greatly improved in all Mexican states in the period 2008-14, in part as a result of federal and local health programmes and reforms, among which the healthcare programme *Seguro Popular* launched in 2004. In the states of Oaxaca and Guerrero, for instance, the number of people with access to health services has increased from around 44% to over 80%, in only six years. The states of Aguascalientes, Campeche, Colima and San Luis Potosi have reached levels of public health coverage close to 90% (Figure 2.16). Accessibility to public health services is strongly associated with health outcomes in Mexican states, in particular with infant mortality rates, and thus improved access to health services to all groups of population and locations can help target other well-being outcomes.

Figure 2.16. **Percent of people with access to public health services**



Note: A person is considered to be deprived of access to health services when he/she is not enrolled in or entitled to receive medical services from any institution offering them, including the *Seguro Popular*, the social security public institutions (IMSS, federal or state ISSSTE, army or navy) or private medical services.

Source: Authors' elaboration based on data from CONEVAL (2015).

Safety

Personal safety is one of the most critical dimensions of well-being in Mexico. In the past years, Mexico has experienced a surge in crime and murders. The homicide rate, for instance, was ten times higher than the OECD average in 2013. Crime has not only a direct effect on the victims and their families, but also on those who are not victims but live in the same community, as shown by the increasing feelings of insecurity and low trust in the capacity of national and local institutions to handle the safety issue. Large regional differences can be observed in Mexico in the number of crimes, homicides, perception of personal safety and public trust, the four indicators selected. According to the latest data, Yucatan is the state that fares the best both for the homicide rate and trust in the state police. Aguascalientes and Chihuahua have seen the largest improvement in the crime rate and self-reported safety, respectively. Guerrero fares the worst for homicide rate, the State of Mexico for crime rate and self-reported safety, and the Federal District for trust in the state police (Table 2.7).

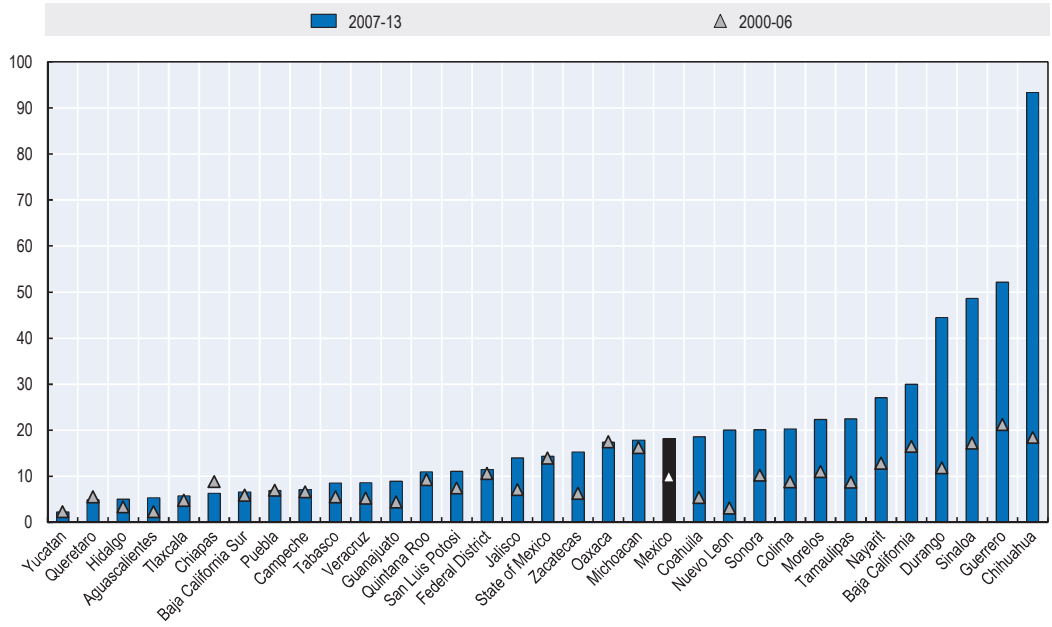
Mexico is the country with the highest regional disparities in homicide rates among OECD countries. In 2013 the gap in homicides between Guerrero and Yucatan was 62.4 homicides per 100 000 people, 3.5 times higher than the difference observed across provinces in Canada, the country with the second largest disparities in the OECD area (OECD, 2014b and OECD, n.d.). On average in the period 2006-13, the homicide rate ranged from 2 homicides per 100 000 people in the state of Yucatán, a value similar to the OECD average, to 93 in Chihuahua. Since 2006, also because of the drug war, Chihuahua, Durango, Sinaloa and Guerrero experienced an increase in the number of homicides of more than 30 homicides per 100 000 (Figure 2.17).

Table 2.7. **Safety: State rankings**

	Homicide rate	Crime rate	Self-reported safety	Trust in the state police
Top five states (higher well-being), 2014				
1	Yucatan	Chiapas	Nayarit	Yucatan
2	Aguascalientes	Tamaulipas	Yucatan	Zacatecas
3	Hidalgo	Oaxaca	Sinaloa	Nuevo Leon
4	Queretaro	Durango	Chihuahua	Colima
5	Baja California Sur	Hidalgo	Baja California Sur	Aguascalientes
State with the most improvement in 2011-14				
	Campeche	Aguascalientes	Chihuahua	Nuevo Leon
Bottom five states (lower well-being), 2014				
28	Colima	San Luis Potosi	Guanajuato	Michoacan
39	Morelos	Jalisco	Federal District	Morelos
30	Sinaloa	Federal District	Morelos	Tabasco
31	Chihuahua	Baja California	Tabasco	State of Mexico
32	Guerrero	State of Mexico	State of Mexico	Federal District
State that lost the most ground in 2011-14				
	Chihuahua	State of Mexico	Tabasco	Chiapas

Note: The state with the most improvement and the one that lost the most ground refer to the absolute change in the period considered. The period considered for homicide rate is 2000-13. The period considered for crime rate is 2010-13.

Figure 2.17. **Homicides per 100 000 people**



Note: Average of the yearly homicides per 100 000 people.

Source: Authors' elaboration based on data from INEGI (n.d.a and n.d.d) and CONAPO (n.d.).

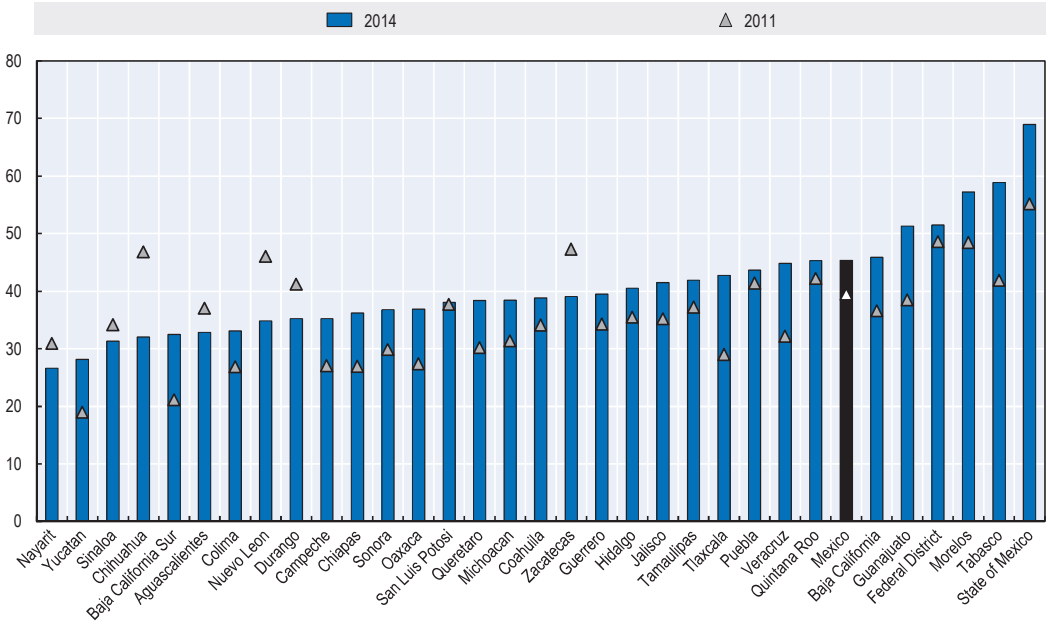
Preliminary data show a strong reduction in the number of homicides in 2014, with a rate of 16 homicide per 100 000 people. According to these preliminary data, the reduction of homicides would be particularly important in Coahuila, Chihuahua,

Durango, Guerrero, Jalisco, the State of Mexico, Morelos, Nayarit and Nuevo Leon (INEGI 2015b).

Crimes against people and property were on the rise in 21 states, the highest crimes rates are found in the State of Mexico and the state of Baja California and the lowest in Chiapas and Tamaulipas in 2014. Crimes against property tend to concentrate in cities and the extent to which these crimes are reported increases with GDP per capita in Mexico as in other OECD countries (OECD/IMCO, 2013).

Data on self-reported victimisation and perception of safety derived by the National Survey of Victimization and Perception of Public Safety (Encuesta Nacional de Victimización y Percepción sobre Seguridad Pública, ENVIPE) complements the reported crimes. In 2014, more than 68% of people in the State of Mexico feel unsafe in their municipality of residence while the figure is less than 30% in the states of Nayarit and Yucatan. The perception of unsafety increased in 25 states between 2011 and 2014, the most in Tabasco (17 percentage points), while Chihuahua has reduced the most the perception of unsafety (15 percentage points), although the homicide rate has increased dramatically (Figure 2.18).

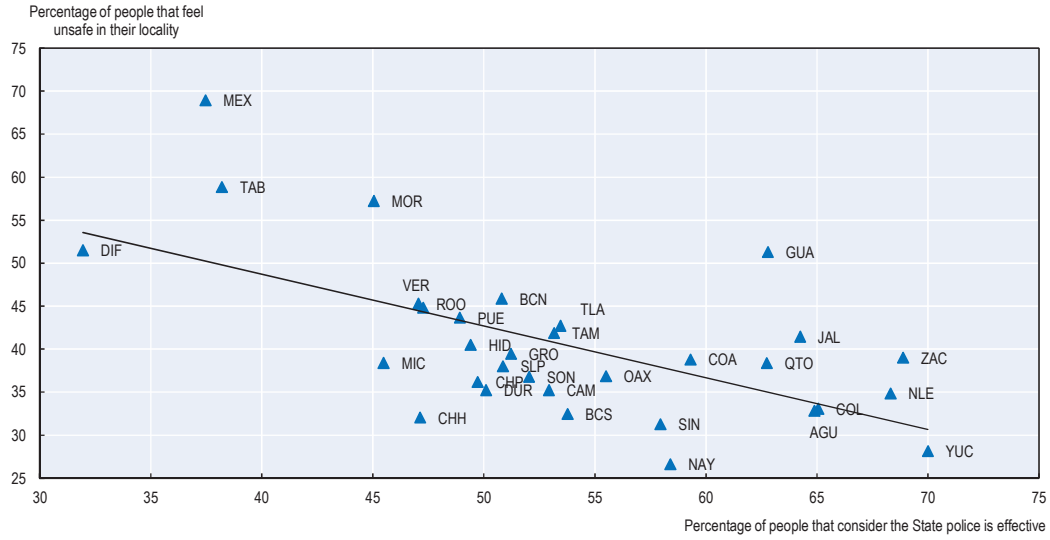
Figure 2.18. **Percent of people who feel unsafe in their locality or neighbourhood**



Source: Authors' elaboration based on data from INEGI (2015a).

In 10 out of 31 states and the Federal District, less than half of the population considered the state police effective in 2014. The level of trust in public authorities is correlated with both objective and subjective measures of safety in Mexican states. For example, the higher the share of people feeling unsecure in their municipality, the lower the trust in the state police (Figure 2.19). Although trust in the effectiveness of the police is low, it has increased in all states since 2011, with the exception of Chiapas.

Figure 2.19. **Perception of safety and trust in the state police, 2014**



Source: Authors' elaboration based on data from INEGI (2015a).

Education

Both education coverage and its quality are important outcomes to be monitored in Mexico because of educational gaps compared to other OECD countries and sharp regional differences. As a share of GDP, public spending on education is around the OECD average, but spending per student is only one-third of the OECD average for all levels of education. In terms of educational outcomes, the share of the labour force with at least a secondary education in Mexico was 40%, compared to 77% in the OECD area; 13% of upper secondary education students abandoned school before completion; and education performance, measured by the mean score in mathematics in the OECD PISA test, was the lowest among OECD regions (OECD, 2014c). All three indicators chosen to monitor education outcomes have improved in the past 20 years but large regional differences still affect negatively the overall performance of Mexico. The gap in secondary educational attainment between the Federal District (58%) and the state of Chiapas (27%) are the second largest among OECD countries after Turkey (OECD, 2014b and OECD, n.d.). Jalisco fares the best for its low rate of student drop-outs and Nuevo Leon the worst. Finally, Aguascalientes and Guerrero have the top and bottom performance, respectively, according to the PISA test (Table 2.8).

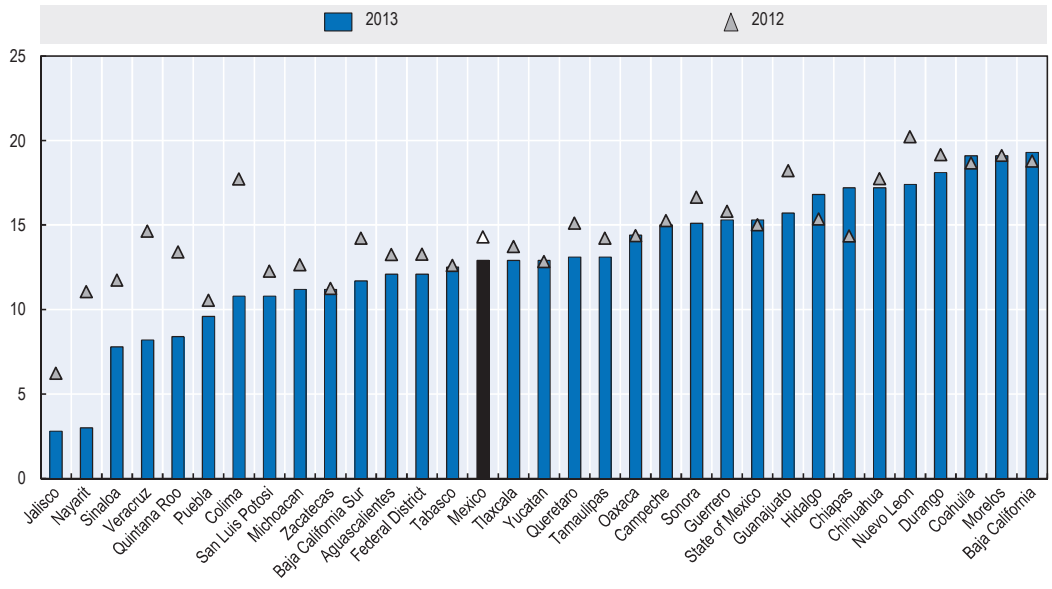
Regional variations are also large at all levels of education. While access to education for 5-14 year olds is universal in virtually all OECD countries, Mexico has one of the smallest proportions of 15-19 year olds enrolled in education (53%) among OECD countries. Secondary school graduation rates are relatively low and school drop-out rates are high compared also to other Latin American countries. In 13 out of 31 states, more than 15% of secondary school students dropped out of school in 2013 (Figure 2.20).

Table 2.8. **Education: State rankings**

	Secondary educational attainment	Student drop-outs (secondary education)	Education performance (PISA score)
Top five states (higher well-being), 2012			
1	Federal District	Jalisco	Aguascalientes
2	Nuevo Leon	Nayarit	Nuevo Leon
3	Sinaloa	Sinaloa	Jalisco
4	Baja California Sur	Veracruz	Queretaro
5	Sonora	Quintana Roo	Colima
State with the most improvement in 2003-12			
	Oaxaca	Nayarit	Tlaxcala
Bottom five states (lower well-being), 2012			
28	Guanajuato	Nuevo Leon	Veracruz
29	Zacatecas	Durango	Campeche
30	Michoacan	Coahuila	Tabasco
31	Oaxaca	Morelos	Chiapas
32	Chiapas	Baja California	Guerrero
State that lost the most ground in 2003-12			
	Nuevo Leon	Chiapas	Colima

Note: The state with the most improvement and the one that lost the most ground refer to the absolute change in the period considered. The period considered for educational attainment is 2000-10. The period considered for student dropout is 2012-13. PISA scores are not available for Michoacan, Oaxaca and Sonora, thus the ranking refers to 29 states.

Figure 2.20. **Percent of secondary school dropouts over total enrolled students**

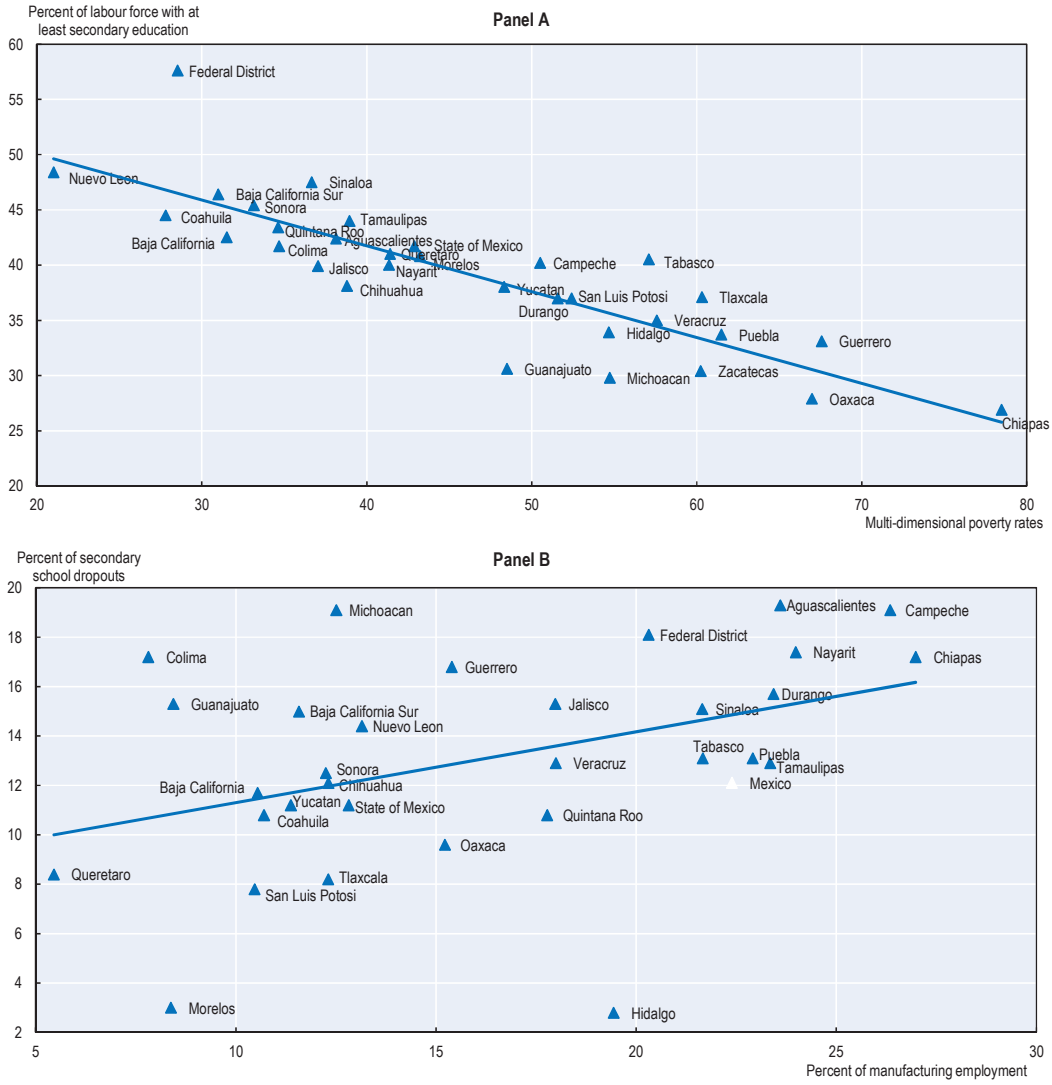


Source: Authors' elaboration based on data from SEP (n.d.)'data.

Beyond the educational system, family background and the characteristics of the place where students live affect educational attainments and students' performance (Kearney and Levine, 2014; Mussida and Pastore, 2015). Focusing on improving other well-being outcomes, such as alleviating poverty, improving safety of the area or increasing wage premium for high-skilled labour, may have a positive impact on

educational outcomes. In Mexico, states with higher poverty rates display lower secondary educational attainments (Figure 2.21, panel A). A similar, although weaker, negative correlation exists among the share of manufacturing employment in a state and the school dropout rates (Figure 2.21, panel B), a sign that the industrial structure of the region, with relatively higher demand for low-skilled labour, increases the opportunity cost of keeping children in school (O'Higgins et al., 2008; Le Brun, Helper and Levine, 2011).

Figure 2.21. **Educational outcomes, poverty and employment in manufacturing, 2013**

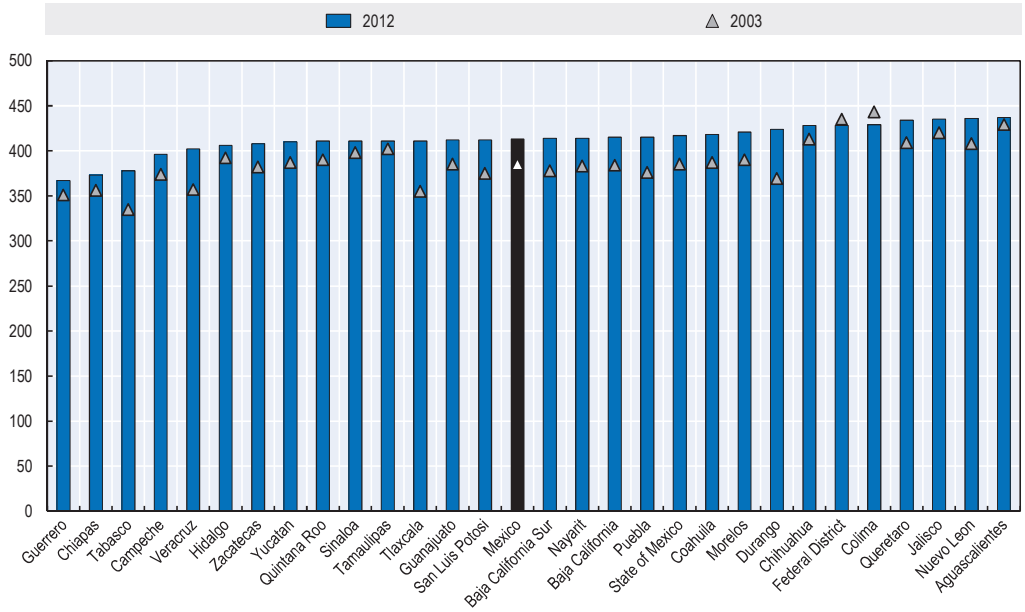


Source: Authors' elaboration based on data from SEP (n.d.) and CONEVAL (2015) and OECD (2015c), http://dx.doi.org/10.1787/region-data-en.

In 2012, Mexican students 15 years old scored 413 points, on average, on the PISA mathematics assessment, an increase of 28 points since PISA 2003 and the biggest improvement among OECD countries. However, overall, Mexico's students score 81 points below the OECD average of 494 points in mathematics – the equivalent of about two years of schooling (OECD, 2014c). Student achievement varies largely across

Mexican states and the Federal District. The difference between the academic performance in Aguascalientes, where the PISA score is almost as high as in Greece and above that of Chile, and in Guerrero is equivalent to one year of schooling (Figure 2.22).

Figure 2.22. **Average PISA scores in mathematics**



Note: PISA scores for the states of Michoacan, Oaxaca and Sonora are not available.

Source: OECD (2014d), http://dx.doi.org/10.1787/04711c74-en.

Environment

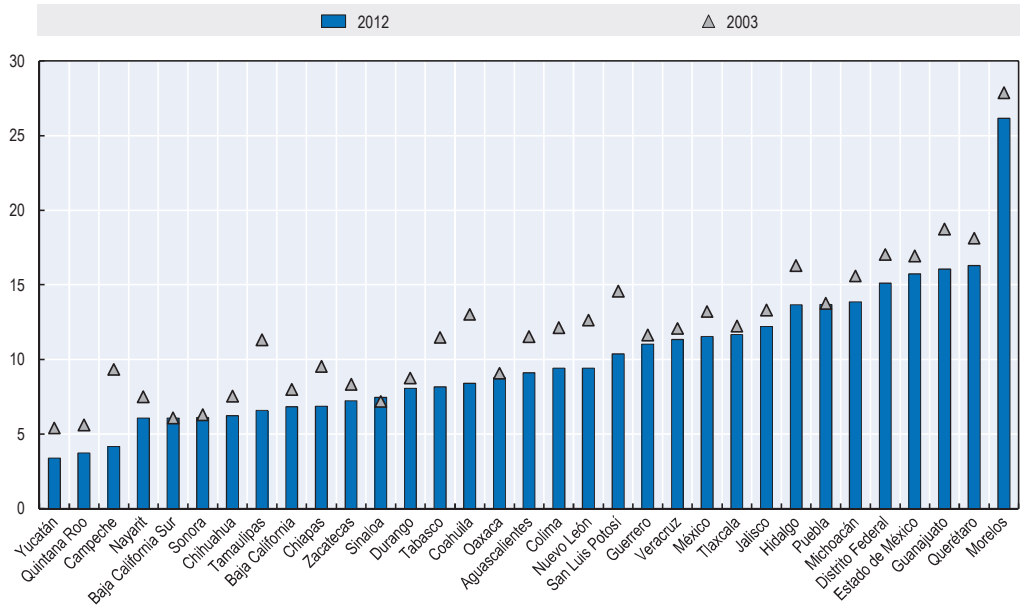
Environmental quality can vary remarkably across places within a country and according to the different environmental issues considered. Exposure to air pollution, for instance, varies greatly depending on whether people live in cities or in rural areas. To provide consistent measures of the magnitude and spatial distribution of air pollution across and within countries, the OECD has developed a methodology that combines satellite data with the geographic information system. This methodology allows a measure of the average exposure of the population in each region to the concentration of fine particles in the air ($PM_{2.5}$) (Brezzi and Sanchez-Serra, 2014). Based on this measure, in 58% of the OECD regions (accounting for 64% of the total OECD population), levels of air pollution were higher than the World Health Organisation's recommended maximum of 10 $\mu g/m^3$ in 2011. Across the Mexican states and the Federal District, the average exposure to air pollution varied between 3.4 $\mu g/m^3$ on average in Yucatán to 26 $\mu g/m^3$ in Morelos in 2011 (Figure 2.23).[8]

Regional differences in air pollution are the 4th largest among OECD countries, with Yucatan being among the top 10% of OECD regions for air quality and Morelos among the bottom 10%. Although in 12 states and the Federal District air pollution levels were above the World Health Organisation's threshold in 2011, air quality has improved in all states in Mexico since 2002. The largest improvements are found in Campeche, Yucatán and Quintana Roo that already had relatively low levels of air pollution in 2002 (Figure 2.23). Because of the geographical concentration of people, economic activities

and emissions from different sources, cities usually record higher air pollution than the rest of the country. However, cities' differing characteristics and regulatory and policy efforts to reduce air pollution can lead to large differences in air quality across cities in the same country. For example, the average exposure to $PM_{2.5}$ in Cuernavaca (Morelos) and Celaya (Guanajuato) is more than three times higher than in Mérida (Yucatan), Reynosa (Tamaulipas) and Benito Juarez (Quintana Roo) (OECD, 2015c).

Figure 2.23. **Average exposure to air pollution**

State population-weighted average $PM_{2.5}$ levels



Note: Data refer to three-year average measures (2001-03; 2010-12). The values provide the average level of air pollution in each state. The state average is obtained by weighting the observed levels of $PM_{2.5}$ by the population in a 1 km^2 grid and summing the values within each state.

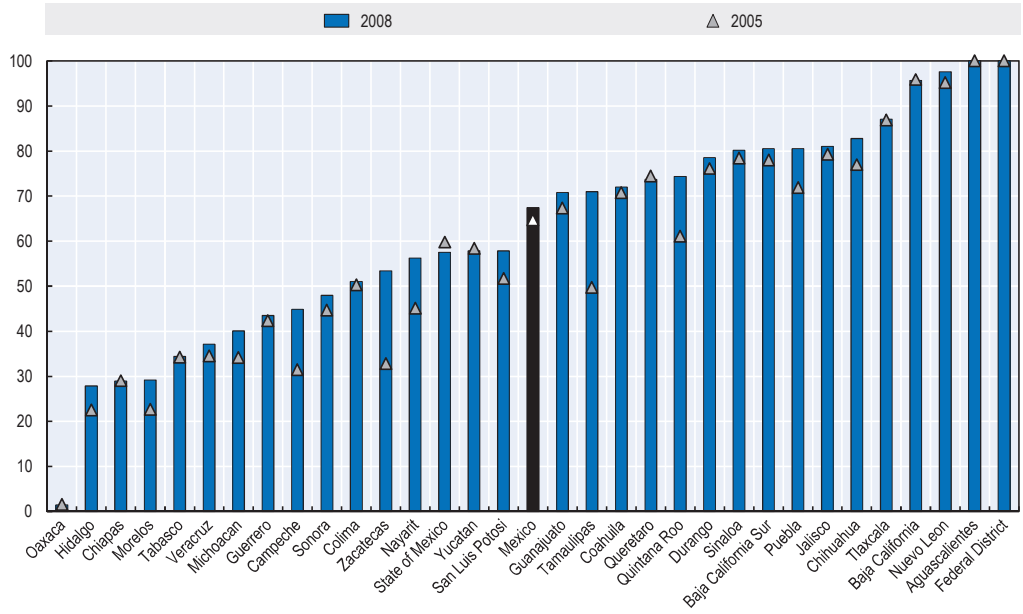
Source: OECD (2015a), http://dx.doi.org/10.1787/region-data-en. Calculations based on Van Donkelaar et al. (2015).

Waste management and treatment are of particular concern in the states of Chiapas, Hidalgo and Oaxaca, where less than 30% of the waste was disposed in controlled areas in 2008, while in Aguascalientes, Baja California, the Federal District and Nuevo Leon the value was above 90%. The states of Tamaulipas and Zacatecas have dramatically improved the share of waste disposed in controlled areas in only three years, 21 and 20.5 percentage points respectively (Figure 2.24).

Environmental outcomes should be monitored according to different natural capital (water, biodiversity, air, green areas, etc.), their relevance for current and future well-being, and the policy objective at stake (for instance reducing greenhouse gas emissions, preserving natural amenities, increasing access to water, etc.). The consultation led by INEGI underlined the relevance of broadening the environmental indicators available at sub-national level in Mexico beyond the two selected ones (Table 2.9), in particular on water access and quality, air pollution and ecological capital. To this aim, further co-ordination for the production and dissemination of environmental

indicators is needed across federal agencies and INEGI, as well among federal and local governments.

Figure 2.24. **Percentage of solid waste disposed in controlled areas**



Note: The figure refers to urban solid waste correctly disposed. Since 2003 all the solid waste produced in Aguascalientes and the Federal District is disposed in controlled areas.

Source: Authors' elaboration based on data from INEGI (n.d.b).

Table 2.9. **Environment: State rankings**

	Air pollution	Disposal of solid waste
Top five (higher well-being), 2012		
1	Yucatan	Aguascalientes
2	Quintana Roo	Federal District
3	Campeche	Nuevo Leon
4	Nayarit	Baja California
5	Baja California Sur	Tlaxcala
State with the most improvement in 2003-12		
	Campeche	Tamaulipas
Bottom five (lower well-being), 2012		
28	Federal District	Tabasco
29	State of Mexico	Morelos
30	Guanajuato	Chiapas
31	Queretaro	Hidalgo
32	Morelos	Oaxaca
State that lost the most ground in 2003-12		
	Sinaloa	State of Mexico

Note: The state with the most improvement and the one that lost the most ground refer to the absolute change in the period considered. The period considered for waste disposal is 2005-08. Aguascalientes and the Federal District have been excluded from this exercise since they have held the maximum value in this indicator from the beginning to the end of the considered period.

Civic engagement and governance

Civic engagement and the right to express political views are important aspects of social cohesion and effective democracies. Many of the policies that bear most directly on people's lives are put into effect at the local level and citizens' experience with local institutions have often a significant impact on their trust, behaviour and well-being (Hudson, 2006; Tavits, 2008). Four indicators were selected to measure the dimension of civic engagement and governance in Mexico. These include objective measures such as voter turnout for national elections and participation in volunteering activities, and subjective indicators such as trust in law enforcement and perception of absence of corruption of the judicial system. The states of Yucatan, Hidalgo, Chiapas and Zacatecas fare the best on the four aforementioned indicators in the latest available year; Michoacan, Guanajuato and the Federal District (for both of the subjective indicators) fare the worst (Table 2.10).

Table 2.10. **Civic engagement and governance: State rankings**

	Voter turnout	Participation in volunteering activities	Trust in law enforcement	Absence of corruption in judicial system
Top five states (higher well-being), 2012				
1	Yucatan	Hidalgo	Chiapas	Zacatecas
2	Tabasco	Campeche	Yucatan	Durango
3	Chiapas	Zacatecas	Nayarit	Baja California Sur
4	Campeche	Michoacan	Colima	Nayarit
5	Federal District	Nayarit	Sinaloa	Sinaloa
State with the most improvement in 2000-12				
	Chiapas	–	Sinaloa	Durango
Bottom five states (lower well-being), 2012				
28	Quintana Roo	Puebla	Puebla	Tlaxcala
29	Sonora	Federal District	Guanajuato	State of Mexico
30	Baja California	Morelos	Morelos	Morelos
31	Chihuahua	Nuevo Leon	State of Mexico	Hidalgo
32	Michoacan	Guanajuato	Federal District	Federal District
State that lost the most ground in 2000-12				
	Baja California Sur	–	Veracruz	Hidalgo

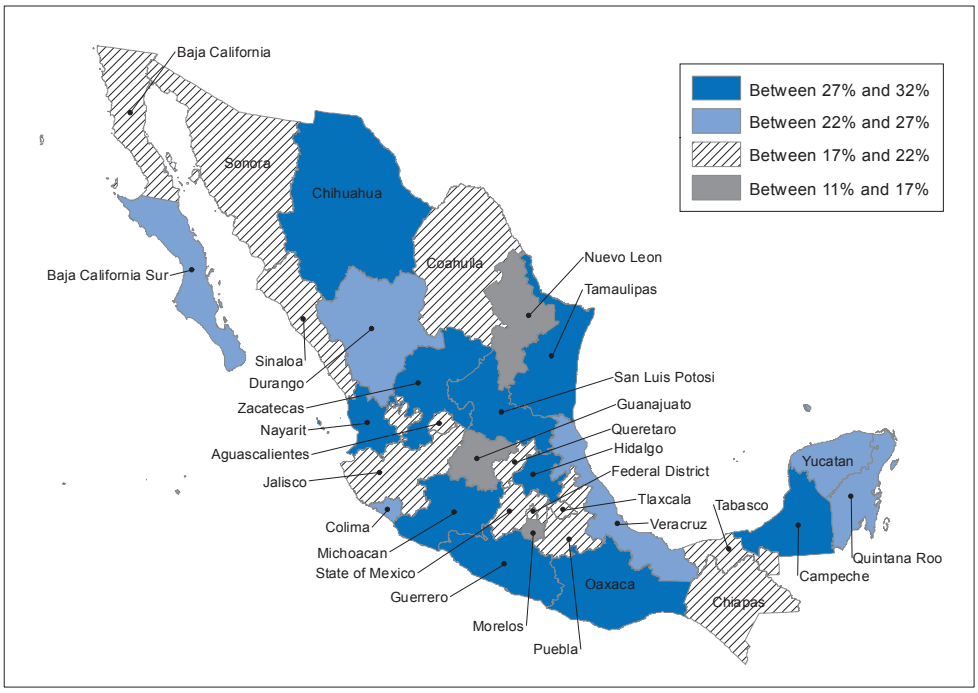
Note: The state with the most improvement and the one that lost the most ground refer to the absolute change in the period considered. The period considered for the absence of corruption of the judicial system is 2011-14. The period considered for the trust in law enforcement is 2012-14. The indicator of participation in volunteering activities is available only for 2012.

Mexico has one of the lowest voter participation rates in national elections among OECD countries (63.1% in 2012) and the fourth largest regional differences, around 25 percentage points between the voter turnout in Yucatan (77.4%) and that in Michoacan (52.5%) (OECD, 2014a and OECD, n.d.).

Participation in volunteering activities (political parties, non-governmental organisations or philanthropic associations) can enrich the information on civic engagement as it is not correlated to voter turnout in the Mexican states. In states with high voter turnout such as Chiapas and Tabasco, participation in voluntary activities can be relatively low. Almost one-third of the population in the state of Hidalgo participated in volunteering activities in 2012, the highest value among states, while only 12% did in the state of Guanajuato, the lowest value (Figure 2.25).

Figure 2.25. **Participation in volunteering activities, 2012**

Percent of people who participate in a political party, NGO or volunteer in a philanthropic association

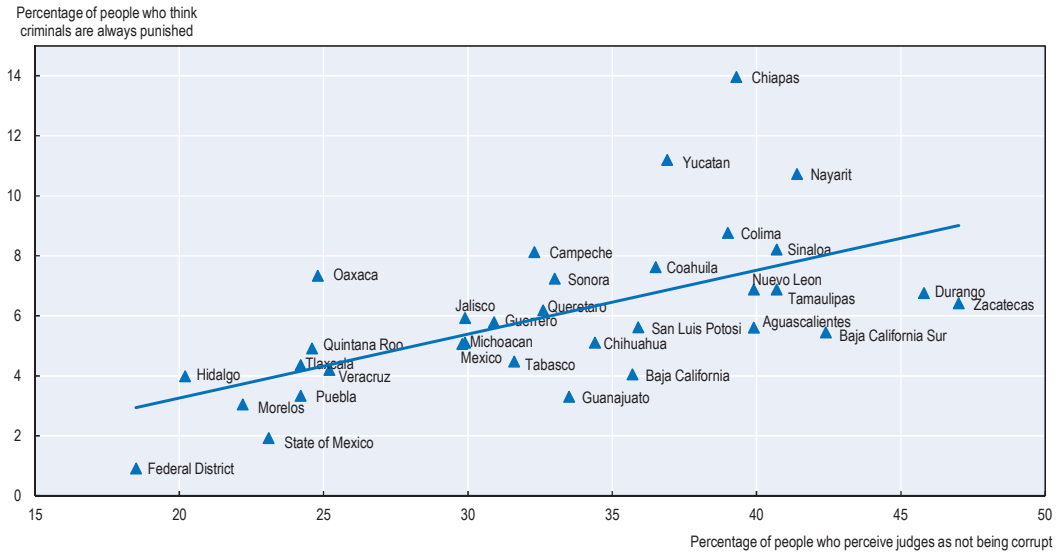


Note: This document and any map included herein are for illustrative purposes and without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

Source: Authors' elaboration based on data from INEGI (2012).

Improving criminal justice is crucial for the economy, to improve trust and social cohesion and ultimately for personal safety and this is a major challenge for well-being in Mexico. Trust in law enforcement is very low: only 5% of Mexicans believed that criminals are always punished and this value was above 10% only in Chiapas, Nayarit and Yucatan (Figure 2.26). Trust in law enforcement is positively associated with self-reported safety and this association has become stronger in the most recent years. In addition, trust in law enforcement is positively associated with the perception that judges are not corrupted (Figure 2.26). Trust in criminal justice is also positively associated with absence of corruption of judges, another indicator where Mexico fares very poorly: only 30% of Mexicans considered judges as non-corrupted in 2014 and this share was below 25% in the Federal District, Hidalgo, Morelos, the State of Mexico, Oaxaca, Puebla, Quintana Roo and Tlaxcala (Figure 2.26).

Figure 2.26. **Trust in law enforcement and perception of corruption of the judicial system, 2014**



Source: Authors' elaboration based on data from INEGI (2015a).

Work-life balance

Reconciling jobs with caring for children and other dependants and with leisure time matters for individual well-being and has a positive impact on the community well-being. The two indicators chosen for the work-life balance dimension, employees working very long hours and satisfaction with time devoted for leisure provide a measure of the quantity and quality of the time spent outside work (Table 2.11).

Table 2.11. **Work-life balance: State rankings**

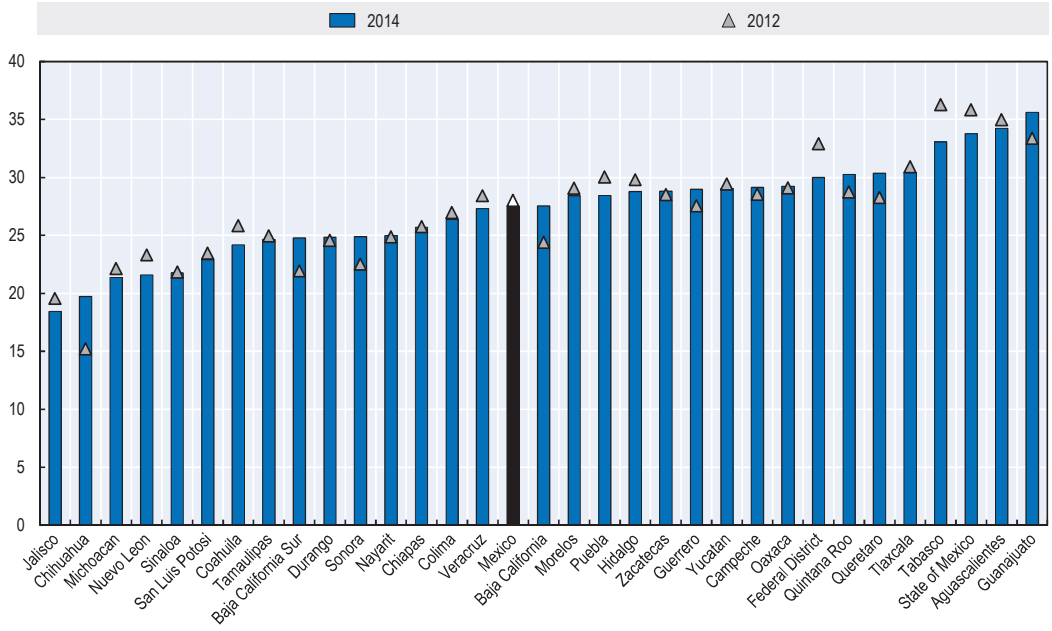
	Percentage of employees working very long hours	Average satisfaction with time devoted to leisure
Top five (higher well-being), 2014		
1	Jalisco	Nayarit
2	Chihuahua	Sonora
3	Michoacan	Colima
4	Nuevo Leon	Baja California Sur
5	Sinaloa	Chihuahua
State with the most improvement in 2012-14		
	Tabasco	–
Bottom five (lower well-being), 2014		
28	Tlaxcala	Hidalgo
29	Tabasco	Federal District
30	State of Mexico	Oaxaca
31	Aguascalientes	Tlaxcala
32	Guanajuato	Guerrero
State that lost the most ground in 2012-14		
	Chihuahua	–

Note: The state with the most improvement and the one that lost the most ground refer to the absolute change in the period considered. The only available year for satisfaction with leisure time is 2012.

One in every four employees in Mexico worked more than 48 hours a week in 2014, one of the highest values across the OECD, second only to Turkey (OECD, 2015e). In Aguascalientes and Guanajuato this proportion was one in every three employees, while Jalisco and Chihuahua were the states with the lowest proportion of employees working long hours. In the previous two years, the average proportion of employees working very long hours decreased in 18 states and the Federal District (Figure 2.27).

Figure 2.27. **Employees working very long hours**

Percentage of employees routinely working 48 hours or more per week

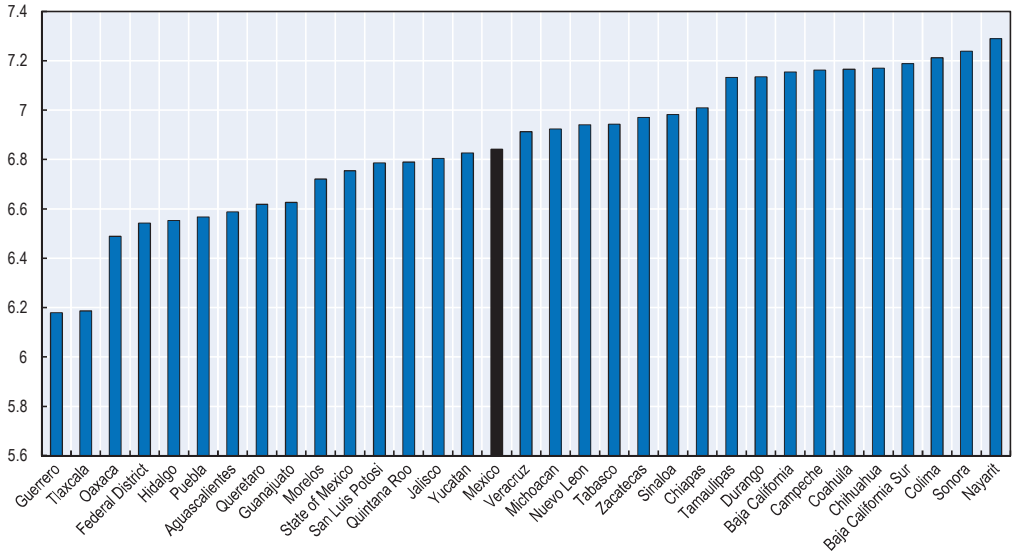


Source: Authors' elaboration based on data from INEGI (2014b).

On a scale from 0 to 10 (with 10 corresponding to the highest satisfaction), the state of Guerrero has the lowest average score (6.2) and the state of Nayarit the highest satisfaction with time devoted to leisure (7.3) (Figure 2.28). As expected, there is a negative and significant correlation between the two indicators of work-life balance; the states with a higher percentage of people working very long hours are also the states with a lower average satisfaction with the time devoted to leisure.

Figure 2.28. **Average satisfaction with time devoted to leisure, 2012**

Average values, 0-10 response scale



Note: State values are the average of individuals' self-reported satisfaction with their time available devoted to leisure in a scale from 0 to 10.

Source: Authors' elaboration based on data from INEGI (2012).

Social connections

Following the approach of the OECD Better Life Initiative, Mexico has developed a comprehensive survey to measure subjective well-being (Box 2.4). The survey has been extended to be representative at state level starting from the 2014 collection (to be released at the end of 2015), thus allowing the introduction of the subjective dimension in the multidimensional framework to measure regional well-being in Mexico.[9] Social connections are measured by the share of people who report to have at least one friend to rely on in case of need. All Mexican states display high levels of social connection, no less than 69% of the population reports having one or more close friends (not family members) to rely on. The indicator ranged between 69% in Yucatan and 85% in Baja California Sur (Figure 2.29).

Box 2.4. **Measuring subjective well-being in Mexico (*Bienestar Subjetivo* - BIARE)**

In recent years, several national and international statistical offices have started publishing subjective well-being encompassing different measures under the dimensions of life satisfaction, feelings and emotions, and evaluations on purpose and worthwhileness in life as recommended by the OECD *Guidelines on Measuring Subjective Well-Being* (OECD, 2013a).

During the first quarter of 2012 INEGI applied the survey *Bienestar Subjetivo BIARE Piloto* (or BIARE 2012) to measure subjective well-being in Mexico at the national level; the survey was applied to a large sample of 10 654 people aged 18-70 years old and representative of both rural and urban areas. Eurostat has incorporated a module on subjective well-being in the European Union-wide Survey on Income and Living Conditions, thus gathering comparable measures across 32 European countries. Other OECD countries with official subjective well-being surveys include Canada (since 1985), Israel (2006), Korea (2013), New Zealand (2014), the United States (2011) and Australia (2016).

Box 2.4. **Measuring subjective well-being in Mexico (*Bienestar Subjetivo* - BIARE)** (*cont.*)

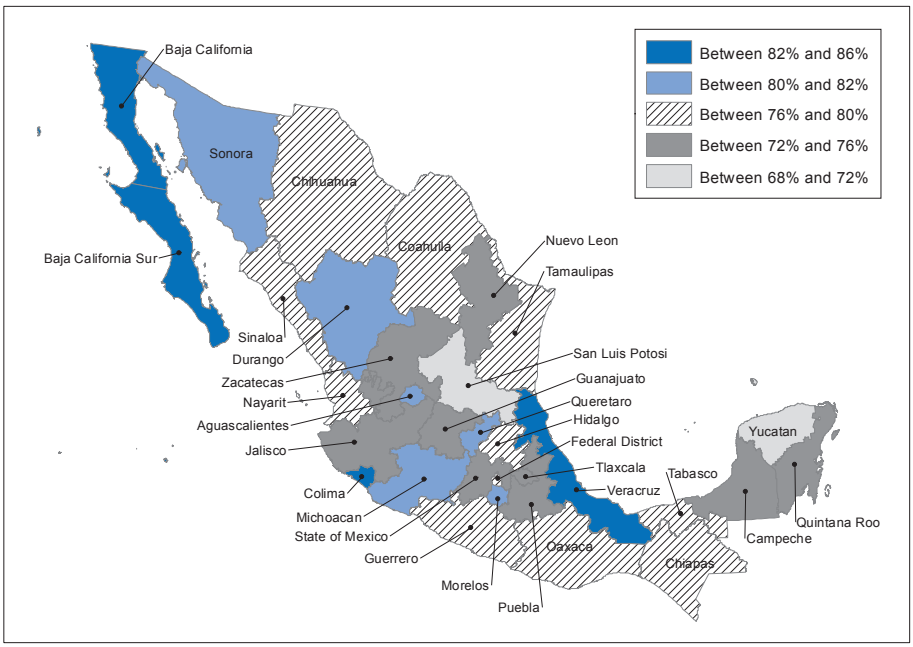
The scope and coverage of subjective well-being surveys vary from country to country and Mexico's is one of the most compelling surveys both in terms of the detail of the questions and geographical coverage. In particular, INEGI is currently working on the survey BIARE Ampliado (or BIARE 2014, to be released in October 2015), which will provide results at the state level as well. Among the other OECD countries, New Zealand and the United Kingdom already provide subjective well-being indicators at the sub-national level.

With the release of BIARE 2014, it will be possible to obtain reliable measures of subjective well-being at the state level in Mexico. In particular, the following indicators will be included in the INEGI dataset of Well-Being in Mexican states: life satisfaction, self-reported health, social connections, participation in a political party, NGO or volunteering, and satisfaction with the time available for leisure.

In this report, the microdata from BIARE 2012 have been used to produce state-level indicators of subjective well-being and to explore the determinants of individual life satisfaction in the various states, to illustrate the ways in which BIARE 2014 (and the coming versions) could be used to measure and understand well-being at the individual and regional level.

Sources: INEGI (2012); Eurostat (2015); Australian Bureau of Statistics (2015); Statistics New Zealand (n.d.); Local Authority (n.d.).

Figure 2.29. **Percent of people who have at least one friend to rely on in case of need, 2012**



Note: This document and any map included herein are for illustrative purposes and without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

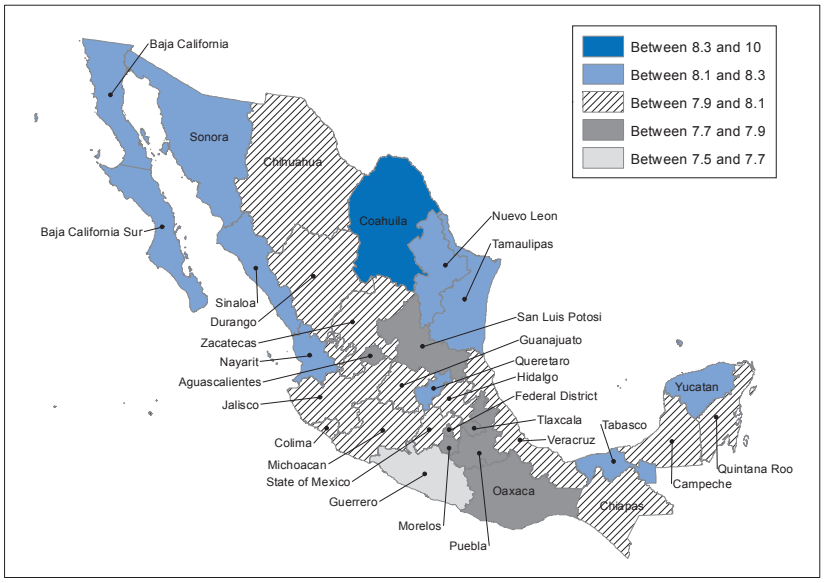
Source: Authors' elaboration based on data from INEGI (2012).

Life satisfaction

Life satisfaction focuses on a person's overall assessment of their life and it is one important component of subjective well-being together with measures of feelings and emotions, and evaluations on purpose and worthwhileness in life (OECD, 2013a). Life satisfaction is generally high in Mexico: the average levels on a scale from 0 to 10 varied from 7.6 in Guerrero to 8.5 in Coahuila (Figure 2.30).

Figure 2.30. **Life satisfaction, 2012**

Average values, 0-10 response scale



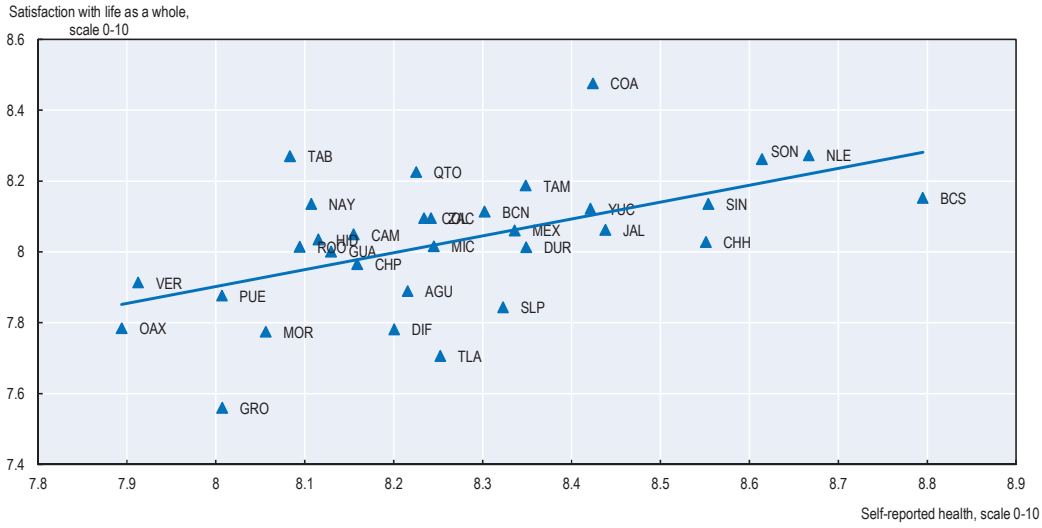
Note: State values are the average of individual's self-reported life satisfaction in a scale from 0 to 10. This document and any map included herein are for illustrative purposes and without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

Source: Authors' elaboration based on data from INEGI (2012).

Understanding the determinants of life satisfaction in Mexico

Across Mexican states life satisfaction is strongly and positively associated with household income, self-reported health and educational attainment, and significantly negatively associated with monetary poverty (Figure 2.31). States with higher poverty rates have lower life satisfaction, while income inequality within a state does not hold a statistically significant correlation with average life satisfaction in the state.

Figure 2.31. **Life satisfaction and self-reported health, 2012**



Source: Authors' elaboration based on data from INEGI (2012).

An econometric approach was adopted to better understand the factors affecting individual life satisfaction, distinguishing individual characteristics and characteristics of the region of residence. Individual characteristics range from basic elements such as gender, age and marital status to socio-economic (e.g. schooling, household expenditure per capita and unemployment status), health status, social capital (e.g. having at least one friend to rely on in case of need) and work-life balance aspects (e.g. satisfaction with time available for leisure). The state-level characteristics can be grouped into four broad areas: governance (e.g. trust in law enforcement, perception on corruption and perception on the effectiveness of different institutions), economic performance (e.g. GDP per capita in levels and growth, unemployment rate and monetary poverty rates), provision of services (e.g. percentage of households with access to health services and percentage of dwellings with access to basic services, such as electricity, piped water and drain lines) and safety (e.g. crime rates and homicide rates).

The choice of variables is in most cases based on previous literature which explains, for example, the inclusion of measures of health and unemployment status among the individual characteristics (Clark and Oswald, 1994; Bouazzaoui and Mullet, 2002; Frijns, 2010). The final set of explanatory variables is defined in Table 2.12.

The results of the linear regressions with life satisfaction as dependent variable are shown in Table 2.13. The first model includes individual characteristic and state dummy variables, while in model 2 the state fixed effects are substituted by place-based characteristic variables. Among the individual characteristic variables, being in a couple, feeling healthy, having a friend to rely on in difficult times and having enough time for leisure, as well as higher levels of income and education, seem to be positively and significantly associated with higher life satisfaction, although the magnitude of the latter two variables is small compared to that of the former. As expected, being unemployed is negatively related to life satisfaction and its impact (largest coefficient) is the highest among all the explanatory variables. Life satisfaction seems to decrease with age, in line with previous results on Latin American countries (Steptoe, Deaton and Stone, 2015).

Table 2.12. **List of independent variables used in the linear regression analysis**

Type of variable	Variable name	Description	Source
Individual characteristics	Log of income	Log of household expenditure per capita in national currency	BIARE 2012
	Self-reported health	Self-reported satisfaction with health on a scale of 0 to 10	BIARE 2012
	Unemployed	Dummy variable (1 for unemployed)	BIARE 2012
	Schooling	Average years of schooling	BIARE 2012
	Gender (female)	Dummy variable (1 for female)	BIARE 2012
	Age	Age in years	BIARE 2012
	Age^2	The square of age in years	BIARE 2012
	Couple	Dummy variable (1 if in a couple)	BIARE 2012
	Social support	Dummy variable (1 if has at least one friend to rely on in case of need)	BIARE 2012
	Satisfaction with time	Self-reported satisfaction with time available for leisure on a scale of 0 to 10	BIARE 2012
State characteristics	Monetary poverty	Percentage of people below the monetary poverty line (the monetary poverty line is defined as the minimum amount of money in national currency to be able to afford the basic goods)	CONEVAL based on MCS-ENIGH 2012
	Crime rate	Number of crimes per 1 000 people	ENVIPE 2012
	Voter turnout	Percentage of people that voted with respect to the people registered to vote	INE 2012
	State dummies	Set of 31 dummy variables (the Federal District is set as the reference)	BIARE 2012

Regarding the state variables, monetary poverty and crime rates are negatively associated with individual life satisfaction, while voter turnout is positively related, although the latter is not statistically significant. However, the coefficients associated with poverty and crime rates are quite low compared to the ones corresponding to the individual characteristics variables, which seem to explain most of life satisfaction.

Table 2.13. **Regression results on life satisfaction in Mexico**

	Variables	(1)	(2)
		Life satisfaction	Life satisfaction
Individual characteristics	Log of income	0.238***	0.234***
		(0.0310)	(0.0306)
	Self-reported health	0.288***	0.287***
		(0.0163)	(0.0163)
	Unemployed	-0.510***	-0.510***
		(0.173)	(0.174)
	Schooling	0.0115*	0.0114*
		(0.00615)	(0.00616)
	Gender (female)	0.116***	0.119***
		(0.0446)	(0.0448)
	Age	-0.0306***	-0.0304***
		(0.00999)	(0.01000)
	Age^2	0.000379***	0.000375***
		(0.000119)	(0.000119)
	Couple	0.304***	0.307***
		(0.0503)	(0.0500)
	Social support	0.275***	0.272***
		(0.0591)	(0.0591)
	Satisfaction with time for leisure	0.154***	0.155***
		(0.0104)	(0.0104)
Place-based characteristics	Monetary poverty		-0.00536**
			(0.00226)
	Crimes rate		-5.06e-06**
			(2.32e-06)
	Voter turnout		0.00634
			(0.00444)
	State dummies	Yes	No
	Constant	2.227***	2.541***
		(0.368)	(0.448)
	Observations	A,653	10,653
	Adjusted R-squared	0.188	0.187

Notes: *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors are in parenthesis. Other state-level variables such as trust in law enforcement, confidence in the police, perception on corruption, homicides and feeling of safety have been introduced into model 2 (not reported); however, these variables are strongly correlated with crimes, which brings severe problems of multicollinearity; the same problem is observed when introducing the variables access to basic services and quality of housing, since they are strongly and significantly correlated with monetary poverty.

Source: INEGI (2012), INEGI (2015a), CONEVAL (2015) and OECD (2015a), http://dx.doi.org/10.1787/region-data-en.

Notes

1. The population in poverty is defined as the population with disposable income below a national threshold and being deprived of at least one of the six social indicators. The population in extreme poverty is the one whose income cannot ensure adequate nutrition and that is deprived of at least three of the six social indicators.

2. The programme was launched at the beginning of 2015 and will cover approximately 16.6 million people (Mexicans affiliated to the Mexican Social Security Institute). The unemployed will receive a percentage of the baseline contribution for six months. The state has created a fund of MXN 9 000 million for the first year to support this programme.

3. The estimates of household disposable income in the metropolitan areas are derived from the values in the municipalities provided by CONEVAL (2012). The metropolitan areas are those identified in the OECD/EU methodology (OECD, 2012), which do not correspond exactly with the national definition in use in Mexico.

4. If relative costs of living in metropolitan areas were higher in poorer states, the comparative income advantage of metropolitan areas versus the rest of the state in poorer states would be spurious. In the absence of the relative prices in metropolitan areas (according to the OECD definition), this relationship cannot be directly verified. However, the difference in monetary poverty rates between metropolitan and non-metropolitan areas, which is computed with a higher poverty line for urban areas, is not correlated to the level of income of the state, thus confirming the validity that the income premium of metropolitan areas is higher in poor states.

5. The Gini index should be decomposed in three parts: the between municipalities, within a municipality and a residual component that measures the overlapping of the tails of the income distributions of the municipalities. Given the data, the residual component could not be separated from the between-municipalities part. Results on metropolitan areas in other countries show that the residual component can be large, thus affecting the results on economic segregation.

6. The correlation between unemployment rates across states and informal employment has increased, from -0.36 in 2005 to -0.50 in 2014.

7. The OECD's job quality framework identifies three dimensions related to people's employment situation: earnings quality (a combination of average earnings and inequality); labour market security (capturing the risk of unemployment and extreme low pay); and the quality of the work environment (measured as the incidence of job strain or very long working hours) (OECD, 2014a). Mexico's levels of job quality are much lower than the OECD average; in particular, the risk of extreme low pay is very high in Mexico. The index of critical conditions by CONEVAL can be viewed as the complement variable to earnings quality.

8. The estimates of exposure to air pollution by states and metropolitan areas are derived from satellite-based data and may differ from national values derived by ground-level monitoring stations. Ground-level monitoring stations can offer more precise estimates of local exposure to pollution, over shorter time periods, and covering a wider range of pollutants, relative to the satellite-based estimates. However, uneven

coverage of monitoring stations and variations in measurement techniques prevent the use of these data.

9. Preliminary estimates derived from the 2012 BIARE survey data are used in the report. In addition to the indicators "number of friends to rely on in case of need" and "civic and political participation", the indicators on life satisfaction, satisfaction with health, satisfaction with time for leisure were included in the well-being database built for this publication. Because of lack of internationally comparable data on self-reported satisfaction, the dimensions of life satisfaction, work-life balance and social connections are not available in the *OECD Regional Well-Being Database* (OECD, 2014a).

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Chapter 3.

Supporting the use of well-being indicators in Mexican states

This chapter introduces the well-being indicators to a broader audience through composite indices. Composite indices can be a useful tool for communication, since trends of multidimensional phenomena can be grasped more easily than across the many individual indicators. The chapter offers a summary picture of well-being in Mexican states obtained by normalising and aggregating the indicators for each dimension into a single score. Scores are defined on a relative scale, with the national averages at the most recent year equal to 100, which allows direct comparison among well-being dimensions and over time in a state. The chapter also discusses ways to improve the use of well-being indicators throughout the policy cycle (design, implementation and evaluation of policies). Finally, it provides indications of the statistical challenges ahead to improving the measurement of well-being at the sub-national level in Mexico.

Introduction

The development of a common framework and indicators to measure well-being at the sub-national level in Mexico can provide new evidence on the scale of regional differences in the country and help shape the policy debate at the federal and local levels. With the release of the data, the National Institute of Statistics and Geography (Instituto Nacional de Estadística y Geografía, INEGI) will develop a communication strategy to ensure that this statistical information is largely disseminated and communicated in a way that is easy to understand and to act upon for a broad audience. This chapter discusses the construction of composite indices that, providing aggregated information on well-being, can serve these communication purposes.

Beyond the dissemination of results, well-being indicators should support the design, implementation and evaluation of states' policies. This chapter discusses institutional conditions and governance for this to happen, based on some country and regional initiatives (OECD, 2014a). An inclusive process to engage different stakeholders is required. INEGI's contribution to this process may include methodological guidance to local governments in using statistical information for policy making. The chapter concludes with some recommendations on improvements in data gaps that will help the dissemination and use of well-being measures at the sub-national level.

Communicating multi-dimensional well-being through composite indices

In the past two decades, the debate on the measurement of multidimensional phenomena has generated renewed interest in the scientific community worldwide. While a consensus has been reached that phenomena like well-being, development, progress, poverty or competitiveness need to be measured by different dimensions and indicators, the discussion has not been settled on whether or how the various dimensions should be combined into a single summary measure (composite index).

The United Nations started in 1990 to compare countries' performance on the base of the Human Development Index, a single score based on the aggregation of indicators in the dimensions of income, education and health (UNDP, various years). Since then, various composite indices of human development have been put forward, covering a broad range of concepts and construction methods (Yang, 2014). Composite measures of multidimensional phenomena date back to the 1970s with the first attempts to modify the gross domestic product (GDP) single index (Nordaus and Tobin, 1972).

In the OECD Better Life Initiative to measure well-being both at the national and sub-national level, the entire dashboard of indicators is provided, together with a summary measure of each dimension (such as jobs, health, environment, safety, etc.) obtained by aggregating the individual indicators. A single composite index of well-being is not defined. Indeed, the OECD Better Life Index allows users to compare country performance on a single index by letting them choose the family of indices that fits best their value judgments on the weighting scheme (www.betterlifeindex.org). With this method, no controversial weighting scheme is imposed upon its users (Decancq, Decoster and Schokkaert, 2009). Many national statistical offices in OECD countries have developed well-being indicators systems at the national and sub-national levels with a similar approach of providing a dashboard of indicators, in some cases with summary well-being scores by dimension, but without a single well-being index (OECD, 2013; 2014a).[1]

However, composite indices are increasingly recognised as a useful tool for public communication, since common trends of a complex phenomenon can be grasped more easily than across many separate indicators. However, since the composite indices transform the underlying information and introduce hypotheses on the relations among the individual indicators, they can send misleading messages if the hypothesis and subjective assumptions are not thoroughly explained. Composite indicators can be a powerful means of initiating discussion and stimulating public interest. At the same time, their relevance should be gauged in an open debate with respect to the constituencies affected by the results (OECD/European Union/JRC, 2008).

Composite indices are formed by combining individual indicators on the basis of an underlying model, with the advantage of reducing the size of a set of indicators without losing the underlying information. By expressing the indicators and dimensions in the same unit of measurement, composite indices have the advantages, compared to a dashboard of indicators, of identifying easily how the various dimensions play out in a region and whether a region has improved performance over time compared to the rest of the country. When composite indices are put forward by national statistical offices, however, the underlying model and the transformations imposed on the indicators should be simple and clear enough to be replicated also by non-experts. Indeed, much of the credibility of the results proposed through a composite index relies on the trust in the soundness of the method and the clarity of the subjective hypothesis employed (for example on the weighting scheme among dimensions).

The critical issues in the construction of composite indices of well-being are linked to the different steps of construction of any measure that seeks to reduce the dimensions in space: the selection of individual indicators suitable to represent the phenomenon; the definition of the transformation function (normalisation) of the individual indicators; and the choice of the weights and the aggregation function of normalised indicators. A fundamental point, especially in the case of official statistics, is the clarity and simplicity of communication to a non-specialised audience of any choice and the method used for the measurement of the phenomenon. The different steps for constructing a composite index are reviewed in the next section.

Constructing a composite index

Constructing a composite index is a complex task, as it involves several alternatives and possibilities that affect the quality and reliability of the results. The main sequential steps to consider are the following (OECD/European Union/JRC, 2008):

- The first step implies the definition of a *theoretical model* that provides the basis for the selection of the single indicators. A formative model is assumed when the individual indicators included in the composite index are expected to cause the phenomenon under study (Diamantopoulos, Riefler and Roth, 2008).
- The second step involves *indicators selection*. Indicators should be chosen on the basis of their analytical soundness, measurability, country and regional coverage, relevance to the phenomenon being measured and relationship to each other. The selected indicators have different units of measure and different direction of correlation with the phenomenon under study.
- Through a method of *normalisation*, indicators are transformed into pure, dimensionless numbers and expressed in a way that an increase in the normalised indicator corresponds to an increase in the composite index.

- In the last step, the normalised indicators are *aggregated* to form one or more composite indices. The aggregation step requires the choice of the weighting system (importance of each individual indicator) and the identification of the technique (compensatory or non-compensatory) for summarising the values into a single number.
- Finally, the composite index should be *validated*, for example through a sensitivity analysis to explore the robustness of rankings to the inclusion and exclusion of certain indicators, to changes in the weighting system and to alternative transformation methods or decision rules (Freudenberg, 2003; Saisana, Saltelli and Tarantola, 2005).

The main factors to take into account in the choice of the aggregation method for summarising individual indicators are: type of indicators (substitutable/non-substitutable), type of aggregation (simple/complex), type of comparisons (absolute/relative) and type of weights (objective/subjective). Figure 3.1 shows a flow chart for the choice of the "best" method in constructing a composite index, with the different assumptions and requirements for each chosen path. However, there is not always a well-established solution, and it may be necessary to relax some requirements to satisfy others (Mazziotta and Pareto, 2013).

Type of indicators

The indicators are said to be substitutable if a deficit in one component may be compensated by a surplus in another (e.g. when measuring people's participation in a community, one may think that low values of participation in religious or spiritual activities can be offset by high values of participation in meetings of cultural or recreational associations). The components of an index are non-substitutable if a compensation among them is not allowed (e.g. a low value of "hospital beds per 1 000 people" cannot be offset by a high value of "hospital doctors per 1 000 people" and vice versa). An aggregation approach is said to be compensatory or non-compensatory depending on whether it permits compensability or not (Casadio, Tarabusi and Guarini, 2013). A non-compensatory approach implies that the single indicators (or the dimensions) should be balanced and an aggregation function that takes unbalance into account with a penalisation term is often used.

Aggregation of the indicators

An aggregation method is considered simple when an easily understandable mathematical function is used (e.g. the geometric mean in the Human Development Index). An aggregation method is said to be complex if a sophisticated model or multivariate statistical method is used (e.g. Principal Component Analysis). The clear advantage of a simple method is that it can be understood and replicated by anybody and thus increases the trust in the method by the general public. When the indicators are substitutable, the most used aggregation methods are the additive ones, for example arithmetic mean or Principal Component Analysis. When the indicators are non-substitutable, non-linear methods are preferred, such as multiplicative functions or Atkinsons's geometric means, which correspond to a partially compensatory approach, or Multicriteria Analysis, which corresponds to a non-compensatory approach (Munda and Nardo, 2009).

Type of comparisons

Another important issue is the level of comparability of the data across countries or regions and over time. Comparability of the composite index values first depends on the normalisation rule. All normalisation methods allow for space comparisons, whereas time comparisons may be difficult to make or to interpret. Comparisons over time may be *absolute* or *relative*. A time comparison is relative when the values of the composite index at a certain time depend on one or more endogenous parameters (for example the mean and variance of individual indicators at time *t*). A time comparison is instead absolute when the values of the composite index at a certain time depend on one or more exogenous parameters (for example minimum and maximum values of the individual indicators fixed by the researcher). Ranking and standardisation allow only for relative comparisons since they are based exclusively on values of the individual indicators at time *t*. Other methods, such as rescaling or indexation, require that the minimum and maximum values are independent from the time *t*, in order to perform comparisons in absolute terms (Tarantola, 2008).

Type of weights

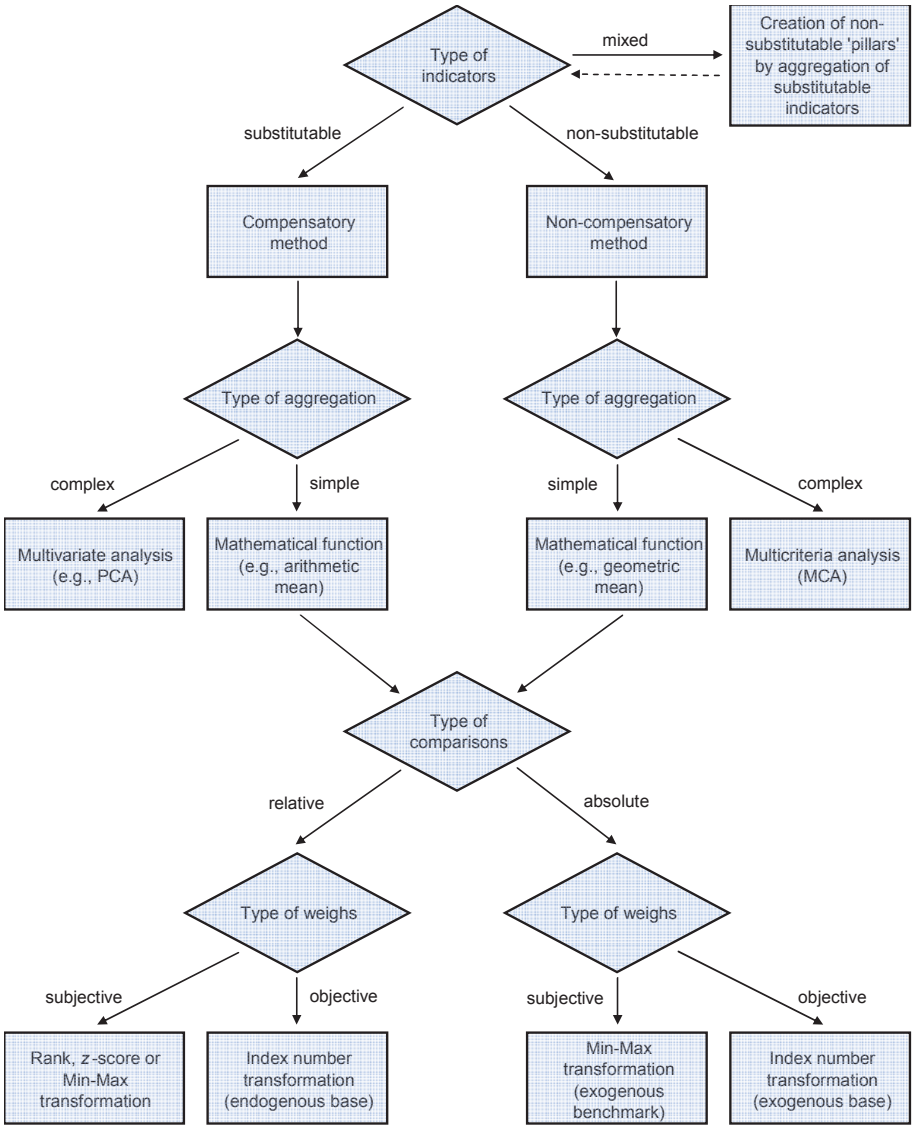
The choice of the weighting system for the individual indicators and the various dimensions necessarily introduces an arbitrary component as it represents a value judgment on their relative importance. In the absence of statistical or empirical grounds for choosing different weights, a common approach is to assign the same weight to all the components (Booysen, 2002; Jacobs, Smith and Goddard, 2004). For example, an equal weighting scheme is used to aggregate the individual indicators within each dimension in the OECD Better Life Initiative both at the national and regional levels and in the UN Human Development Index. A weighting scheme can be implicitly defined according to the normalisation function chosen. For example, the indexation assigns a weight proportional to the variability of the indicator and thus indicators with low variability will have less weight than indicators with high variability. Alternatively, subjective weights can be set through participatory methods or social surveys that include policy makers, experts and citizens. An open discussion to define the weighting system is particularly feasible and relevant when the well-being indicators are linked to a national or regional policy.

The choice of weights influences the normalisation method for the indicators. For relative comparisons with subjective weighting (equal or different weights), normalisation by ranking, z-score or rescaling is recommended. For absolute comparisons, it is not possible use ranking or standardisation. In the case of subjective weighting, it is necessary to resort to a Min-Max transformation with minimum and maximum values independent of the distribution (exogenous benchmark), whereas in the case of objective weighting, an indexation with externally fixed base may be a good solution (exogenous base).

In the next section, a composite index is constructed to measure well-being in Mexican states, applying the dimensions and indicators described in Chapter 1. The "path" followed in the choice of the method is based on the following requirements: 1) simplicity of the aggregation function; 2) possibility to perform absolute comparisons across the Mexican states, among the well-being dimensions, and over time; 3) subjective weighting (equal weights for all the indicators in a dimension). Since the set of 35 indicators included in the INEGI well-being website have been chosen through experts' meetings, they represent in this exercise the "best" available set to measure

regional well-being in the Mexican states; therefore the indicators are assumed to be non-substitutable among themselves and they are all included in the composite index.

Figure 3.1. **Flow chart for the choice of the 'best' method to build a composite index**



Source: Mazziotta and Pareto (2013).

Composite indices of well-being in Mexican states

For each of the 12 well-being dimensions a composite index has been computed, aggregating the indicators to provide a single score that is comparable across states, among well-being dimensions and over time. In the index chosen, called Adjusted Mazziotta-Pareto Index (AMPI), the national values at the latest available year are set equal to 100, so that values above (below) 100 mean better (worse) performance than the country value. The values of the index vary in the open interval 70 and 130 (Mazziotta and Pareto, 2012). The composite indices are computed for the years 2014 (or latest available year) and 2008 (or first available year).[2]

The AMPI index (or score) of a well-being dimension is a function of the mean values of the individual indicators and their variability to take into account differences in achievement across indicators. Such a choice implies a limited substitutability among indicators, that is to say, a low achievement in one indicator (for example employment in the job dimension) is not linearly compensated for by high achievement in another indicator (for example critical working condition in the same dimension), as it would be if the simple arithmetic mean were used. A detailed description of the method, together with a sensitivity analysis of the results, is described in Annex 3.A1.

Well-being in Mexico varied from the minimum values of 70 for housing in Chiapas and life satisfaction in Guerrero to the maximum value of 130 for life satisfaction in Coahuila. Baja California Sur, Sinaloa and Tamaulipas perform better than the national average in all of the well-being dimensions, while in the state of Guerrero, only the dimension civic engagement and governance is above the country value (Table 3.1). The observed variability among the state scores in a dimension is partially dependent on the number of individual indicators included. For example, life satisfaction and social connections, which are measured by one indicator each, are the dimensions with the largest differences among states; while health, which is measured by five indicators, has the smallest. Notwithstanding this limitation, a snapshot of a state's well-being is provided comparing well-being scores across the 12 dimensions (Annex A). While expected outcomes are confirmed in the well-being of a state, (for example better than average education is usually associated with better scores in the job dimension), in other cases this information helps to show where positive spill-over among dimensions are not in place, or where self-reported well-being does not correspond to the picture portrayed by the other objective conditions. Baja California, for example, ranks 1st in environment and 2nd in income, but 26th in education, health and safety. Residents of San Luis Potosi reported very low values of satisfaction with life and social connections, while outcomes in housing, jobs, safety, education, civic engagement, health and work-life balance were above the national averages.

Well-being in Mexico has improved in most of the dimensions, notably in health, accessibility to services and housing, areas where the scores increased by more than 10 points between 2000 and 2013. Baja California, Hidalgo, Queretaro and Yucatan had the largest improvements in health between 2000 and 2013, although they remain below the country's average in 2013, with the exception of Queretaro. Access to services has improved the most in Puebla since 2008, although there is still scope for catching up with the other states since Puebla ranks 27th out of the 32 states in 2013. Regional differences in accessibility to services and health have narrowed since 2000, mainly thanks to the reduction of maternity and infant mortality rates and better access to basic services in the lagging states.

In the past decade, well-being in Mexico has, on average, worsened in terms of safety, income and jobs; extremely poor conditions concentrated in a number of states, such as Guerrero and the State of Mexico explain the deterioration of security over the past five years, while the worsening in employment situation, although less severe than the security situation, have been spread across a majority of states in the past ten years. Income has deteriorated since 2008, and in states where income has increased, inequalities have also increased (Table 3.1).

Table 3.1. **Well-being scores, 2014 or latest available year**

State	Housing	Income	Jobs	Access to services	Safety	Education	Environment	Civic engagement and governance	Health	Life satisfaction	Work-life balance	Social connections
Aguascalientes	114.4	108.6	101.9	108.7	115.8	103.2	112.5	98.2	105.4	91.1	83.5	111.3
Baja California	93.7	120.0	106.4	106.6	96.1	89.0	114.3	90.6	92.7	105.8	107.7	116.7
Baja California Sur	101.4	115.9	111.2	106.7	111.5	106.8	110.6	103.9	100.5	108.4	113.0	127.9
Campeche	85.5	103.1	103.0	97.8	108.8	96.4	99.7	113.2	89.2	101.6	105.2	84.3
Chiapas	69.4	78.2	80.8	80.0	108.9	82.8	90.8	112.1	93.4	96.1	107.1	103.0
Chihuahua	99.5	108.8	112.9	107.7	91.2	90.8	111.1	97.6	92.6	100.2	119.9	104.7
Coahuila	109.5	108.9	107.9	104.9	105.7	90.6	105.2	104.0	104.1	129.5	113.4	94.4
Colima	101.2	112.5	108.4	111.8	107.3	104.8	97.0	108.6	102.1	104.6	111.0	125.3
Durango	101.6	104.0	95.4	100.4	104.0	88.3	107.6	107.2	101.5	99.2	111.6	109.0
Federal District	117.9	115.4	97.3	111.0	90.1	113.3	103.6	86.5	101.3	84.1	88.1	108.3
Guanajuato	101.5	103.1	100.3	100.6	105.1	88.1	95.0	87.2	100.7	98.4	82.3	90.3
Guerrero	76.6	88.1	94.8	79.3	87.9	90.7	92.7	102.9	89.3	69.5	76.9	95.7
Hidalgo	101.4	94.0	95.2	95.4	107.6	88.7	84.3	100.2	98.4	100.7	90.0	95.0
Jalisco	109.3	110.9	104.7	106.2	104.3	114.7	103.1	100.6	105.9	102.5	110.2	86.3
Michoacan	95.8	95.1	98.7	90.8	102.9	94.1	88.5	97.0	100.5	99.4	110.6	111.3
Morelos	103.3	99.0	100.1	102.0	91.7	88.5	69.8	89.7	99.6	83.6	95.4	113.3
Nayarit	103.8	105.5	98.3	103.6	110.9	114.6	102.3	116.7	99.5	107.3	115.1	95.0
Nuevo Leon	114.1	123.5	107.7	113.8	110.6	96.5	111.4	97.7	107.2	116.2	110.8	90.2
Oaxaca	79.0	83.8	93.0	78.7	108.2	87.9	76.7	103.0	84.0	84.3	87.5	102.2
Puebla	94.6	79.6	95.1	92.4	104.3	99.9	100.9	90.9	95.1	90.3	90.8	89.1
Queretaro	106.8	109.2	99.1	102.2	112.2	100.4	95.4	103.6	105.2	113.1	89.9	115.0
Quintana Roo	95.5	107.5	110.2	107.0	102.0	110.0	111.2	96.0	95.8	99.3	94.6	80.6
San Luis Potosi	101.9	98.7	103.1	96.0	104.7	101.0	98.3	106.9	103.1	88.1	104.4	79.5
Sinaloa	107.6	106.5	100.4	103.7	102.0	114.3	108.9	102.3	106.6	107.3	111.8	107.7
Sonora	101.9	114.9	109.5	109.2	104.1	99.6	99.1	98.9	103.1	115.6	114.0	113.9
State of Mexico	104.4	102.3	93.9	100.9	75.8	96.8	91.8	91.4	102.9	102.4	88.3	91.0
Tabasco	80.4	101.5	91.9	93.7	94.2	101.1	91.9	102.2	92.0	116.1	93.6	105.9
Tamaulipas	103.7	107.2	103.6	104.1	104.3	102.5	106.9	106.3	100.0	110.6	111.8	107.9
Tlaxcala	103.5	97.0	90.2	99.2	107.6	97.8	105.4	95.5	102.2	79.1	75.8	88.5

Table 3.1. **Well-being scores, 2014 or latest available year** (*cont.*)

State	Housing	Income	Jobs	Access to services	Safety	Education	Environment	Civic engagement and governance	Health	Life satisfaction	Work-life balance	Social connections
Veracruz	86.7	91.9	93.2	88.5	103.8	103.0	90.0	99.3	92.6	92.7	102.2	116.2
Yucatan	101.8	99.7	105.4	98.4	119.4	98.5	105.5	117.8	93.2	106.4	97.4	67.9
Zacatecas	103.7	93.2	94.0	98.7	107.9	94.7	100.1	113.2	102.2	104.6	101.3	92.0
Mexico (Country)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Notes: From the set of 35 indicators presented in Chapter 1, the indicator on extreme poverty, being a subset of the indicator on poverty (income dimension), and the indicator on students' assessment in the PISA test, for lack of data in the states of Michoacan, Oaxaca and Sonora, are excluded. The indicators of satisfaction with life (life satisfaction), quality of support network (community or social connections), civic and political participation (civic engagement and governance), self-reported health (health) and satisfaction with time for leisure (work-life balance) are the same in both the baseline and the latest year since they are only available for 2012. The full list of indicators with their respective baseline and latest available year are presented in Annex 3.A1.

Table 3.2. **Well-being scores, first available year**

State	Housing	Income	Jobs	Access to services	Safety	Education	Environment	Civic engagement and governance	Health	Life satisfaction	Work-life balance	Social connections
Aguascalientes	104.7	103.4	102.3	97.0	102.9	99.5	109.0	98.7	94.9	91.1	82.3	111.3
Baja California	78.3	118.4	121.0	96.0	103.0	87.8	112.8	89.9	87.4	105.8	112.7	116.7
Baja California Sur	89.0	116.9	117.1	95.6	111.7	98.9	109.8	103.8	101.6	108.4	117.3	127.9
Campeche	73.5	96.4	102.1	88.1	110.3	91.1	89.7	113.1	88.0	101.6	106.2	84.3
Chiapas	59.8	73.4	80.4	64.2	112.6	81.8	88.5	95.6	73.2	96.1	107.0	103.0
Chihuahua	89.0	100.7	118.4	91.2	90.2	85.1	107.8	92.4	86.3	100.2	125.8	104.7
Coahuila	102.1	112.1	107.0	96.7	110.9	88.3	99.1	99.8	99.4	129.5	110.8	94.4
Colima	87.5	117.1	112.5	100.6	115.2	89.1	93.8	110.0	94.9	104.6	110.0	125.3
Durango	95.9	96.2	101.4	82.8	102.5	83.3	106.0	96.6	92.5	99.2	112.0	109.0
Federal District	108.9	113.5	103.5	94.1	90.6	109.5	100.5	84.4	91.8	84.1	84.2	108.3
Guanajuato	88.2	104.8	98.7	82.1	109.9	78.4	90.3	91.1	86.9	98.4	85.8	90.3
Guerrero	65.7	82.0	93.7	60.0	101.8	87.4	91.6	93.4	67.4	69.5	78.2	95.7
Hidalgo	86.3	93.4	93.7	72.3	108.7	83.3	79.7	107.7	85.6	100.7	88.7	95.0
Jalisco	100.6	111.0	109.8	90.0	109.3	101.6	101.1	98.4	95.5	102.5	108.9	86.3
Michoacan	83.0	95.7	96.9	68.4	102.3	87.3	84.6	99.4	87.6	99.4	109.6	111.3

Table 3.2. **Well-being scores, first available year** (*cont.*)

State	Housing	Income	Jobs	Access to services	Safety	Education	Environment	Civic engagement and governance	Health	Life satisfaction	Work-life balance	Social connections
Morelos	89.5	102.6	102.1	86.3	98.4	85.3	65.7	89.1	91.0	83.6	94.5	113.3
Nayarit	92.3	104.3	104.0	89.2	107.1	96.7	96.7	112.0	87.7	107.3	115.3	95.0
Nuevo Leon	106.5	118.6	111.2	99.3	102.7	89.0	106.2	95.7	101.7	116.2	108.6	90.2
Oaxaca	66.9	85.9	92.4	57.5	107.3	78.1	76.5	97.6	66.0	84.3	87.6	102.2
Puebla	81.7	91.7	95.5	64.7	103.0	92.7	98.5	87.6	76.6	90.3	88.8	89.1
Queretaro	91.8	105.2	107.0	91.5	115.8	92.7	92.9	103.4	85.8	113.1	92.6	115.0
Quintana Roo	81.9	109.7	120.0	93.0	99.6	96.6	104.5	99.8	79.9	99.3	96.8	80.6
San Luis Potosi	90.1	95.0	100.3	79.8	105.0	94.2	91.5	111.4	86.4	88.1	103.7	79.5
Sinaloa	96.9	107.9	109.3	90.5	102.9	100.8	108.6	96.4	100.4	107.3	111.7	107.7
Sonora	92.4	114.3	110.8	96.7	105.6	92.1	97.7	105.4	93.8	115.6	117.7	113.9
State of Mexico	92.0	109.5	97.1	82.1	89.1	93.8	90.8	89.7	83.0	102.4	84.7	91.0
Tabasco	69.9	90.1	95.3	84.6	98.5	94.0	88.8	99.6	86.8	116.1	87.7	105.9
Tamaulipas	92.9	106.5	107.9	93.7	105.3	95.8	94.5	106.9	91.0	110.6	111.3	107.9
Tlaxcala	89.1	96.6	91.7	76.4	107.2	92.8	104.6	90.9	83.8	79.1	75.3	88.5
Veracruz	75.6	93.9	93.0	71.4	105.8	85.1	88.3	100.0	78.1	92.7	100.5	116.2
Yucatan	86.6	101.5	102.1	84.7	115.7	90.9	103.7	113.6	90.1	106.4	96.8	67.9
Zacatecas	96.1	91.7	97.1	83.8	107.9	88.0	91.1	105.9	86.0	104.6	101.8	92.0
Mexico (Country)	89.0	100.3	102.5	83.1	102.6	93.4	97.1	98.1	87.1	100.0	99.3	100.0

Notes: From the set of 35 indicators presented in Chapter 1, the indicator on extreme poverty, being a subset of the indicator on poverty (income dimension), and the indicator on students' assessment in the PISA test, for lack of data in the states of Michoacan, Oaxaca and Sonora, are excluded. The indicators of satisfaction with life (life satisfaction), quality of support network (community or social connections), civic and political participation (civic engagement and governance), self-reported health (health) and satisfaction with time for leisure (work-life balance) are the same in both the baseline and the latest year since they are only available for 2012. The full list of indicators with their respective baseline and latest available year are presented in Annex 3.A1.

Using the same method applied to the individual indicators in each dimension, the 12 composite indices can be aggregated into a single well-being index by state (see Annex 3.A1 for details on the method). The resulting index is the mean of the indices in the 12 dimensions (with equal weights) discounted by a factor ("penalty") that measures the variability among dimensions (the higher the variability among dimensions scores, the higher the penalty). With this choice of aggregating function, Baja California Sur, Nuevo Leon and Colima rank in the top three positions at the latest available year. Relatively better performances in the accessibility to services in Nuevo Leon and in education in Veracruz drive the improvement in the ranking position in these two states (Table 3.3). Tamaulipas and Chiapas are the states with the most and the least balanced outcomes among well-being dimensions (smallest and largest penalty), respectively (Table 3.3).

Table 3.3. **Well-being ranking in Mexican states, last and first available years**

State	Last year	First year	Change in the ranking over time	Penalty coefficient at the last year
Baja California Sur	1	1	No change	0.45
Nuevo Leon	2	5	+	0.74
Colima	3	3	No change	0.44
Sonora	4	2	–	0.37
Sinaloa	5	6	+	0.14
Coahuila	6	4	–	0.79
Tamaulipas	7	7	No change	0.10
Nayarit	8	10	+	0.43
Jalisco	9	8	–	0.44
Queretaro	10	11	+	0.50
Aguascalientes	11	12	+	0.83
Chihuahua	12	13	+	0.77
Baja California	13	9	–	1.01
Durango	14	14	No change	0.36
Federal District	15	15	No change	1.31
Zacatecas	16	18	+	0.37
Quintana Roo	17	16	–	0.74
Yucatan	18	17	–	1.55
Michoacan	19	21	+	0.45
Campeche	20	19	–	0.74
San Luis Potosi	21	20	–	0.57
Tabasco	22	22	No change	0.76
Veracruz	23	27	+	0.68
Guanajuato	24	24	No change	0.51
Hidalgo	25	26	+	0.38
State of Mexico	26	23	–	0.66
Tlaxcala	27	28	+	0.97
Morelos	28	25	–	1.20
Puebla	29	29	No change	0.41
Chiapas	30	30	No change	1.92
Oaxaca	31	31	No change	1.11
Guerrero	32	32	No change	0.97

Note: The states are ranked in descending order on the base of the values of the global well-being index (Global AMPI index). Column 3 refers to changes in the ranking from the first to the last year; a "+" (or "–") sign means that the state is in a better (worse) position in the ranking at the last year than in that at the first year; "no change" means that the state occupies the same position in both of the years. It should be noted that the dimensions life satisfaction and social connections are assumed not to change over time for lack of data on the corresponding indicators prior to 2012.

The results on the composite indices and the global well-being index are of course dependent on the choices made on how to aggregate the individual indicators and the dimensions, which should thoroughly tested to understand the robustness of the results to alternative hypothesis (see Annex 3.A1). The above tables are provided as an example of aggregating well-being dimensions and a tool to critically revise the available information for further data improvements. In order to correctly compare well-being scores across states, among dimensions and over time, the individual indicators should be available for all Mexican states for the same reference period. INEGI could also revise the choice of indicators to be included in the composite indices to have an equal number of indicators per dimension, thus strengthening the comparability of the scores among dimensions.

Since the aggregation function in a composite index introduces subjective elements, such as the weighting scheme or the penalty factor, it should undergo a critical scrutiny by INEGI and be placed for open discussion. Other countries' experiences may inform these future reflections. Italy, for example, has published annually since 2013 the "Equitable and Sustainable Well-being (BES)", a dashboard of 134 indicators organised in 12 well-being dimensions. The choice of dimensions and indicators has involved experts, representatives of the private sector and civil society under the guidance of the national statistical office (Istat) and the Italian Council for Economics and Labour (CNEL). For the first time in 2015, the BES report will also include a composite index for each well-being dimension applied to a subset of indicators available at the sub-national level, adopting the same method employed in this chapter and described in Annex 3.A1.

INEGI plans to provide composite indices for each dimension and then gather citizens' appraisals of the dimensions they consider to be the most important for their well-being, with an approach similar to the one used in the OECD Better Life Index. To ensure a large representation of different population groups, such a survey could be run as part of the Digital Inclusion Program launched by the Ministry of Telecommunications and Transport.

Embarking on an inclusive process to measure well-being for policy making

The ultimate aim of improving the statistical information to measure well-being at the sub-national level is to support state and local governments' monitoring of strategic objectives, increase co-ordination among policies and put in place actions to leverage complementarities and manage trade-offs among different policies and different levels of governments. Regions and cities, in Mexico as in other countries, have launched well-being initiatives aimed at improving the effectiveness and coherence of policies for regional development. The state of Morelos, for example, designed its state development plan around a set of clear baselines and targets in different dimensions of well-being over the timeframe of the state government mandate, and carried out extensive consultation on the expected outcomes to identify the strategic actions necessary for their achievement (OECD, 2014b).

A common framework and measures of well-being are critical inputs to improve policy design and implementation, notably by raising social awareness of specific issues. However, to move from measurement to policy making, regional well-being initiatives should consider the following (OECD, 2014a):

- Engaging citizens in the discussion and selection of the most important well-being dimensions and thus adapting the well-being metrics to the different needs and citizens' capacity to bring change, and to the strategic objectives of a region.

Engagement with citizens can be achieved in a variety of ways (e.g. town-hall meetings or meetings organised by non-governmental institutions, community surveys, social network discussion groups, etc.). An open dialogue and the use of data are necessary conditions for mobilising citizens from the very outset.

- Clarifying responsibilities across levels of government, jurisdictions and different groups of stakeholders to design and implement more coherent policies. Well-being calls for a higher level of policy co-ordination and alignment towards a common, "whole-of-government", vision about individuals' and societal progress. Regional well-being initiatives require the involvement of different stakeholders, including the scientific community, institutional stakeholders (business and labour associations, private sector, etc.) to monitor policy consistency and support change, and civil society and citizens to provide inputs and publicly monitor progress. While building a multi-stakeholder governance mechanism is complex and takes time, it can help avoid the risk of initiatives that have only a marginal impact on people's lives.
- Spelling out trade-offs and complementarities among policy objectives measured by well-being indicators. Evaluating policy results can help put in place the changes necessary to improve well-being and understand the distributional impact of policy actions and reforms.

An important aspect of enhancing the effectiveness of regional well-being initiatives is to ensure continuity across political cycles. The sustainability of regional well-being metrics over time depends on the buy-in of the public administration and on effective co-ordination across levels of government. While political leadership is fundamental, and many regional initiatives actually struggle to bring elected officials on board, the buy-in of the public administration (i.e. non-elected civil servants) is indispensable to ensure the continuity of well-being initiatives in case of changes in the political leadership. Limited local capacity for data collection and data use in policy decisions and evaluations are often barriers to the actual participation of local policy makers to well-being strategies that should be taken into account (OECD, 2014b).

In the coming months, INEGI's well-being measurement can support national and local governments' efforts to design a well-being strategy, notably in three ways. First, disseminating the available information together with a narrative on what the well-being outcomes mean in the different states and localities. Second, helping state and local policy makers to select the indicators the most relevant to policy objectives, connect them to regional strategies (for example in the state development plans), and encourage dialogue with municipalities and local stakeholders to setting targets to monitor progress towards the expected results. Finally, INEGI could also provide methodological guidance on the use of information produced locally, connect it with national surveys and support open data in local administrations.

The statistical agenda ahead for measuring sub-national well-being

Mexico has developed a comprehensive system of outcomes indicators to measure people's well-being at the sub-national level and for specific population groups. National household surveys have been expanded to provide information with a representative sample at the state level, including notably the measurement of subjective well-being. Many of the indicators can be used for international comparison as well to monitor differences across states and with the national average. The development of INEGI's

website on state well-being indicators will provide a further impulse to the dissemination and use of these indicators for national and local policy. At the same time, INEGI's portal is a work in progress and improvements for future releases can be identified to fill data gaps, increase its dissemination and make the results more policy relevant.

To improve well-being measurement at the regional and local scale, Mexico, like the other OECD countries, will have to mobilise a wide range of data sources and methods to integrate the various data sources. These include greater reliance on administrative data, use of geographic information systems (GIS), micro data on households and big data. Four priorities have been identified to fill data gaps.

- ***Advancing the measurement of inequalities at different geographical scales.*** The wealth of data on income, poverty and social deprivation provided by INEGI and CONEVAL is extremely useful to monitor the results of policies to fight poverty and increase access to income and services. The recent data on income and multi-dimensional poverty at the state and municipal levels should be continued with regular updates and may serve as an example for other countries wanting to increase the geographical detail of household living standards variables. INEGI may start estimating consumer price levels in the states and municipalities so as to integrate income data in different part of the country and within metropolitan areas to reflect the purchasing power of people living in different places. Data on population in municipalities lacking access to the six social dimensions of the multi-dimensional poverty provided by CONEVAL may help to build relative regional and metropolitan cost of living indices. Finally, income and social segregation within metropolitan areas could be measured to help identify policies better targeted to the actual needs of a metropolitan area.
- ***Developing cross-dimensional indicators.*** In addition to the indicators selected by well-being dimension, INEGI may develop a set of indicators that combine two well-being dimensions. Such a set would help assess the distributional effect of certain dimensions and identify complementarities across well-being dimensions on which to leverage policy intervention. During the consultation led by INEGI with state representatives, education was identified as one of the priorities for cross-dimensional indicators. It would mean, for example, regularly publishing life expectancy by educational attainment (to monitor health and education linkages). The breakdown of indicators by gender was also mentioned as an important future development.
- ***Improving statistical information on environmental performance.*** Despite the importance of monitoring the state of the environment and its impact on people's current and future well-being at the local level, very few measures are available. Like most OECD countries, Mexico lacks nationally and internationally comparable measures of local environment. To improve the measurement of this dimension, geographical and geo-localised information is necessary. INEGI is well positioned to pursue the integration of spatial information with administrative data (e.g. on the use of environmental resources and services) and may contribute to the development of international guidelines on how to produce and treat these data to produce outcome indicators of environmental performance. Further developments will include assessing citizens' satisfaction with the environment and user satisfaction with environmental services (green spaces, air

quality, water, waste treatment, etc.). Energy and transport, in particular within metropolitan areas, represent two additional areas for further statistical work.

- ***Providing sub-national government expenditure by sector.*** Mexico is one of the few OECD countries where the classification of government expenditure by sector (COFOG) is not available at the sub-national level. Although this information would not be included in the system of well-being indicators, it would be of great use to bridge well-being outcomes with policy priorities in Mexican states.

To improve dissemination and use for policy making of the set of well-being indicators, INEGI should consider regularly updating the database in the future, reducing the time-lag for some dimensions (for example education) and accompanying the release of the data with non-technical explanations of how to use and interpret the results.

Countries have been using different approaches to communicate regional well-being indicators to a broad audience. Whether INEGI decides to use composite indices (which convey a unified message but dilute information of the individual indicators) or a dashboard of indicators (which offers more fine-tuned information but could be more difficult to communicate largely) remains an open question at this stage. In any event, the correct dissemination of the well-being database would benefit by expanding the indicators to cover the same period of time to make useful comparison of progress. In case individual indicators will be aggregated in a composite index per dimension, more reflection should be carried out on what indicators include to increase the comparability among well-being dimensions. In fact, when the composite indices are based on a different number of individual indicators per dimension, the variability across states of the index for a dimension with many individual indicators (for example in this report health) is lower than that of a composite index for a dimension with one or few indicators (for example life satisfaction).

Finally, INEGI's engagement to provide methodological guidance to local policy makers in the use of statistical information, including the one produced locally, will increase the impact of well-being measurement in the policy cycle.

Notes

1. Exceptions at the sub-national level are represented by the "Measure of America" reports that compare US states and counties on the base of a transformed human developed index (Measure of America, 2014).
2. It should be noted that in the dataset for the Mexican states, the time reference differs among well-being dimensions, limiting the comparability of the results among them.

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Annex 3.A1. Computing the composite well-being index for Mexican states

The Adjusted Mazziotta-Pareto Index (AMPI) is a composite index for summarising a set of indicators that are assumed to be not linearly substitutable, they have all the same "importance" and no 1-to-1 compensation is envisaged among them. The composite index can be built following the same steps first to aggregate single normalised indicators to obtain a score by dimension and then to aggregate the various well-being dimensions into a single global well-being index.

The individual indicators are normalised using the minimum and maximum values of each indicator for all time periods and for all of the Mexican states, and rescaled in the range from 70 to 130 according to two "goalposts" that represent the minimum and maximum values for all normalised indicators. In this way, by setting the observed national current value to 100, all the values in the Mexican states will lie in the interval [70;130] and values above (below) 100 will represent performance above (below) the national current average. The formula for the normalisation is the following.

Think of a well-being dimension d composed of I_d indicators denoted by letter i, the value of the indicator i for the Mexican state j in year t can be represented by x_{ijt}. The number of indicators depends on the studied well-being dimension d (i.e. $i \in [1,2, \dots I_d]$ and $d \in [1,2, \dots 12]$); since there are 32 states, $j \in [1,2, \dots 32]$; and $t \in [1,2]$, where $t = 1$ and $t = 2$ represent the reference and the last year, respectively.

If higher values of x_{ijt} represent higher well-being in terms of the indicator i (*e.g.* life expectancy), the normalised value of x_{ijt}, denoted as z_{ijt}, can be obtained through the following formula:

$$z_{ijt} = 60 * \frac{x_{ijt} - min_i}{max_i - min_i} + 70 \qquad (1)$$

On the other hand, if higher values of x_{ijt} denote lower well-being as measured by indicator i (*e.g.* obesity rate), the normalised value of x_{ijt} is computed as the complement of Equation 1 with respect to 200 (*i.e.* $z_{ijt} = 200 - 60 * \frac{x_{ijt} - min_i}{max_i - min_i} - 70$). Where min_i and max_i are respectively the minimum and maximum values of the indicator i across states and years (i.e. $min_i = \min_{i \in [1,2,\dots I_d]} x_{ijt}$ and $max_i = \max_{i \in [1,2,\dots I_d]} x_{ijt}$ $\forall j \in [1,2, \dots 32]$ *and* $t \in [1,2]$). Then, one simply has to adjust this value in a way that the country normalised score in the latest year is equal to 100.

$$\bar{z}_{ijt} = z_{ijt} - (z_{ic2} - 100) \qquad (2)$$

Where z_{ic2} is the normalised (still not set to 100) value of indicator i for the country in the most recent year. Once all of the indicators of a given dimension d have been normalised and adjusted, one can calculate the AMPI of dimension d for the state j in year t in the following fashion:

$$AMPI_{djt} = M_{djt} - \frac{V_{djt}}{M_{djt}} \tag{3}$$

With M_{djt} and V_{djt} corresponding to the mean and the variance of the normalised and adjusted i indicators of the well-being dimension d (i.e. $M_{djt} = \sum_{i=1}^{I_d} \frac{\bar{z}_{ijt}}{I_d}$ and $V_{djt} = \sum_{i=1}^{I_d} \frac{(\bar{z}_{ijt} - M_{djt})^2}{I_d}$). The second term of Equation 3 is also considered as the penalty due to the within dimension inequality; one interesting feature of this index is that the lack of one indicator cannot be compensated linearly by the increase of another indicator since the inequality across indicators generates an extra penalisation. In other words, more balanced outcomes provide more well-being than the same "quantity" of outcomes unequally distributed.

Once the AMPIs have been estimated for all dimensions, states and years, it is possible to aggregate all of the 12 well-being dimensions into a single global well-being index for each state and year.

$$WB_{jt} = GM_{jt} - \frac{GV_{jt}}{GM_{jt}} \tag{4}$$

where $GM_{jt} = \sum_{d=1}^{12} \frac{AMPI_{djt}}{12}$ and $GV_{jt} = \sum_{d=1}^{12} \frac{(AMPI_{djt} - GM_{jt})^2}{12}$ are the mean and variance of the 12 AMPIs, each AMPI corresponding to one well-being dimensions for a given state and year.

These calculations are performed using a set of 33 indicators that are distributed across 12 well-being dimensions and for two points in time (the baseline and the latest available year). Table 3A.1 shows the indicators by well-being dimension, as well as the baseline and latest year available for each of them.

The results until Equation 3 are shown in the Tables 3.A1.2 (for baseline year) and 3.A1.3 (for latest year), where the values obtained are comparable across the Mexican states and across the well-being dimensions (and to some extent over time). The decomposition of the AMPI (mean and penalty) is also provided, in order to assess the variability within well-being dimensions in each Mexican state. For example, Colima in the base year is below the national performance in "housing" (87.5 versus 89). However, from the base year to the last year, Colima shows an increase of the mean and a reduction of the penalty, so it moves above the country average (101.2 versus 100). Finally, Table 3.A1.4 shows the results of estimating a global index of well-being for a given state and year (see Equation 4); in this scenario Colima has increased its global well-being from 103.8 to 107.4, this result is driven by both an average increase in levels of its 12 well-being dimensions (the global mean moved from 105 to 107.9) and a more balanced performance across dimensions in the most recent year (the global penalty declined from 1.2 to 0.4).

Table 3.A1.1. **Well-being indicators availability**

Dimension	Indicator name	Description of the indicator	First and last available year
Housing	Rooms per person*	Average number of rooms per person in the household	2000-10
	Quality of housing	Percent of houses with ceilings made of durable materials	2000-10
Income	Equivalised household disposable income*	Household disposable income in USD (PPP at constant prices of 2010)	2008-14
	Gini of household disposable income per capita	Gini index on a scale 0 to 1	2008-14
	Poverty rate	Percent of people in multi-dimensional poverty	2010-14
Jobs	Employment rate*	Percent of persons in employment as a share of population aged 15 years and older	2005-14
	Unemployment rate*	Percent of persons in unemployment with respect to the labour force population	2005-14
	Informal employment rate	Percent of persons working in the informal economy as a share of the employed population	2005-14
	Index of critic conditions of the working population	Percent of employees in critical conditions (who work less than 35 hrs/week, work more than 35 hrs/week for a salary lower than the minimum wage, or work more than 48 hrs/week for a salary lower than twice the minimum wage)	2005-14
Accessibility to services	Household broadband access*	Percent of households with broadband connection	2010-14
	Dwellings with access to basic services	Percent of dwellings with piped water, drain lines and electricity	2008-14
	Access to health services	Percent of people with access to public health services	2008-14
Safety	Homicide rate*	Homicides per 100 000 people	2000-13
	Perception of unsafety	Percent of people that feel unsafe in their locality or neighbourhood	2011-14
	Crime rate	Crimes per 100 000 people	2010-13
	Trust in the police	Percent of people that identify and consider that the state police is effective or very effective	2011-14
Education	Educational attainment*	Percent of labour force with at least secondary education	2000-10
	School dropouts	Number of dropouts over total enrolled students (secondary education)	2012-13
Environment	Air pollution*	Average levels of PM2.5 in $\mu g/m^3$	2003-12
	Waste disposal	Percent of solid waste that is disposed in controlled areas	2005-08
Civic engagement and governance	Voter turnout*	Percent of people that vote with respect to the registered people to vote	2000-12
	Civic and political participation	Percent of people that participate in a political party, NGO or volunteer in a philanthropic association	2012
	Perception of absence of corruption in judicial system	Percent of people that perceive judges as not corrupt	2011-14
	Trust in law enforcement	Percent of people that perceive that criminals are always punished	2012-14
Health	Life expectancy at birth*	Average years at birth a person can expect to live	2000-14
	Infant mortality rate	Number of deaths of children younger than 1 year old per 1 000 live births	2000-13
	Maternal mortality rate	Number of maternal deaths per 100 000 live births	2000-13
	Self-reported health	Average self-reported satisfaction with health on a scale 0 to 10 (10 being the best)	2012
	Obesity rate	Percent of obese adults (aged 20 years or older)	2006-12
Life satisfaction	Satisfaction with life	Average self-reported satisfaction with life on a scale 0 to 10 (10 being the best)	2012
Work-life balance	Satisfaction with time for leisure	Average self-reported satisfaction with time available to do what one likes on a scale 0 to 10 (10 being the best)	2012
	Employees working very long hours	Percent of employees that work more than 48 hours per week	2012-14
Community (social connections)	Quality of support network	Percent of people that have at least one friend to rely on in case of need	2012

Notes: From the set of 35 indicators presented in this table, the indicator on extreme poverty, a subset of the indicator on poverty (income dimension), and the indicator on students' assessment in the PISA test, for lack of data in the states of Michoacan, Oaxaca and Sonora, are excluded. The indicators of satisfaction with life (life satisfaction), quality of support network (community or social connections), civic and political participation (civic engagement and governance), self-reported health (health) and satisfaction with time for leisure (work-life balance) are the same in both the baseline and the latest year since they are only available for 2012. Indicators with an "*" are available also for the 362 regions of the OECD countries via the *OECD Regional Well-being Database*: www.oecdregionalwellbeing.org.

Table 3.A1.2. **Well-being by dimension and state in the baseline year**

Baseline year	Housing			Income			Jobs			Accessibility to services			Safety			Education		
	Mean	Penalty	AMPI	Mean	Penalty	AMPI	Mean	Penalty	AMPI	Mean	Penalty	AMPI	Mean	Penalty	AMPI	Mean	Penalty	AMPI
Mexico (country)	89.2	0.2	89.0	100.3	0.0	100.3	103.1	0.5	102.5	84.0	0.9	83.1	103.2	0.6	102.6	93.4	0.0	93.4
Aguascalientes	106.1	1.5	104.7	103.6	0.2	103.4	102.9	0.6	102.3	98.3	1.3	97.0	104.0	1.1	102.9	99.5	0.0	99.5
Baja California	79.8	1.6	78.3	118.4	0.0	118.4	121.9	0.9	121.0	97.5	1.5	96.0	103.4	0.4	103.0	88.8	0.9	87.8
Baja California Sur	89.0	0.0	89.0	117.9	1.0	116.9	117.5	0.4	117.1	95.9	0.4	95.6	112.8	1.1	111.7	99.0	0.1	98.9
Campeche	73.5	0.1	73.5	96.6	0.1	96.4	104.4	2.3	102.1	88.3	0.2	88.1	111.1	0.8	110.3	91.1	0.0	91.1
Chiapas	59.8	0.0	59.8	73.9	0.4	73.4	90.0	9.6	80.4	64.9	0.7	64.2	113.2	0.6	112.6	83.4	1.6	81.8
Chihuahua	89.8	0.8	89.0	101.3	0.7	100.7	119.1	0.7	118.4	91.9	0.7	91.2	92.1	1.9	90.2	85.1	0.0	85.1
Coahuila	102.2	0.1	102.1	112.4	0.2	112.1	107.9	0.9	107.0	97.6	0.9	96.7	110.9	0.1	110.9	89.3	0.9	88.3
Colima	87.7	0.1	87.5	117.2	0.1	117.1	113.1	0.6	112.5	101.5	1.0	100.6	115.4	0.2	115.2	89.5	0.4	89.1
Durango	96.0	0.1	95.9	96.4	0.2	96.2	102.2	0.8	101.4	83.6	0.8	82.8	103.4	1.0	102.5	83.6	0.3	83.3
Federal District	109.0	0.1	108.9	115.0	1.6	113.5	103.8	0.3	103.5	96.6	2.5	94.1	92.8	2.3	90.6	110.8	1.3	109.5
Guanajuato	89.3	1.1	88.2	106.1	1.2	104.8	99.0	0.3	98.7	83.2	1.2	82.1	110.0	0.2	109.9	78.5	0.1	78.4
Guerrero	66.0	0.3	65.7	82.1	0.2	82.0	99.6	5.9	93.7	61.3	1.3	60.0	102.4	0.6	101.8	87.5	0.1	87.4
Hidalgo	86.6	0.3	86.3	94.0	0.6	93.4	96.0	2.3	93.7	73.6	1.3	72.3	109.2	0.5	108.7	84.0	0.7	83.3
Jalisco	101.4	0.9	100.6	111.1	0.0	111.0	110.3	0.5	109.8	91.4	1.3	90.0	109.3	0.1	109.3	104.8	3.2	101.6
Michoacan	83.1	0.1	83.0	96.4	0.7	95.7	99.5	2.6	96.9	72.3	3.9	68.4	104.9	2.6	102.3	88.9	1.6	87.3
Morelos	89.9	0.4	89.5	102.9	0.3	102.6	103.8	1.7	102.1	87.6	1.3	86.3	99.1	0.8	98.4	86.0	0.6	85.3
Nayarit	92.4	0.2	92.3	104.4	0.2	104.3	106.0	2.0	104.0	90.1	0.9	89.2	107.6	0.4	107.1	97.5	0.8	96.7
Nuevo Leon	106.7	0.2	106.5	119.5	0.9	118.6	111.8	0.6	111.2	99.8	0.5	99.3	103.3	0.6	102.7	92.3	3.3	89.0
Oaxaca	66.9	0.0	66.9	86.7	0.8	85.9	99.2	6.8	92.4	58.4	0.9	57.5	108.1	0.8	107.3	80.6	2.6	78.1
Puebla	82.6	0.9	81.7	93.2	1.5	91.7	98.4	3.0	95.5	66.9	2.2	64.7	104.1	1.0	103.0	94.7	1.9	92.7
Queretaro	92.5	0.7	91.8	105.5	0.2	105.2	107.0	0.1	107.0	92.1	0.6	91.5	115.8	0.1	115.8	92.7	0.0	92.7
Quintana Roo	83.4	1.5	81.9	110.1	0.5	109.7	121.9	1.9	120.0	94.8	1.8	93.0	100.4	0.7	99.6	96.6	0.0	96.6
San Luis Potosi	90.5	0.3	90.1	95.1	0.1	95.0	102.3	2.0	100.3	79.9	0.1	79.8	105.2	0.2	105.0	94.8	0.6	94.2
Sinaloa	98.2	1.3	96.9	107.9	0.0	107.9	109.9	0.6	109.3	90.8	0.2	90.5	103.4	0.5	102.9	100.9	0.1	100.8
Sonora	92.5	0.1	92.4	114.3	0.1	114.3	111.1	0.3	110.8	96.8	0.1	96.7	106.3	0.7	105.6	92.4	0.3	92.1
State of Mexico	93.0	1.0	92.0	110.9	1.4	109.5	97.2	0.1	97.1	84.0	1.8	82.1	91.7	2.6	89.1	93.8	0.0	93.8
Tabasco	70.4	0.4	69.9	90.1	0.0	90.1	97.3	2.0	95.3	85.3	0.7	84.6	100.4	2.0	98.5	94.5	0.5	94.0
Tamaulipas	92.9	0.0	92.9	106.5	0.0	106.5	108.2	0.3	107.9	94.0	0.3	93.7	105.8	0.5	105.3	95.9	0.0	95.8
Tlaxcala	91.3	2.2	89.1	100.7	4.1	96.6	92.6	0.9	91.7	80.5	4.1	76.4	108.4	1.2	107.2	93.0	0.2	92.8
Veracruz	75.7	0.1	75.6	94.3	0.4	93.9	96.4	3.3	93.0	71.6	0.2	71.4	107.5	1.7	105.8	85.9	0.8	85.1
Yucatan	87.6	1.0	86.6	101.6	0.1	101.5	104.6	2.5	102.1	84.8	0.1	84.7	116.7	0.9	115.7	91.7	0.8	90.9
Zacatecas	96.4	0.4	96.1	91.9	0.3	91.7	99.6	2.4	97.1	85.0	1.3	83.8	108.3	0.4	107.9	90.5	2.5	88.0

Table 3.A1.2. **Well-being by dimension and state in the baseline year** (*cont.*)

Baseline year	Environment			Civic engagement and governance			Health			Life satisfaction			Work-life balance			Community (social connections)		
	Mean	Penalty	AMPI	Mean	Penalty	AMPI	Mean	Penalty	AMPI	Mean	Penalty	AMPI	Mean	Penalty	AMPI	Mean	Penalty	AMPI
Mexico (country)	97.1	0.0	97.1	98.3	0.1	98.1	88.8	1.7	87.1	100.0	0.0	100.0	99.3	0.0	99.3	100.0	0.0	100.0
Aguascalientes	109.9	0.9	109.0	99.5	0.9	98.7	96.3	1.4	94.9	91.1	0.0	91.1	82.5	0.2	82.3	111.3	0.0	111.3
Baja California	113.0	0.2	112.8	90.1	0.2	89.9	89.1	1.7	87.4	105.8	0.0	105.8	112.9	0.1	112.7	116.7	0.0	116.7
Baja California Sur	109.9	0.1	109.8	104.1	0.3	103.8	104.6	3.1	101.6	108.4	0.0	108.4	117.3	0.0	117.3	127.9	0.0	127.9
Campeche	91.7	2.0	89.7	113.8	0.7	113.1	88.1	0.1	88.0	101.6	0.0	101.6	107.2	1.0	106.2	84.3	0.0	84.3
Chiapas	90.7	2.2	88.5	100.1	4.5	95.6	80.9	7.7	73.2	96.1	0.0	96.1	107.0	0.0	107.0	103.0	0.0	103.0
Chihuahua	107.8	0.0	1078	93.8	1.4	92.4	89.9	3.6	86.3	100.2	0.0	100.2	126.4	0.6	125.8	104.7	0.0	104.7
Coahuila	99.2	0.1	99.1	100.4	0.6	99.8	99.8	0.4	99.4	129.5	0.0	129.5	111.1	0.4	110.8	94.4	0.0	94.4
Colima	94.0	0.2	93.8	110.7	0.7	110.0	95.3	0.4	94.9	104.6	0.0	104.6	110.8	0.8	110.0	125.3	0.0	125.3
Durango	106.1	0.0	106.0	97.1	0.5	96.6	93.4	0.8	92.5	99.2	0.0	99.2	112.1	0.1	112.0	109.0	0.0	109.0
Federal District	103.2	2.7	100.5	88.0	3.6	84.4	93.0	1.1	91.8	84.1	0.0	84.1	84.2	0.0	84.2	108.3	0.0	108.3
Guanajuato	91.1	0.8	90.3	93.9	2.8	91.1	87.6	0.7	86.9	98.4	0.0	98.4	85.8	0.1	85.8	90.3	0.0	90.3
Guerrero	92.2	0.6	91.6	95.3	1.9	93.4	75.3	7.9	67.4	69.5	0.0	69.5	82.0	3.9	78.2	95.7	0.0	95.7
Hidalgo	80.5	0.8	79.7	108.9	1.2	107.7	89.6	4.0	85.6	100.7	0.0	100.7	88.9	0.2	88.7	95.0	0.0	95.0
Jalisco	101.4	0.3	101.1	99.2	0.8	98.4	96.6	1.1	95.5	102.5	0.0	102.5	110.3	1.4	108.9	86.3	0.0	86.3
Michoacan	84.9	0.3	84.6	101.6	2.2	99.4	89.0	1.3	87.6	99.4	0.0	99.4	109.8	0.3	109.6	111.3	0.0	111.3
Morelos	66.3	0.6	65.7	90.1	1.0	89.1	92.5	1.5	91.0	83.6	0.0	83.6	94.5	0.0	94.5	113.3	0.0	113.3
Nayarit	98.1	1.4	96.7	112.9	0.9	112.0	88.1	0.4	87.7	107.3	0.0	107.3	115.9	0.6	115.3	95.0	0.0	95.0
Nuevo Leon	107.1	0.9	106.2	96.7	1.1	95.7	103.5	1.8	101.7	116.2	0.0	116.2	108.7	0.1	108.6	90.2	0.0	90.2
Oaxaca	82.9	6.4	76.5	99.9	2.3	97.6	74.9	9.0	66.0	84.3	0.0	84.3	88.2	0.6	87.6	102.2	0.0	102.2
Puebla	98.6	0.2	98.5	88.2	0.7	87.6	82.8	6.2	76.6	90.3	0.0	90.3	89.0	0.2	88.8	89.1	0.0	89.1
Queretaro	94.0	1.1	92.9	104.0	0.6	103.4	90.0	4.1	85.8	113.1	0.0	113.1	92.9	0.3	92.6	115.0	0.0	115.0
Quintana Roo	105.3	0.8	104.5	100.2	0.4	99.8	82.6	2.7	79.9	99.3	0.0	99.3	96.8	0.0	96.8	80.6	0.0	80.6
San Luis Potosi	91.5	0.0	91.5	111.9	0.5	111.4	88.3	1.9	86.4	88.1	0.0	88.1	104.2	0.5	103.7	79.5	0.0	79.5
Sinaloa	108.7	0.0	108.6	96.8	0.5	96.4	101.8	1.4	100.4	107.3	0.0	107.3	111.9	0.2	111.7	107.7	0.0	107.7
Sonora	99.5	1.8	97.7	106.0	0.6	105.4	96.2	2.3	93.8	115.6	0.0	115.6	117.8	0.1	117.7	113.9	0.0	113.9
State of Mexico	91.0	0.2	90.8	91.3	1.6	89.7	86.9	3.9	83.0	102.4	0.0	102.4	85.8	1.0	84.7	91.0	0.0	91.0
Tabasco	89.9	1.2	88.8	99.8	0.2	99.6	87.1	0.3	86.8	116.1	0.0	116.1	90.3	2.6	87.7	105.9	0.0	105.9
Tamaulipas	94.9	0.3	94.5	107.1	0.2	106.9	91.9	1.0	91.0	110.6	0.0	110.6	111.5	0.2	111.3	107.9	0.0	107.9
Tlaxcala	105.0	0.4	104.6	91.5	0.7	90.9	87.5	3.7	83.8	79.1	0.0	79.1	77.4	2.1	75.3	88.5	0.0	88.5
Veracruz	89.3	1.0	88.3	100.2	0.2	100.0	81.4	3.3	78.1	92.7	0.0	92.7	100.6	0.1	100.5	116.2	0.0	116.2
Yucatan	104.7	1.0	103.7	115.0	1.4	113.6	91.7	1.6	90.1	106.4	0.0	106.4	96.8	0.1	96.8	67.9	0.0	67.9
Zacatecas	93.4	2.2	91.1	107.7	1.8	105.9	86.6	0.6	86.0	104.6	0.0	104.6	102.0	0.2	101.8	92.0	0.0	92.0

Table 3.A1.3. **Well-being by dimension and state in the latest year**

Latest year	Housing			Income			Jobs			Accessibility to services			Safety			Education		
	Mean	Penalty	AMPI	Mean	Penalty	AMPI	Mean	Penalty	AMPI	Mean	Penalty	AMPI	Mean	Penalty	AMPI	Mean	Penalty	AMPI
Mexico (country)	100.0	0.0	100.0	100.0	0.0	100.0	100.0	0.0	100.0	100.0	0.0	100.0	100.0	0.0	100.0	100.0	0.0	100.0
Aguascalientes	114.6	0.2	114.4	108.6	0.0	108.6	102.8	0.9	101.9	108.9	0.1	108.7	115.9	0.1	115.8	103.2	0.0	103.2
Baja California	95.8	2.1	93.7	120.2	0.1	120.0	107.7	1.3	106.4	107.5	0.9	106.6	96.3	0.3	96.1	90.9	1.8	89.0
Baja California Sur	101.4	0.0	101.4	115.9	0.0	115.9	111.9	0.7	111.2	106.8	0.1	106.7	111.6	0.1	111.5	106.8	0.1	106.8
Campeche	85.6	0.0	85.5	103.1	0.0	103.1	103.8	0.8	103.0	98.3	0.5	97.8	108.9	0.1	108.8	96.5	0.1	96.4
Chiapas	69.7	0.3	69.4	79.7	1.5	78.2	85.4	4.5	80.8	81.5	1.5	80.0	109.3	0.4	108.9	82.8	0.1	82.8
Chihuahua	101.5	2.0	99.5	109.4	0.5	108.8	113.8	0.9	112.9	107.8	0.1	107.7	95.5	4.3	91.2	91.2	0.4	90.8
Coahuila	109.7	0.2	109.5	109.3	0.4	108.9	109.2	1.3	107.9	105.1	0.2	104.9	106.4	0.7	105.7	92.7	2.1	90.6
Colima	101.2	0.0	101.2	112.6	0.1	112.5	108.6	0.2	108.4	111.9	0.1	111.8	108.7	1.5	107.3	104.9	0.1	104.8
Durango	101.8	0.2	101.6	105.4	1.4	104.0	95.7	0.4	95.4	100.6	0.1	100.4	104.8	0.8	104.0	88.8	0.5	88.3
Federal District	118.0	0.0	117.9	117.2	1.9	115.4	98.7	1.4	97.3	112.0	1.0	111.0	91.5	1.4	90.1	114.5	1.2	113.3
Guanajuato	101.9	0.4	101.5	104.4	1.3	103.1	100.3	0.0	100.3	101.0	0.4	100.6	105.8	0.7	105.1	88.2	0.1	88.1
Guerrero	76.7	0.1	76.6	89.5	1.4	88.1	100.3	5.5	94.8	81.9	2.6	79.3	92.6	4.6	87.9	90.7	0.0	90.7
Hidalgo	101.4	0.0	101.4	94.1	0.2	94.0	96.2	1.0	95.2	95.6	0.2	95.4	107.9	0.3	107.6	88.7	0.1	88.7
Jalisco	109.5	0.2	109.3	110.9	0.0	110.9	104.9	0.2	104.7	106.5	0.3	106.2	105.1	0.8	104.3	117.3	2.6	114.7
Michoacan	95.8	0.0	95.8	97.5	2.4	95.1	100.4	1.7	98.7	90.9	0.1	90.8	103.5	0.5	102.9	95.3	1.2	94.1
Morelos	103.3	0.0	103.3	99.9	0.9	99.0	100.7	0.6	100.1	102.1	0.1	102.0	92.3	0.6	91.7	89.9	1.4	88.5
Nayarit	103.8	0.0	103.8	105.8	0.2	105.5	98.8	0.5	98.3	103.6	0.0	103.6	111.5	0.6	110.9	117.0	2.5	114.6
Nuevo Leon	114.1	0.0	114.1	123.5	0.1	123.5	109.3	1.6	107.7	114.4	0.6	113.8	111.4	0.8	110.6	98.5	2.0	96.5
Oaxaca	79.1	0.1	79.0	84.6	0.8	83.8	96.9	3.8	93.0	80.7	1.9	78.7	108.5	0.3	108.2	88.4	0.5	87.9
Puebla	94.8	0.2	94.6	79.8	0.2	79.6	96.4	1.2	95.1	92.6	0.1	92.4	104.5	0.2	104.3	101.0	1.1	99.9
Queretaro	106.9	0.1	106.8	109.3	0.1	109.2	101.0	1.9	99.1	102.3	0.1	102.2	112.3	0.1	112.2	100.4	0.0	100.4
Quintana Roo	97.0	1.5	95.5	107.6	0.1	107.5	110.5	0.3	110.2	107.4	0.4	107.0	102.2	0.2	102.0	110.3	0.2	110.0
San Luis Potosi	101.9	0.0	101.9	99.3	0.6	98.7	103.7	0.6	103.1	96.9	0.9	96.0	104.8	0.1	104.7	101.4	0.3	101.0
Sinaloa	108.1	0.5	107.6	106.5	0.0	106.5	101.0	0.6	100.4	103.7	0.0	103.7	104.0	2.0	102.0	114.4	0.1	114.3
Sonora	102.2	0.3	101.9	115.0	0.1	114.9	109.9	0.5	109.5	109.4	0.1	109.2	104.4	0.3	104.1	100.2	0.6	99.6
State of Mexico	104.6	0.2	104.4	103.1	0.8	102.3	94.4	0.5	93.9	101.0	0.1	100.9	78.4	2.6	75.8	97.1	0.3	96.8
Tabasco	81.4	1.0	80.4	102.6	1.1	101.5	92.4	0.6	91.9	94.1	0.4	93.7	95.8	1.5	94.2	101.1	0.0	101.1
Tamaulipas	103.7	0.0	103.7	107.2	0.1	107.2	104.0	0.4	103.6	104.1	0.0	104.1	105.0	0.6	104.3	102.6	0.1	102.5
Tlaxcala	104.5	1.0	103.5	102.1	5.1	97.0	90.9	0.7	90.2	99.9	0.7	99.2	107.8	0.1	107.6	97.8	0.0	97.8
Veracruz	87.3	0.7	86.7	92.7	0.8	91.9	94.5	1.3	93.2	88.7	0.2	88.5	104.1	0.3	103.8	104.4	1.3	103.0
Yucatan	102.8	1.0	101.8	99.8	0.0	99.7	107.1	1.7	105.4	98.6	0.2	98.4	119.6	0.2	119.4	98.5	0.0	98.5
Zacatecas	103.7	0.1	103.7	93.4	0.2	93.2	94.4	0.4	94.0	99.1	0.4	98.7	109.2	1.3	107.9	95.8	1.1	94.7

Table 3.A1.3. **Well-being by dimension and state in the latest year** (*cont.*)

Latest year	Environment			Civic engagement and governance			Health			Life satisfaction			Work-life balance			Community (social connections)		
	Mean	Penalty	AMPI	Mean	Penalty	AMPI	Mean	Penalty	AMPI	Mean	Penalty	AMPI	Mean	Penalty	AMPI	Mean	Penalty	AMPI
Mexico (country)	100.0	0.0	100.0	100.0	0.0	100.0	100.0	0.0	100.0	100.0	0.0	100.0	100.0	0.0	100.0	100.0	0.0	100.0
Aguascalientes	112.9	0.4	112.5	99.8	1.6	98.2	105.6	0.2	105.4	91.1	0.0	91.1	83.5	0.1	83.5	111.3	0.0	111.3
Baja California	114.3	0.1	114.3	92.3	1.6	90.6	93.4	0.7	92.7	105.8	0.0	105.8	108.4	0.7	107.7	116.7	0.0	116.7
Baja California Sur	110.7	0.1	110.6	105.2	1.3	103.9	105.1	4.6	100.5	108.4	0.0	108.4	113.3	0.3	113.0	127.9	0.0	127.9
Campeche	102.1	2.5	99.7	113.8	0.6	113.2	91.3	2.0	89.2	101.6	0.0	101.6	106.3	1.1	105.2	84.3	0.0	84.3
Chiapas	94.0	3.2	90.8	114.8	2.7	112.1	95.4	2.0	93.4	96.1	0.0	96.1	107.1	0.0	107.1	103.0	0.0	103.0
Chihuahua	111.2	0.0	111.1	99.6	2.0	97.6	95.1	2.5	92.6	100.2	0.0	100.2	119.9	0.0	119.9	104.7	0.0	104.7
Coahuila	105.2	0.1	105.2	104.5	0.5	104.0	104.9	0.8	104.1	129.5	0.0	129.5	113.5	0.1	113.4	94.4	0.0	94.4
Colima	97.6	0.6	97.0	109.1	0.5	108.6	102.8	0.7	102.1	104.6	0.0	104.6	111.6	0.6	111.0	125.3	0.0	125.3
Durango	107.6	0.0	107.6	108.8	1.6	107.2	101.7	0.2	101.5	99.2	0.0	99.2	111.8	0.2	111.6	109.0	0.0	109.0
Federal District	105.5	1.9	103.6	88.3	1.7	86.5	101.7	0.4	101.3	84.1	0.0	84.1	88.4	0.2	88.1	108.3	0.0	108.3
Guanajuato	95.4	0.5	95.0	89.5	2.2	87.2	100.9	0.2	100.7	98.4	0.0	98.4	82.6	0.4	82.3	90.3	0.0	90.3
Guerrero	93.3	0.7	92.7	103.6	0.7	102.9	90.7	1.4	89.3	69.5	0.0	69.5	80.0	3.1	76.9	95.7	0.0	95.7
Hidalgo	85.3	1.0	84.3	102.8	2.6	100.2	98.9	0.5	98.4	100.7	0.0	100.7	90.4	0.4	90.0	95.0	0.0	95.0
Jalisco	103.3	0.2	103.1	100.7	0.1	100.6	106.1	0.3	105.9	102.5	0.0	102.5	111.9	1.7	110.2	86.3	0.0	86.3
Michoacan	88.8	0.3	88.5	100.3	3.3	97.0	100.5	0.0	100.5	99.4	0.0	99.4	110.9	0.4	110.6	111.3	0.0	111.3
Morelos	70.4	0.6	69.8	90.6	0.9	89.7	100.2	0.6	99.6	83.6	0.0	83.6	95.4	0.0	95.4	113.3	0.0	113.3
Nayarit	103.3	1.0	102.3	117.8	1.0	116.7	99.8	0.2	99.5	107.3	0.0	107.3	115.7	0.6	115.1	95.0	0.0	95.0
Nuevo Leon	111.8	0.4	111.4	99.9	2.2	97.7	109.5	2.3	107.2	116.2	0.0	116.2	111.1	0.3	110.8	90.2	0.0	90.2
Oaxaca	83.3	6.6	76.7	104.1	1.1	103.0	84.8	0.8	84.0	84.3	0.0	84.3	88.0	0.6	87.5	102.2	0.0	102.2
Puebla	101.3	0.4	100.9	91.4	0.4	90.9	95.8	0.6	95.1	90.3	0.0	90.3	91.3	0.4	90.8	89.1	0.0	89.1
Queretaro	96.1	0.6	95.4	103.8	0.2	103.6	105.7	0.5	105.2	113.1	0.0	113.1	89.9	0.0	89.9	115.0	0.0	115.0
Quintana Roo	111.7	0.5	111.2	96.6	0.7	96.0	96.4	0.6	95.8	99.3	0.0	99.3	94.7	0.1	94.6	80.6	0.0	80.6
San Luis Potosi	98.5	0.2	98.3	107.2	0.3	106.9	103.3	0.2	103.1	88.1	0.0	88.1	105.1	0.6	104.4	79.5	0.0	79.5
Sinaloa	108.9	0.0	108.9	104.1	1.8	102.3	107.2	0.6	106.6	107.3	0.0	107.3	112.0	0.2	111.8	107.7	0.0	107.7
Sonora	100.7	1.6	99.1	99.6	0.8	98.9	104.3	1.3	103.1	115.6	0.0	115.6	114.4	0.4	114.0	113.9	0.0	113.9
State of Mexico	91.8	0.0	91.8	92.2	0.8	91.4	103.4	0.4	102.9	102.4	0.0	102.4	88.7	0.5	88.3	91.0	0.0	91.0
Tabasco	94.1	2.2	91.9	103.2	1.0	102.2	93.8	1.8	92.0	116.1	0.0	116.1	94.8	1.2	93.6	105.9	0.0	105.9
Tamaulipas	107.1	0.2	106.9	107.5	1.2	106.3	100.7	0.6	100.0	110.6	0.0	110.6	111.9	0.1	111.8	107.9	0.0	107.9
Tlaxcala	105.8	0.4	105.4	95.7	0.2	95.5	102.5	0.3	102.2	79.1	0.0	79.1	78.1	2.3	75.8	88.5	0.0	88.5
Veracruz	91.0	1.0	90.0	99.8	0.4	99.3	93.4	0.8	92.6	92.7	0.0	92.7	102.2	0.0	102.2	116.2	0.0	116.2
Yucatan	107.0	1.6	105.5	119.2	1.3	117.8	96.2	3.0	93.2	106.4	0.0	106.4	97.4	0.0	97.4	67.9	0.0	67.9
Zacatecas	101.0	0.9	100.1	115.0	1.8	113.2	102.3	0.1	102.2	104.6	0.0	104.6	101.6	0.3	101.3	92.0	0.0	92.0

Table 3.A1.4. **Global well-being index by state and year**

State	Baseline year			Latest year		
	Global mean	Global penalty	Global well-being	Global mean	Global penalty	Global well-being
Mexico (country)	96.0	0.4	95.7	100.0	0.0	100.0
Aguascalientes	99.8	0.6	99.2	104.5	0.8	103.7
Baja California	102.5	1.8	100.7	103.3	1.0	102.3
Baja California Sur	108.1	1.0	107.1	109.8	0.4	109.4
Campeche	95.4	1.3	94.1	99.0	0.7	98.2
Chiapas	86.3	3.1	83.3	91.9	1.9	90.0
Chihuahua	99.3	1.5	97.8	103.1	0.8	102.3
Coahuila	104.2	1.0	103.2	106.5	0.8	105.7
Colima	105.0	1.2	103.8	107.9	0.4	107.4
Durango	98.1	0.8	97.3	102.5	0.4	102.1
Federal District	97.8	1.1	96.7	101.4	1.3	100.1
Guanajuato	92.1	0.9	91.2	96.0	0.5	95.5
Guerrero	82.2	2.1	80.1	87.0	1.0	86.0
Hidalgo	91.3	1.2	90.1	95.9	0.4	95.5
Jalisco	101.2	0.6	100.7	104.9	0.4	104.4
Michoacan	93.8	1.4	92.4	98.7	0.4	98.3
Morelos	91.8	1.4	90.4	94.7	1.2	93.5
Nayarit	100.6	0.7	99.9	106.1	0.4	105.6
Nuevo Leon	103.8	0.8	103.0	108.3	0.7	107.6
Oaxaca	83.5	2.5	81.0	89.0	1.1	87.9
Puebla	88.3	1.1	87.3	93.6	0.4	93.2
Queretaro	100.6	1.0	99.6	104.3	0.5	103.8
Quintana Roo	96.8	1.4	95.5	100.8	0.7	100.1
San Luis Potosi	93.7	1.0	92.8	98.8	0.6	98.2
Sinaloa	103.4	0.4	103.0	106.6	0.1	106.4
Sonora	104.7	0.8	103.8	107.0	0.4	106.6
State of Mexico	92.1	0.6	91.5	95.2	0.7	94.5
Tabasco	93.1	1.3	91.8	97.0	0.8	96.3
Tamaulipas	102.0	0.5	101.5	105.8	0.1	105.7
Tlaxcala	89.7	1.0	88.6	95.2	1.0	94.2
Veracruz	91.7	1.7	90.0	96.7	0.7	96.0
Yucatan	96.7	1.7	94.9	100.9	1.5	99.4
Zacatecas	95.5	0.6	94.9	100.5	0.4	100.1

Sensitivity analysis

A sensitivity analysis was performed to assess the robustness of rankings to the inclusion or exclusion of individual indicators in a given dimension. In Table 3.A1.5, a comparison among the AMPI and two traditional methods (arithmetic mean of standardised values, and geometric mean of indexed values) is presented for the latest available year. The table reports the mean and standard deviation of the shifts in the ranking when an individual indicator is excluded.

The results show the AMPI provides a middle result compared to the other two methods. In particular, the mean standard deviation is less than the geometric mean of indexed values (0.95 versus 1.55), because indexation gives weights proportional to the variability, and then some indicators are considerably more influential than others. On the contrary, the AMPI tends to assign equal weight or importance to each indicator and it is less sensitive to the number of individual indicators in a given dimension.

Table 3.A1.5. **Results of sensitivity analysis**

Dimension	Number of individual indicators	Arithmetic mean of standardised values		Geometric mean of indexed values		AMPI	
		Mean	Std	Mean	Std	Mean	Std
Housing	2	4.22	0.09	4.06	1.81	4.22	0.59
Income	3	2.33	0.36	0.98	0.31	2.06	0.26
Jobs	4	3.30	0.46	3.25	1.67	3.13	1.60
Accessibility to Services	3	2.92	0.43	2.10	1.61	2.48	0.54
Safety	4	2.91	0.65	2.98	2.27	2.95	1.10
Education	3	3.77	0.56	3.77	2.50	3.94	1.19
Environment	2	5.81	0.56	5.69	0.13	5.81	1.69
Civic Engagement and Governance	4	2.88	0.47	2.08	0.89	3.00	0.72
Health	5	2.33	0.31	2.29	1.84	2.65	1.20
Life Satisfaction	1	-	-	-	-	-	-
Work-Life Balance	2	3.88	0.25	3.88	2.44	3.97	0.59
Community (Social Connections)	1	-	-	-	-	-	-
Mean		**3.44**	**0.41**	**3.11**	**1.55**	**3.42**	**0.95**

Annex A.

Well-being snapshots of Mexican states

Notes:

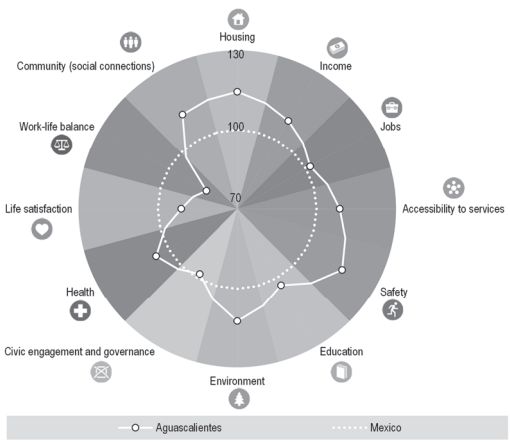
1. The "Well-being scores by dimension" for each state are computed by normalising and aggregating the individual indicators included in a well-being dimension. Mexico's value in each dimension is set to 100; the states' values vary between 70 and 130.

2. For the graphs illustrating "Change in well-being over time" in this annex, Mexico's national values in the latest year are set equal to 100 and the states' scores range from 70 to 130. The reference period between the first and last year is not the same across dimensions, affecting the comparability among them. The dimensions life satisfaction and social connections are not included since only one year of data is available.

Aguascalientes

Well-being in Aguascalientes exceeds the national average in nine dimensions and lags behind in three, among which is life satisfaction. Aguascalientes ranks second among Mexican states in the dimensions of housing, environment and safety thanks to the quality of housing, good waste management, a low homicide rate and high levels of trust in the state police. Life expectancy as well as maternal and infant mortality rates are among the best in the country, explaining its top fourth position in health. Aguascalientes has the 2nd highest percentage of employees working very long hours, which drives the low position in work-life balance.

Well-being in Aguascalientes, 2014 or latest available year

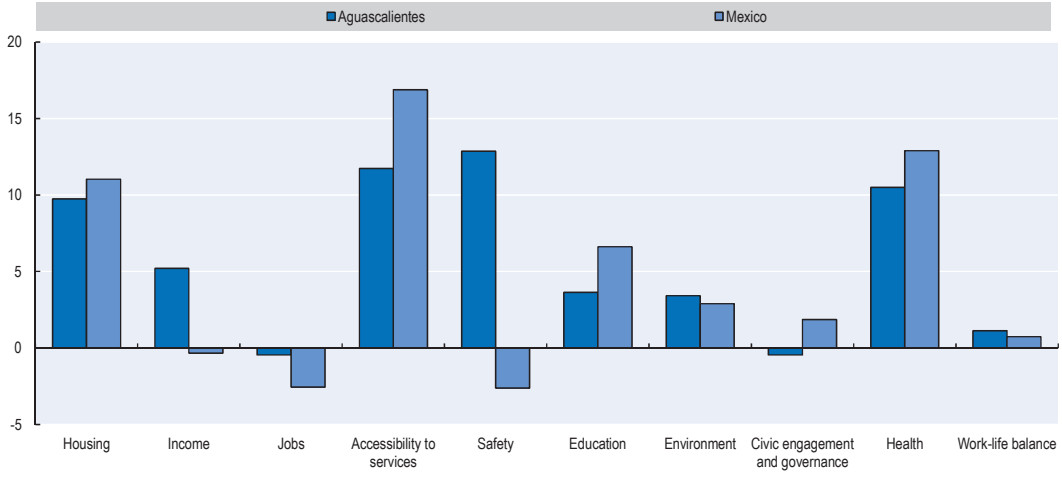


Well-being dimension	State ranking (out of 32)
Housing	2
Income	11
Jobs	14
Accessibility to services	5
Safety	2
Education	8
Environment	2
Civic engagement and governance	21
Health	4
Life satisfaction	25
Work-life balance	29
Community (social connections)	8

Safety has improved in Aguascalientes since 2011 with the highest recorded decrease in crime rates among the 32 states, which is particularly impressive since the country's average has worsened. The increase in levels of trust in the state police was the third largest. Well-being has improved in eight dimensions in the past decade, while jobs and civic engagement and governance have worsened.

Changes in well-being over time in Aguascalientes

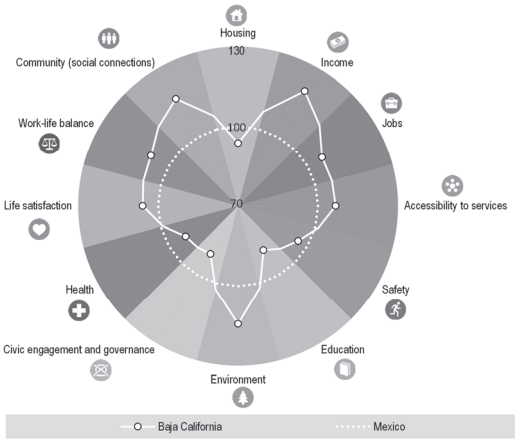
Difference in the score between the last and the first year



Baja California

Well-being in Baja California exceeds the national average in seven dimensions and lags behind in five. Relative performance is very unbalanced among dimensions in Baja California. The state ranks first in environment, as almost all waste is managed in controlled areas and air pollution is 40% lower than the country's average. It ranks 2nd in income, with poverty and inequality among the five lowest states of the country. Jobs, access to services, work-life balance, social connections and life satisfaction are all higher than the country average. At the same time, Baja California ranks 26th out of 32 states in housing, health, education and safety, and 29th in civic engagement and governance.

Well-being in Baja California, 2014 or latest available year

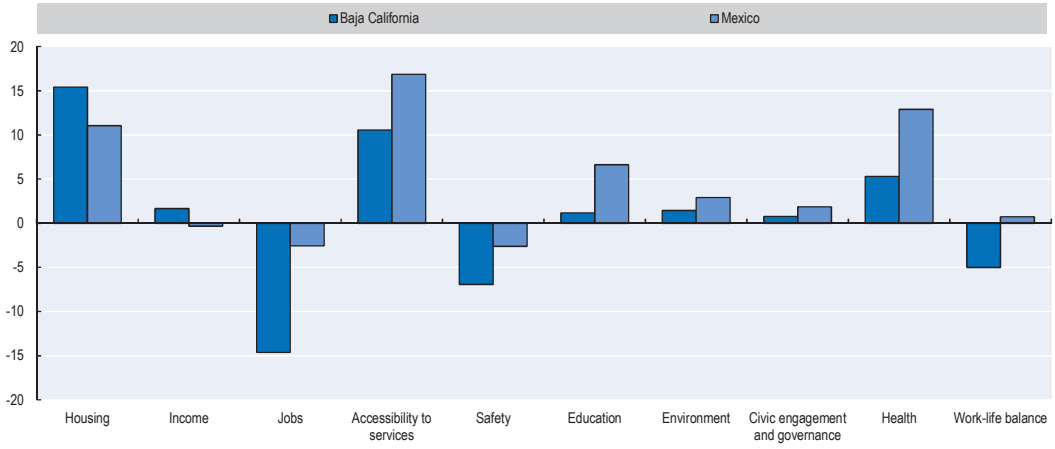


Well-being dimension	State ranking (out of 32)
Housing	26
Income	2
Jobs	8
Accessibility to services	9
Safety	26
Education	26
Environment	1
Civic engagement and governance	29
Health	26
Life satisfaction	11
Work-life balance	13
Community (social connections)	3

The housing (notably housing quality), access to services and health dimensions are the three with the largest improvements in Baja California in the period 2000-13. The worsening performance in unemployment and in critical working conditions, however, has been the highest in the country since 2005. Safety and work-life balance have also deteriorated.

Changes in well-being over time in Baja California

Difference in the score between the last and the first year

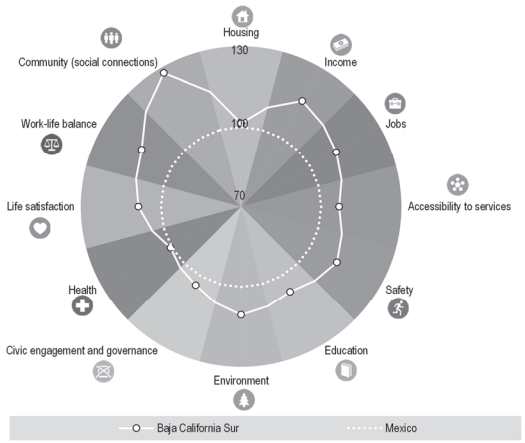


Baja California Sur

Well-being in Baja California Sur exceeds the national average in all 12 dimensions. The state fares 2nd in jobs, 3rd in income and 4th in safety among the 32 states. The employment rate is 7 percentage points higher and the share of informal workers 6 percentage points lower than country average. In all indicators of income, its performance is among the top 10 states, due to its high income level, together with relatively low rates of inequality and low poverty. Relatively low homicide rates and high levels of self-reported safety explain the strong outcome in the safety dimension.

Health outcomes could be improved. While residents of Baja California Sur can expect to live 76 years (one year longer than the average Mexican), obesity affects 44% of adults, the second highest value among the 32 states.

Well-being in Baja California Sur, 2014 or latest available year

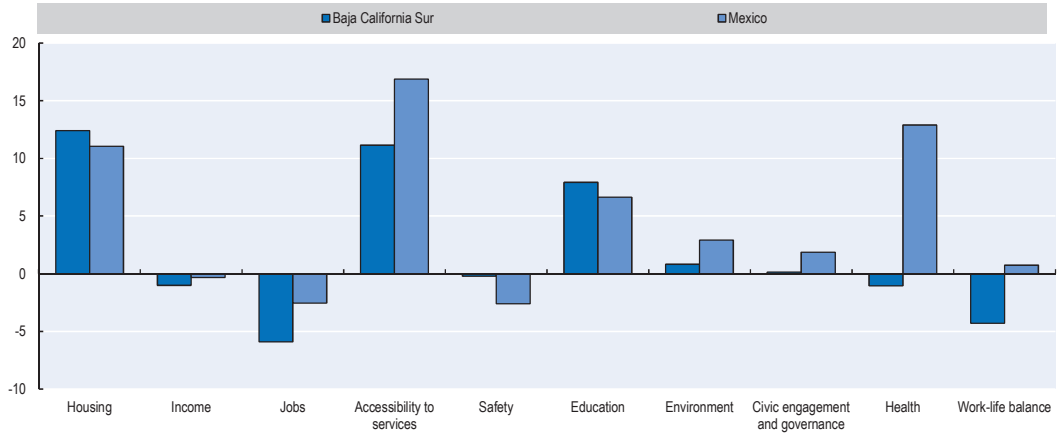


Well-being dimension	State ranking (out of 32)
Housing	19
Income	3
Jobs	2
Accessibility to services	8
Safety	4
Education	6
Environment	6
Civic engagement and governance	11
Health	16
Life satisfaction	7
Work-life balance	5
Community (social connections)	1

Housing (notably housing quality), accessibility to services, education and environment have improved in Baja California Sur in the past decade. At the same time, jobs, health and work-life balance have all deteriorated more than the country average since 2005.

Changes in well-being over time in Baja California Sur

Difference in the score between the last and the first year

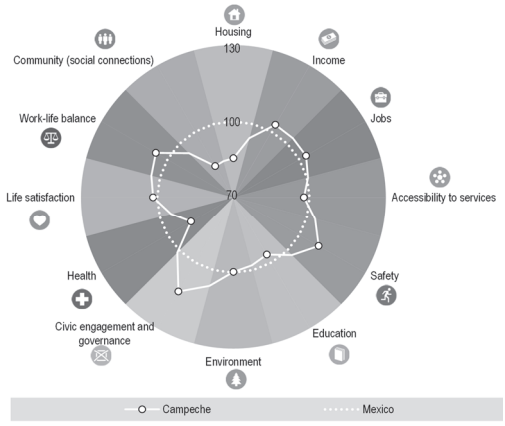


Campeche

Safety, work-life balance, and civic engagement and governance in Campeche are better than in the country as a whole. The homicide rate, perception of safety, voter turnout, participation in volunteer activities, and satisfaction with time devoted to leisure are all among the top 10 in the country. At the same time, trust in the state police and the perception of absence of corruption of the judicial system are relatively low.

Campeche fares similarly to the country average in income, jobs, life satisfaction, and accessibility to services and lags behind in housing, health, social connections and education. With 65 deaths per 100 000 live births, Campeche had the worst maternal mortality rate of the country in 2013.

Well-being in Campeche, 2014 or latest available year

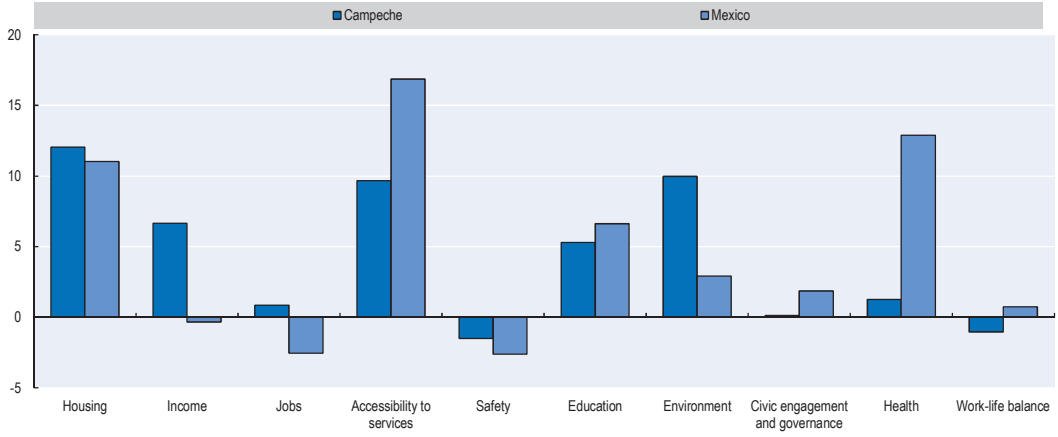


Well-being dimension	State ranking (out of 32)
Housing	28
Income	17
Jobs	13
Accessibility to services	23
Safety	8
Education	20
Environment	18
Civic engagement and governance	3
Health	31
Life satisfaction	16
Work-Life balance	15
Community (social connections)	29

Housing (supply and quality) and environment have improved in Campeche more than the country average since 2000. Accessibility to services, education and income have also improved, although at a slower pace than the country average.

Changes in well-being over time in Campeche

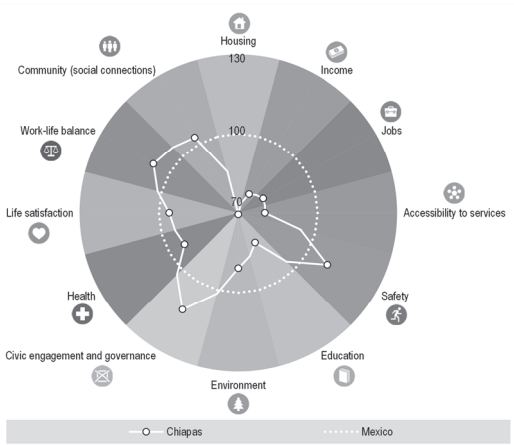
Difference in the score between the last and the first year



Chiapas

Chiapas performs above the national level in the well-being dimensions of civic engagement and governance, safety, work-life balance and community (social connections). However, it performs very poorly in five dimensions. The state ranks 32nd (last place) in housing, income, jobs and education, and 30th in accessibility to services. It performs below the country average in environment, life satisfaction and health. Its good performance in civic engagement and governance (where it ranks fifth) is due to a high trust in law enforcement (ranked first) and voter participation (third place) in 2012. The weak performance in housing, income, jobs and education are explained by the lagging performance in all the indicators included in these dimensions (for all of them, Chiapas ranks in the bottom five), with the exception of relatively better performance in school dropouts and the unemployment rate.

Well-being in Chiapas, 2014 or latest available year

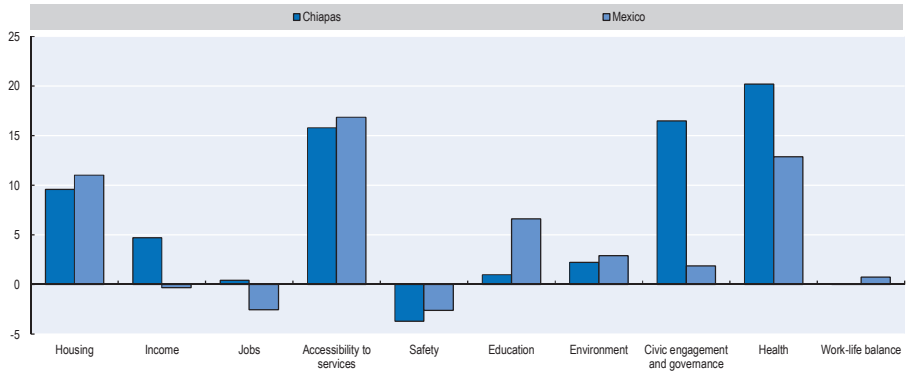


Well-being dimension	State ranking (out of 32)
Housing	32
Income	32
Jobs	32
Accessibility to services	30
Safety	7
Education	32
Environment	27
Civic engagement and governance	5
Health	24
Life satisfaction	23
Work-life balance	14
Community (social connections)	16

In recent years, Chiapas has improved its performance greater than the country average improvements in income (inequality decreased), health (life expectancy increased by 2.1 years and infant mortality decreased by 12.8 deaths per 1 000 live births), and civic engagement and governance (electoral participation increased). On the other hand, safety has worsened more than the country value due to both a decrease in the percentage of people that believe the state police is efficient and an increase in the percentage of people that feel unsafe in their locality.

Changes in well-being over time in Chiapas

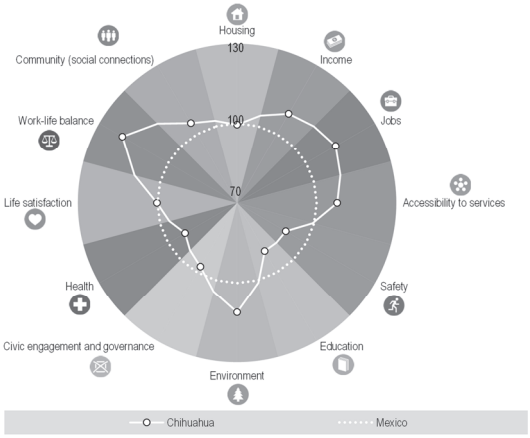
Difference in the score between the last and the first year



Chihuahua

Relative to the national average, Chihuahua performs above average in six dimensions of well-being and records almost the same degree of reported life satisfaction. It lags behind in the dimensions of safety, education, civic engagement and governance, health and housing. The state ranks first in jobs given a low unemployment rate, informality rate and percentage of workers in critical conditions (the state ranks in the top five in each of these indicators). In addition, it is top-ranked for work-life balance. On the other hand, it ranks 29th in safety, with 39 homicides per 100 000 people more than the country average (the 2nd worst state in 2013) and 27th in health, due to the lowest life expectancy across states (2.5 less years than the national figure).

Well-being in Chihuahua, 2014 or latest available year

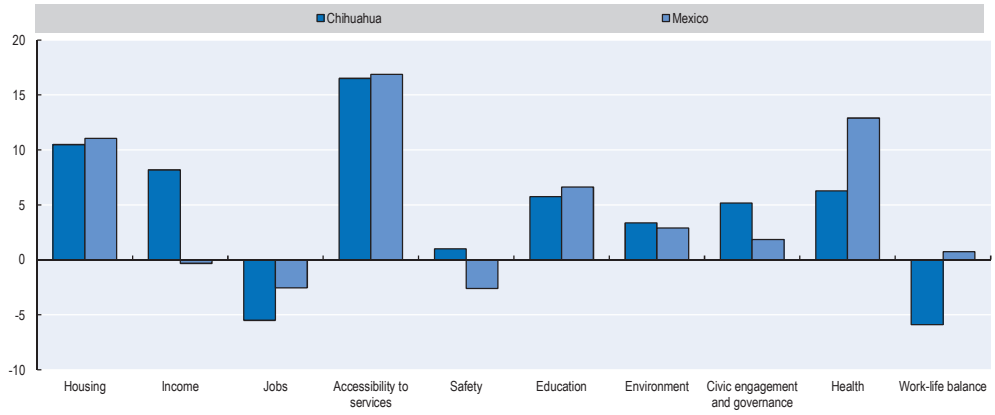


Well-being dimension	State ranking (out of 32)
Housing	22
Income	10
Jobs	1
Accessibility to services	6
Safety	29
Education	23
Environment	5
Civic engagement and governance	23
Health	27
Life satisfaction	18
Work-life balance	1
Community (social connections)	15

From 2008 to 2014, Chihuahua has increased more than the country average in the dimension of income due to the highest decrease in inequality across states and an important decrease of 4.5 percentage points in multidimensional poverty. Nevertheless, the state's performance has deteriorated at a greater rate than the national value in the dimension of work-life balance, which is explained by the largest increase in the country in the percentage of employees working long hours.

Changes in well-being over time in Chihuahua

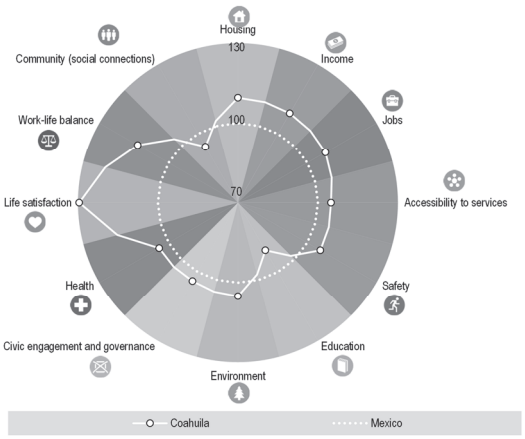
Difference between the score at the last and first year



Coahuila

Well-being in Coahuila exceeds the national average in 10 out of 12 dimensions, and lags behind only in the dimensions of community (social connections) and education. The state ranks first in life satisfaction, with an average score of 8.5 out of 10. It ranks fourth in both housing and work-life balance, due to a high average number of rooms per person (more than one, which is not the case at the national level) and has both a high satisfaction with time for leisure (7.2 out of 10) and a low percentage of employees working more than 48 hours per week (3.3 percentage points lower than the country average). Coahuila ranks 21st in community and 25th in education, due to a low percentage of people that has someone to rely on in case of need and a high percentage of secondary students dropouts (19.1%, this figure is 6 percentage points above the country value and places the state as the 3rd worst in terms of dropouts).

Well-being in Coahuila, 2014 or latest available year

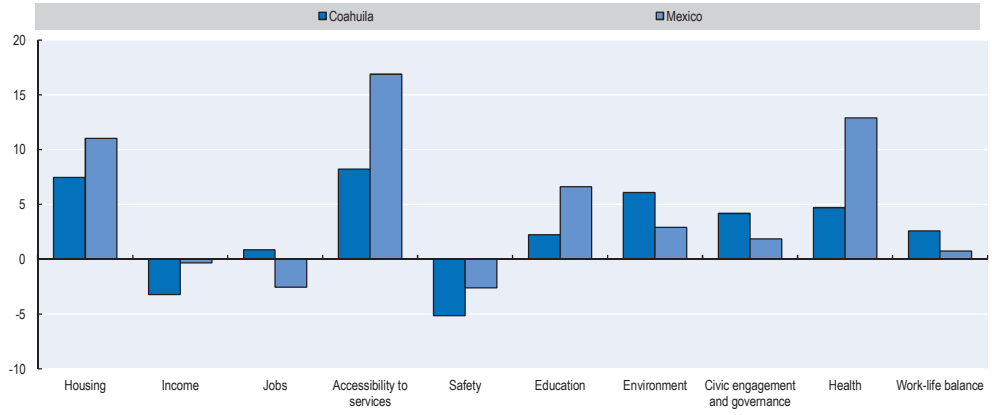


Well-being dimension	State ranking (out of 32)
Housing	4
Income	9
Jobs	6
Accessibility to services	11
Safety	14
Education	25
Environment	12
Civic engagement and governance	10
Health	6
Life satisfaction	1
Work-life balance	4
Community (social connections)	21

The dimensions of environment, work-life balance, and civic engagement and governance have improved over the last few years, more so than at the country level. The dimension of jobs has also improved since 2005 (contrary to the national trend). In Coahuila, safety and income have worsened more than the national average.

Changes in well-being over time in Coahuila

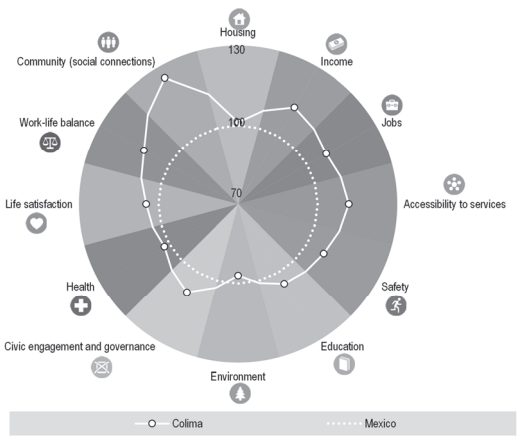
Difference in the score between the last and the first year



Colima

With respect to the national average, well-being in Colima is higher in ten dimensions, almost the same in housing, and only a little bit lower in the environment dimension. The state is the 2nd best in accessibility to services, as the percentage of dwellings with access to basic services is 11 percentage points higher than the country value (2nd best performance) and the percentage of the population with access to health services is 5.5 percentage points higher than the national average (4th best performance). The state also ranks second in community and fifth in jobs, the latter is mostly explained by the second best employment rate in the country. The state ranks 21st in housing and environment, which can be explained by the low percentage of dwellings with ceilings made of durable materials (only 71%) and the low percentage of solid waste disposal in controlled areas (only 51%).

Well-being in Colima, 2014 or latest available year

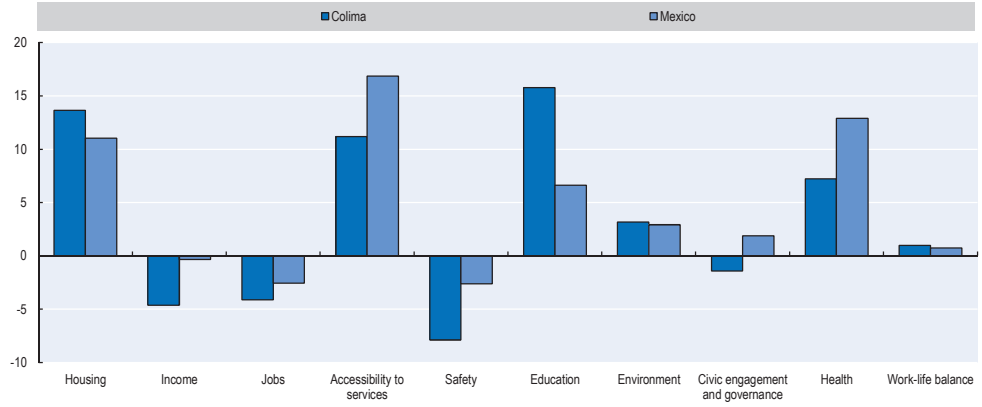


Well-being dimension	State ranking (out of 32)
Housing	21
Income	6
Jobs	5
Accessibility to services	2
Safety	13
Education	7
Environment	21
Civic engagement and governance	6
Health	12
Life satisfaction	12
Work-life balance	9
Community (social connections)	2

The state has improved in education more than the country average, driven by a 7 percentage point decrease in secondary school dropouts from 2013 to 2014 (2nd best improvement). On the other hand, Colima's performance worsened in the dimension of income more than national average, with a decline in household income between 2008 and 2014 and an increase in inequality of household income in the same period, which respectively correspond to the second and sixth largest deteriorations in these indicators.

Changes in well-being over time in Colima

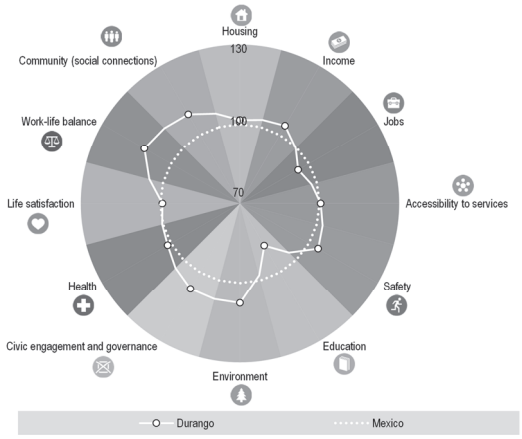
Difference in the score between the last and the first year



Durango

Well-being in Durango exceeds the national average in seven dimensions and lags behind in two. It does not differ significantly from Mexico's average performance in housing, accessibility to services and life satisfaction. Durango ranks 7th in civic engagement and governance, due to a high percentage of people that believes that the judicial system is not corrupt (second best performance). However, it ranks 29th in education with only 37% of the labour force having secondary level educational attainment.

Well-being in Durango, 2014 or latest available year

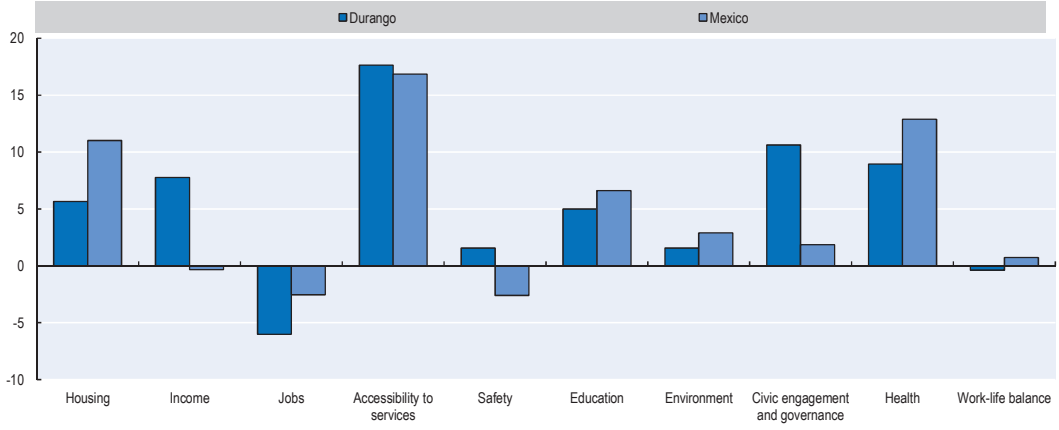


Well-being dimension	State ranking (out of 32)
Housing	17
Income	16
Jobs	22
Accessibility to services	19
Safety	21
Education	29
Environment	8
Civic engagement and governance	7
Health	13
Life satisfaction	21
Work-life balance	8
Community (social connections)	10

Contrary to the national trend during the period 2008-14, the poverty rate has fallen in Durango by 8 percentage points and inequality in household disposable income has narrowed. At the same time, however, job outcomes have worsened more than the national average, due to increases of the unemployment rate (fourth worst result) and the informality rate (seventh worst result).

Changes in well-being over time in Durango

Difference in the score between the last and the first year

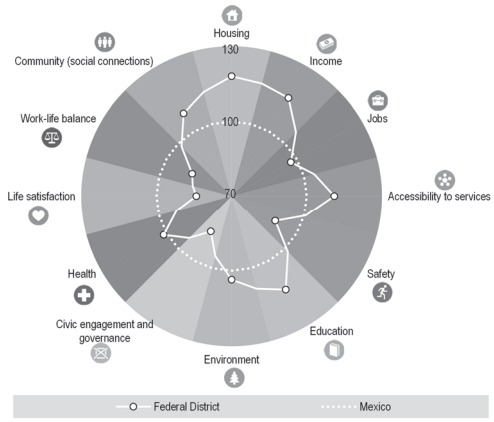


Federal District

Well-being in the Federal District exceeds the national average in six dimensions and lags behind in four. It does not differ significantly from the national average in the jobs and health dimensions. The Federal District ranks among the top five states in income with its low rates of poverty, although it is among the bottom five for income inequality.

Safety, work-life balance, and civic engagement and governance are relatively low within Mexico. The Federal District ranks among the bottom five states for most of the indicators considered: crime rates, levels of trust in the local police, perceived personal safety, participation in volunteering activities, trust in law enforcement and perception of absence of corruption of the judicial system.

Well-being in the Federal District, 2014 or latest available year

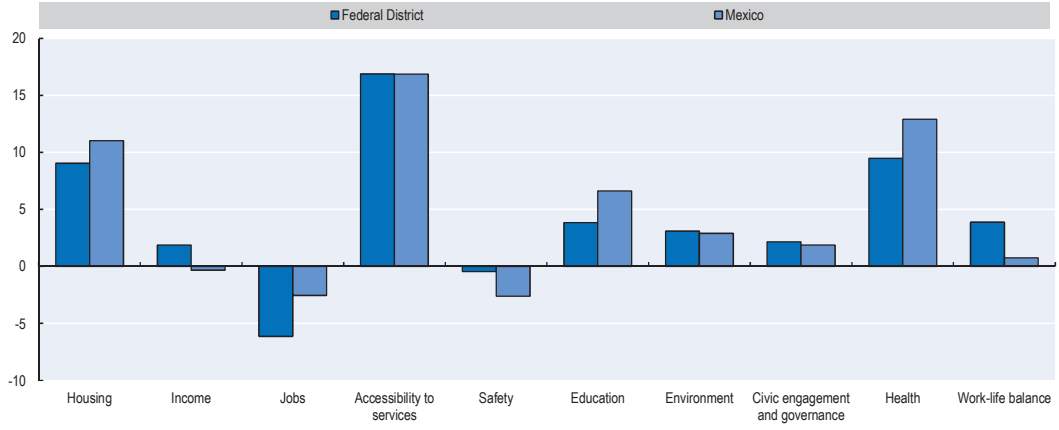


Well-being dimension	State ranking (out of 32)
Housing	1
Income	4
Jobs	21
Accessibility to services	3
Safety	30
Education	4
Environment	13
Civic engagement and governance	32
Health	14
Life satisfaction	29
Work-life balance	27
Community (social connections)	11

Well-being has improved the largest in accessibility to services, housing and health in recent years. Jobs outcomes worsened, and more so than the country average, over the period 2005-14.

Changes in well-being over time in the Federal District

Difference in the score between the last and the first year



Guanajuato

Guanajuato performs better than the national average in 6 of the 12 dimensions, although the differences are quite small. These dimensions are housing, income, jobs, accessibility to services, health and safety. The poor performance in civic engagement and governance (it ranks 31st) is driven by relatively low civic and political participation (11 percentage points lower than the country value, 32nd position on this indicator) and low trust in law enforcement, as only 4% of Guanajuato's residents believe that criminals are always punished (28th position).

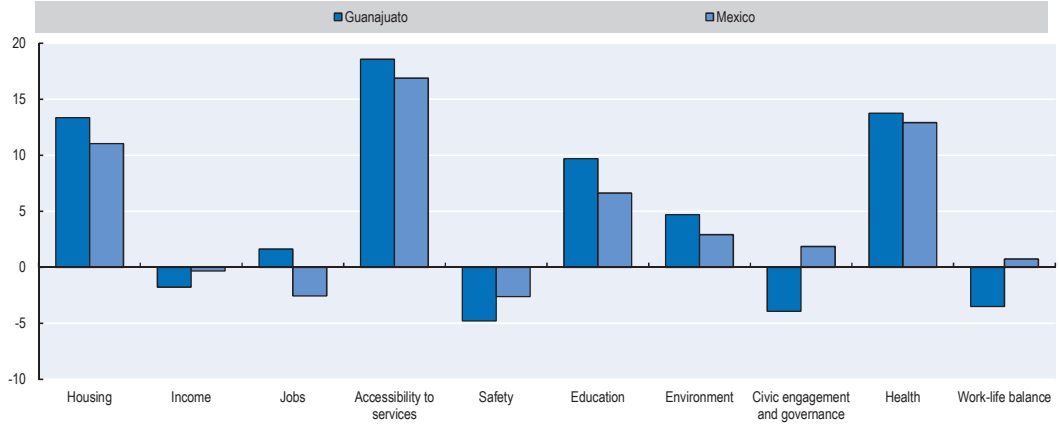
Well-being in Guanajuato, 2014 or latest available year

Well-being dimension	State ranking (out of 32)
Housing	18
Income	18
Jobs	16
Accessibility to services	18
Safety	15
Education	30
Environment	23
Civic engagement and governance	31
Health	15
Life satisfaction	22
Work-life balance	30
Community (social connections)	24

Well-being in Guanajuato has improved in six dimensions at a faster pace than the country over the past ten years. Outcomes in housing, jobs, accessibility to services and health are higher than the country average today, while they were below that average ten years ago. Safety, civic engagement and governance, work-life balance and income have, on the other hand, worsened in recent years.

Changes in well-being over time in Guanajuato

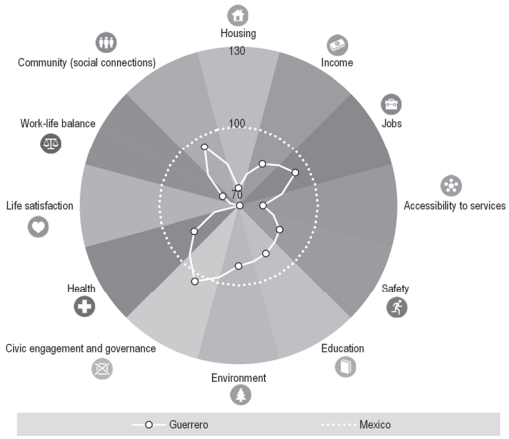
Difference in the score between the last and the first year



Guerrero

The only dimension in which Guerrero exceeds the national average is Civic engagement and governance, thanks to a high civic and political participation (7th best performance). Life satisfaction in Guerrero is the lowest in the country and safety the second to the last after the State of Mexico. The homicide rate was the highest in the country in 2013 and the crime rate the seventh worst.

Well-being in Guerrero, 2014 or latest available year

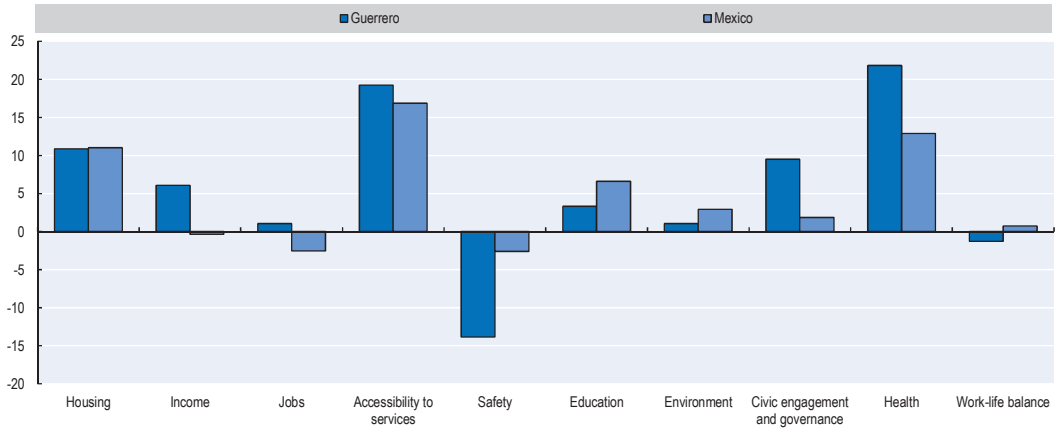


Well-being dimension	State ranking (out of 32)
Housing	31
Income	29
Jobs	25
Accessibility to services	31
Safety	31
Education	24
Environment	24
Civic engagement and governance	14
Health	30
Life satisfaction	32
Work-life balance	31
Community (social connections)	18

In the period 2000-13, health improved in Guerrero, reducing the gap with the rest of the country. Life expectancy at birth increased by 1.7 years, infant mortality decreased by 11.3 deaths per 1 000 live births (5th best improvement) and maternal mortality by 53.7 deaths per 100 000 live births (5th best improvement). On the other hand, compared to national performance, Guerrero dropped dramatically in safety: from 2000 to 2013, the homicide rate increased by 38.7 deaths per 100 000 people (the 2nd worst result).

Changes in well-being over time in Guerrero

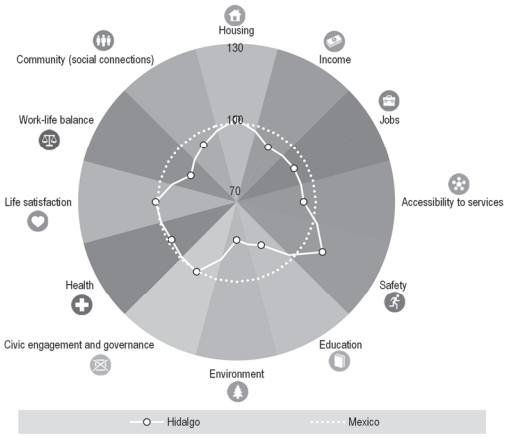
Difference in the score between the last and the first year



Hidalgo

Hidalgo exceeds the national average in the well-being dimensions of safety, housing, life satisfaction and civic engagement, and lags behind in eight dimensions. The relatively better performance in safety is due to homicide and crime rates that were 70% and 44%, respectively, lower than the country average in 2013.

Well-being in Hidalgo, 2014 or latest available year

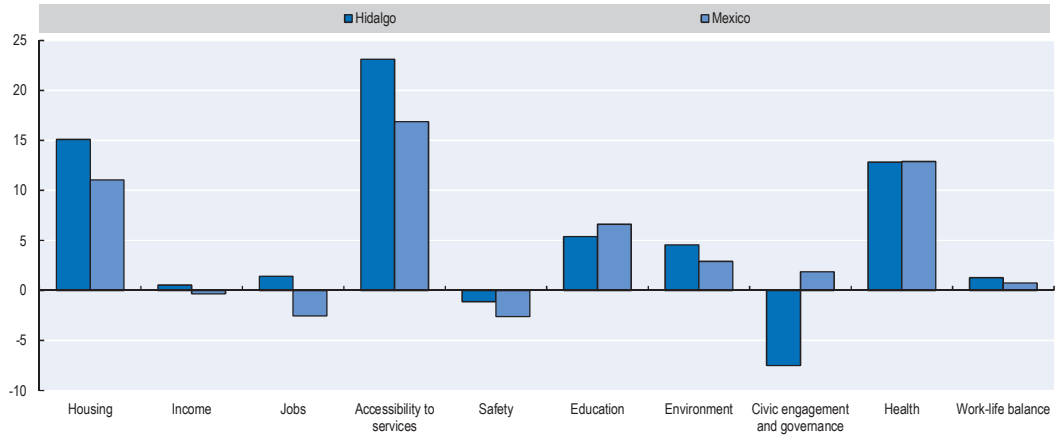


Well-being dimension	State ranking (out of 32)
Housing	20
Income	26
Jobs	23
Accessibility to services	25
Safety	12
Education	27
Environment	30
Civic engagement and governance	18
Health	21
Life satisfaction	17
Work-life balance	24
Community (social connections)	20

Hidalgo improved in housing (notably housing quality) and accessibility to services more than the national average over the period 2000-13. At the same time, it has worsened relative to Mexico's performance in the dimensions of civic engagement and governance, as the increase in voter turnout was completely offset by an increase in the perception of corruption of the judicial system and in mistrust in law enforcement (first and third worst performances over the period, respectively).

Changes in well-being over time in Hidalgo

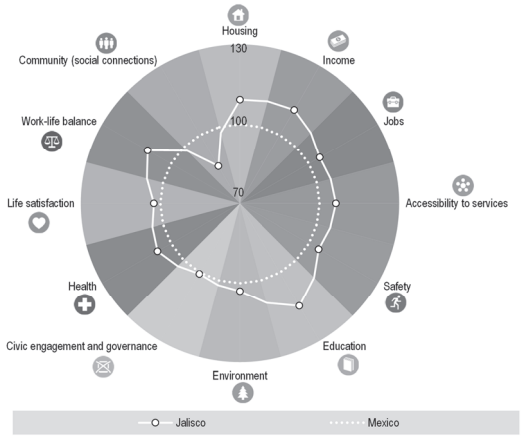
Difference in the score between the last and the first year



Jalisco

Jalisco performs better than the national average in 10 of the 12 dimensions of well-being, performs at a similar level to that of the country in civic engagement, and lags behind only for community (social connections). High levels of self-reported health conditions and the second lowest maternal mortality rate in the country drive the state's good performance in health (ranked fifth). Jalisco is the state with the lowest percentage of secondary school students who abandoned before completion: 2.8% in 2013 versus 13% for the country average.

Well-being in Jalisco, 2014 or latest available year

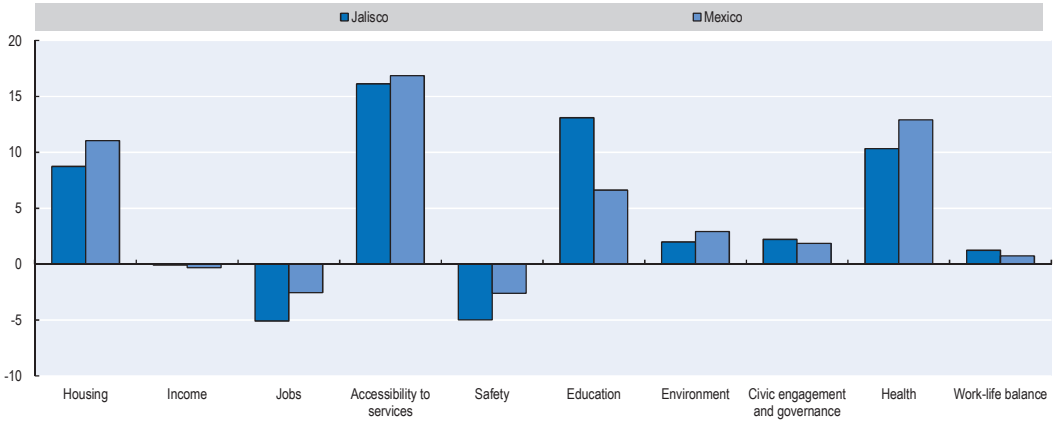


Well-being dimension	State ranking (out of 32)
Housing	5
Income	7
Jobs	10
Accessibility to services	10
Safety	18
Education	1
Environment	14
Civic engagement and governance	17
Health	3
Life satisfaction	14
Work-life balance	12
Community (social connections)	28

Education outcomes have improved in Jalisco more than the county average as the labour force with at least a secondary school education has increased by 9 percentage points since 2000. Improvements are found also in Housing, Accessibility to services, Environment, Health, Work-life balance and Civic engagement. Outcomes in Jobs and Safety have worsened, although in Jalisco at a faster pace than for Mexico overall.

Changes in well-being over time in Jalisco

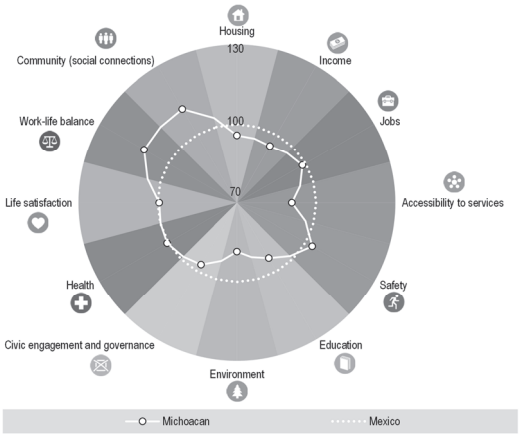
Difference in the score between the last and the first year



Michoacan

Michoacan performs above the national average in the dimensions of work-life balance, community (social connections, where it ranks ninth), health and safety; however, for the latter two dimensions the difference with respect to the country average is very small. The state ranks 28th in accessibility to services, as only 74% of the population has access to health services (the worst performance) and only 24% has broadband access (5th worst result).

Well-being in Michoacan, 2014 or latest available year

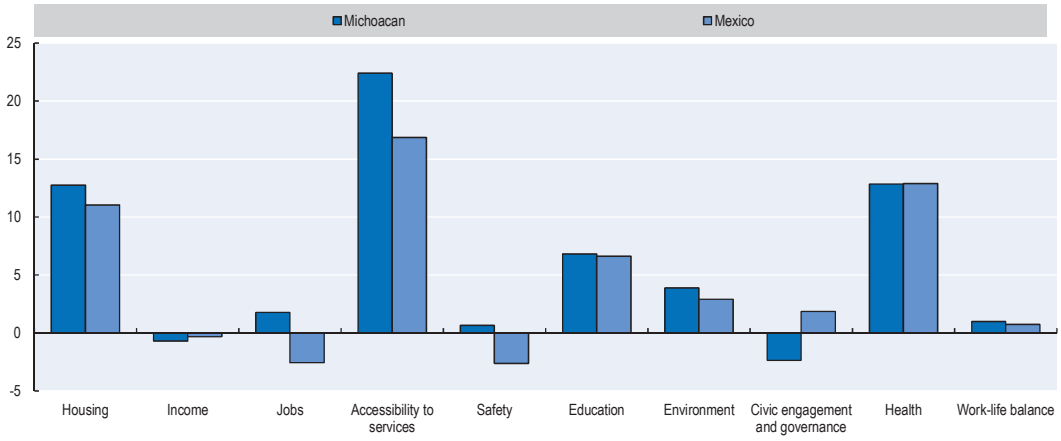


Well-being dimension	State ranking (out of 32)
Housing	23
Income	25
Jobs	19
Accessibility to services	28
Safety	23
Education	22
Environment	29
Civic engagement and governance	24
Health	17
Life satisfaction	19
Work-life balance	11
Community (social connections)	9

From 2005 to 2014, the state improved more than the country average in the dimension of jobs, which is mainly explained by the 7 percentage point decrease in the share of workers in critical conditions and the stable unemployment rate over the period. The state has worsened in the dimension of civic engagement and governance, due to a decrease in voter turnout (from 2000 to 2012) and an increase in the perception of corruption (from 2011 to 2014).

Changes in well-being over time in Michoacan

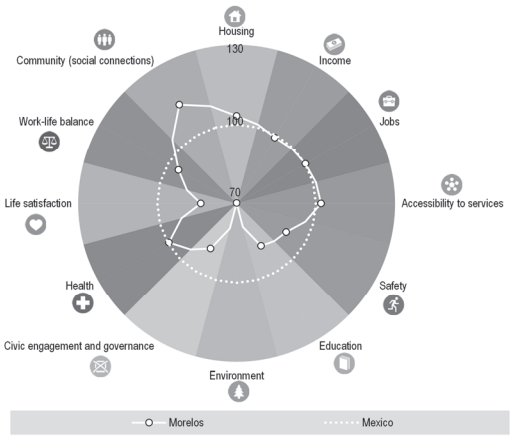
Difference in the score between the last and the first year



Morelos

Morelos exceeds the national average in 4 of the 12 well-being dimensions: housing, jobs, accessibility to services and community. Morelos fares among the best ten states in the indicators on life expectancy and obesity, but among the bottom half for maternal mortality rates and self-reported health, which explain the relatively low overall ranking in the health dimension. The environmental indicators, air pollution and waste management, are among the bottom four in the country.

Well-being in Morelos, 2014 or latest available year

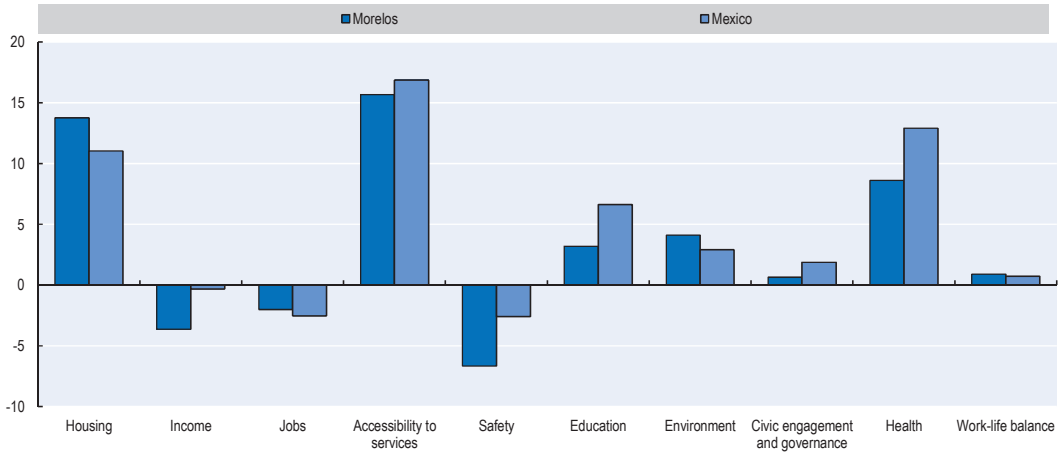


Well-being dimension	State ranking (out of 32)
Housing	13
Income	22
Jobs	17
Accessibility to services	16
Safety	28
Education	28
Environment	32
Civic engagement and governance	30
Health	19
Life satisfaction	30
Work-life balance	20
Community (social connections)	7

Morelos improved in the housing dimension between 2000 and 2010, and in the environment dimension between 2004 and 2010, at a faster pace than the national average. Improvements are observed also in accessibility to services, education and health, although at a slower pace than the country average. In line with the national trends, income, jobs and safety have worsened in the recent years.

Changes in well-being over time in Morelos

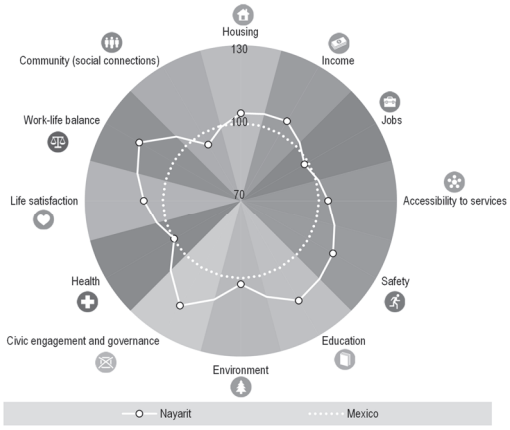
Difference in the score between the last and the first year



Nayarit

Nayarit performs above the national average in 9 out of 12 dimensions; the only dimensions in which the state lags behind are community (social connections), jobs and health – although the latter is very close to the country value. Nayarit ranks second in education, work-life balance, and civic engagement and governance, thanks to very low secondary student drop-out rates, the highest satisfaction in the country with time devoted to leisure, high trust in law enforcement and a smaller share of the population with the perception of corrupt judges. At the same time, Nayarit fares among the bottom half of the states in life expectancy, self-reported health and the share of people with access to health services.

Well-being in Nayarit, 2014 or latest available year

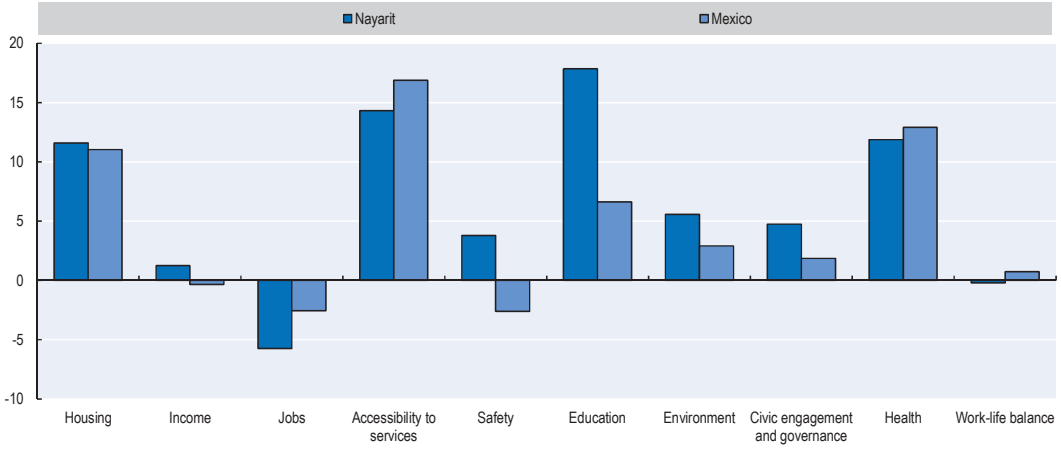


Well-being dimension	State ranking (out of 32)
Housing	9
Income	15
Jobs	20
Accessibility to services	14
Safety	5
Education	2
Environment	15
Civic engagement and governance	2
Health	20
Life satisfaction	9
Work-life balance	2
Community (social connections)	19

In recent years, Nayarit has improved its performance in education by more than twice the country average. Improvements in performance above the national average are also found in the dimensions of housing, environment, and civic engagement and governance, while jobs outcomes have worsened at a greater rate than the country.

Changes in well-being over time in Nayarit

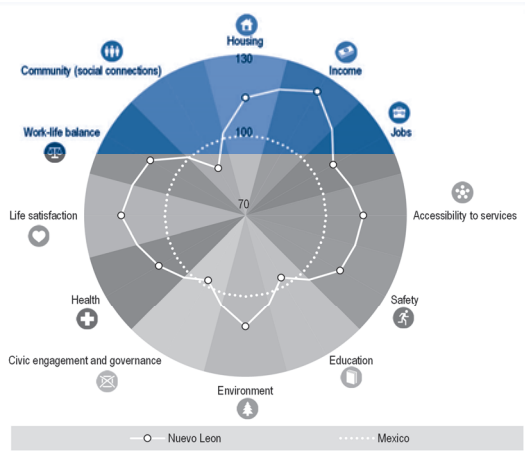
Difference in the score between the last and the first year



Nuevo Leon

Nuevo Leon is better off than the country average in 9 of the 12 well-being dimensions. The only three dimensions where it performs below the country average are community, education, and civic engagement and governance. Nuevo Leon ranks among the top five states in all the indicators of income, access to services and health, with the exception of obesity, which affects 40% of adults in Nuevo Leon, 8 percentage points higher than the country average.

Well-being in Nuevo Leon, 2014 or latest available year

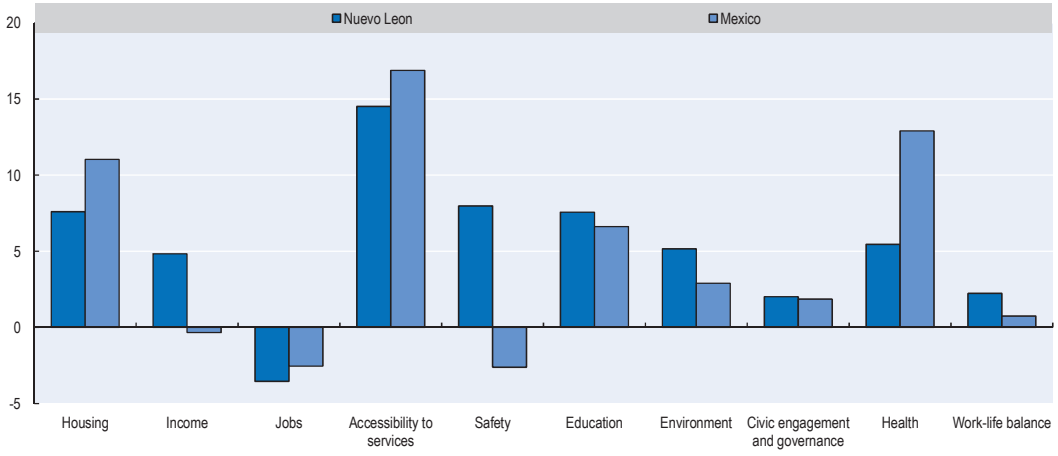


Well-being dimension	State ranking (out of 32)
Housing	3
Income	1
Jobs	7
Accessibility to services	1
Safety	6
Education	19
Environment	3
Civic engagement and governance	22
Health	1
Life satisfaction	2
Work-life balance	10
Community (social connections)	25

In the past decade, well-being in Nuevo Leon has improved in nine dimensions. Jobs outcomes have worsened, however, due to a deterioration of the employment rate and an increase of the unemployment rate over the period 2005-14.

Changes in well-being over time in Nuevo Leon

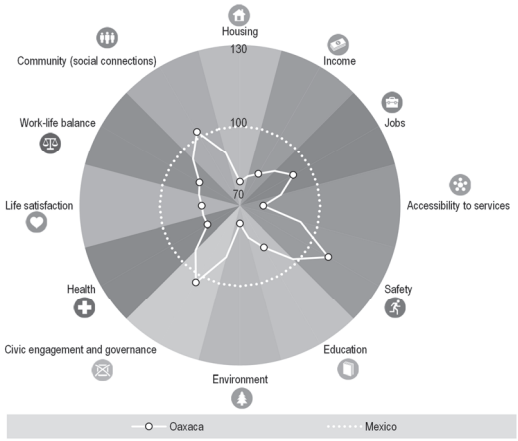
Difference in the score between the last and the first year



Oaxaca

The state of Oaxaca exceeds the national performance in only three dimensions, namely safety, community (social connections), and civic engagement and governance. Oaxaca ranks 9th in safety (with the 3rd best result in crime rates in 2013), but 32nd in accessibility to services, as only 64% of the population has access to basic services and only 14% to broadband (the 2nd worst results for both dimensions in 2014).

Well-being in Oaxaca, 2014 or latest available year

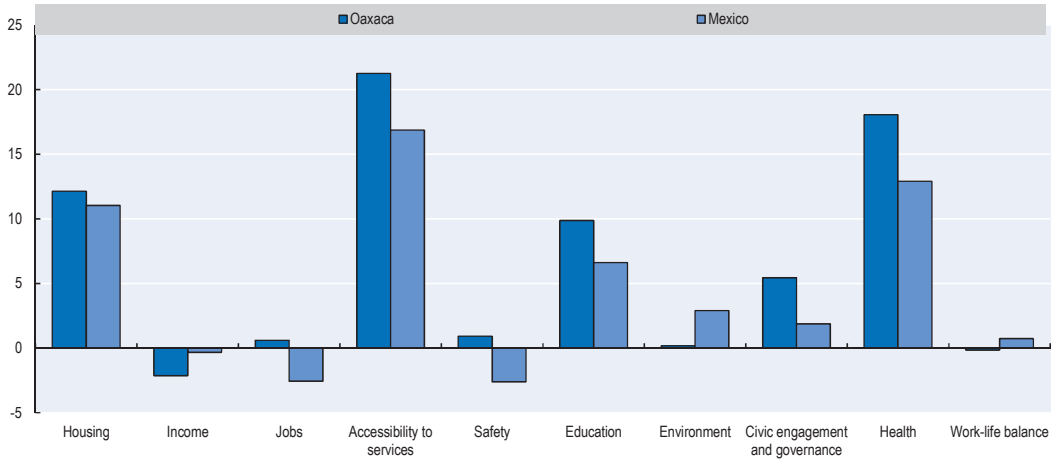


Well-being dimension	State ranking (out of 32)
Housing	30
Income	30
Jobs	29
Accessibility to services	32
Safety	9
Education	31
Environment	31
Civic engagement and governance	13
Health	32
Life satisfaction	28
Work-life balance	28
Community (social connections)	17

Oaxaca has improved at a faster pace than the country in the dimension of health: life expectancy at birth has increased by 2 years, infant and maternal mortality have decreased by 12 deaths per 1 000 live births and 57 deaths per 100 000 live births, respectively. On the other hand, the state has worsened more than the national performance in the dimension of income, mainly due to a decline in household income and an increase in household income inequality.

Changes in well-being over time in Oaxaca

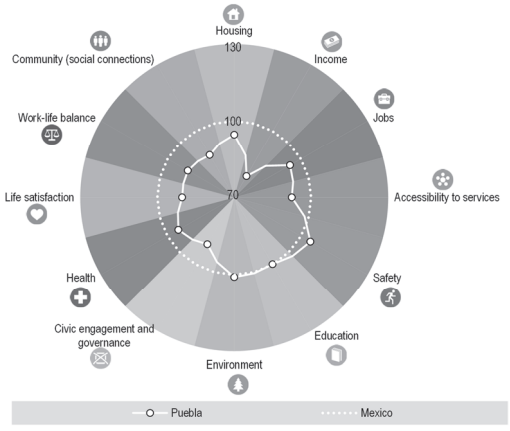
Difference in the score between the last and the first year



Puebla

Puebla exceeds the national average in safety, thanks to a relatively low homicide rate. However, it lags behind the national average in most of the well-being dimensions. Two-thirds of Puebla's residents are qualified as poor (versus 46% in Mexico overall). In addition, 72% of employees have an informal job, 14 percentage points more than the national average. The infant mortality rate is the highest in the country. Only one-fourth of its inhabitants believe the judges are not corrupt.

Well-being in Puebla, 2014 or latest available year

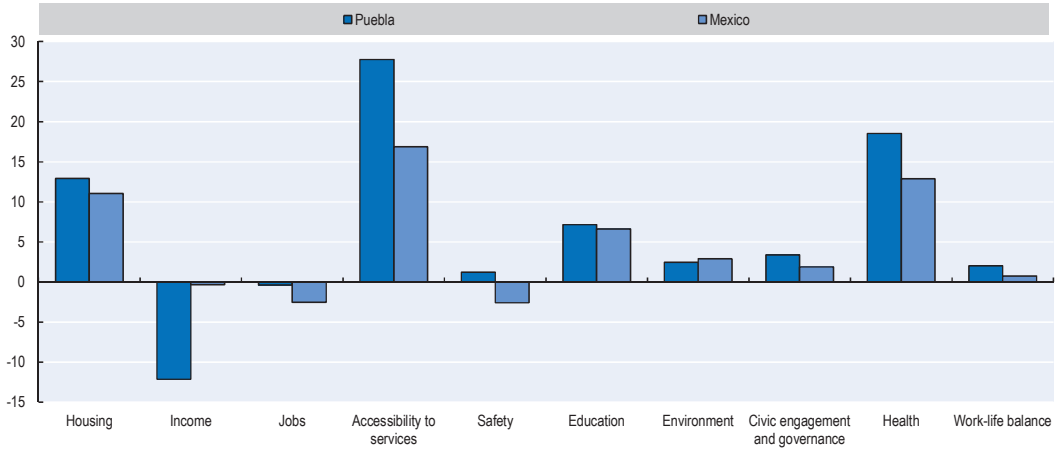


Well-being dimension	State ranking (out of 32)
Housing	25
Income	31
Jobs	24
Accessibility to services	27
Safety	19
Education	14
Environment	16
Civic engagement and governance	28
Health	23
Life satisfaction	26
Work-life balance	23
Community (social connections)	26

From 2009 to 2014, Puebla improved in accessibility to services more than the country average as the percent of dwellings with basic services increased from 70% to 83%, the largest improvement observed in the country. Improvements are also observed in the dimensions of housing, education and health (with life expectancy increasing by two years). Income, on the other hand, has worsened more than the country average.

Changes in well-being over time in Puebla

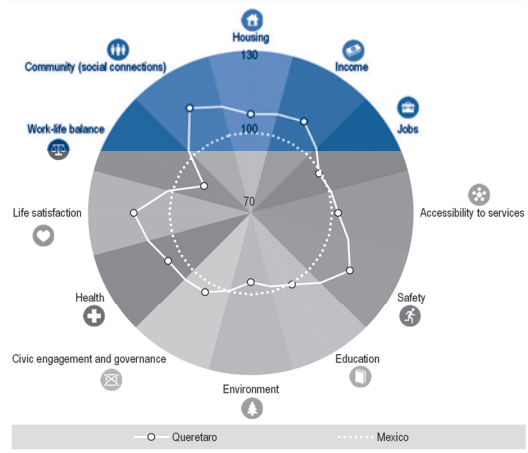
Difference in the score between the last and the first year



Queretaro

Queretaro exceeds the national average in nine well-being dimensions but lags behind in jobs, environment and work-life balance. The state has one of the lowest homicide rates and the highest degree of trust in the judicial system, which drive the strong performance in the safety dimension.

Well-being in Queretaro, 2014 or latest available year

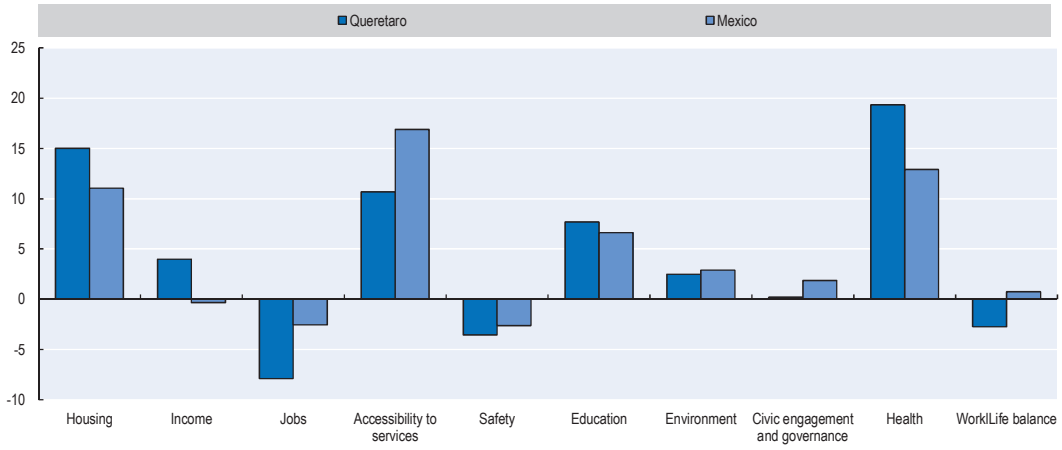


Well-being dimension	State ranking (out of 32)
Housing	7
Income	8
Jobs	18
Accessibility to services	15
Safety	3
Education	13
Environment	22
Civic engagement and governance	12
Health	5
Life satisfaction	5
Work-life balance	25
Community (social connections)	5

Housing and health improved in Queretaro more than the national average in the period 2000-13, as well as education in the past six years. However, the state's performance worsened in the dimensions of income and work life-balance.

Changes in well-being over time in Queretaro

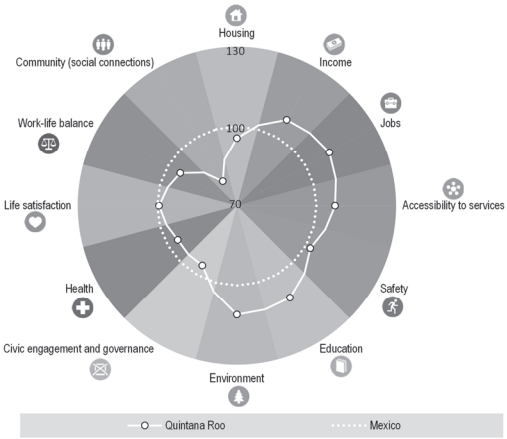
Difference in the score between the last and the first year



Quintana Roo

In 6 out of 12 well-being dimensions, Quintana Roo performs above the national average. While the state ranks 3rd in jobs and 4th in environment, it is 30th in community (social connections) and 25th in civic engagement and governance. The highest employment rate in the country, a relatively low informality rate and small percentage of workers in critical conditions explain the strong performance on the jobs dimension. For environment, Quintana Roo performs well above the country's average in both the indicators of air pollution and waste management.

Well-being in Quintana Roo, 2014 or latest available year

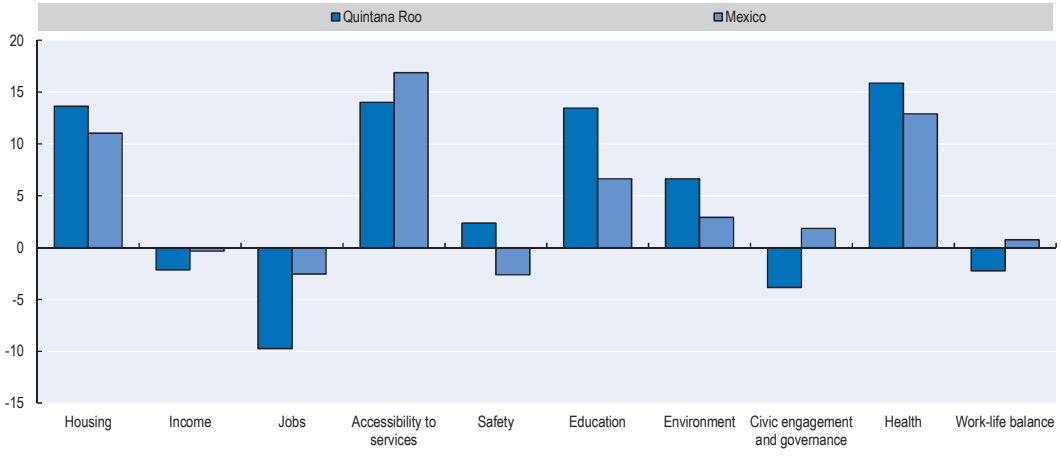


Well-being dimension	State ranking (out of 32)
Housing	24
Income	12
Jobs	3
Accessibility to services	7
Safety	24
Education	5
Environment	4
Civic engagement and governance	25
Health	22
Life satisfaction	20
Work-life balance	21
Community (social connections)	30

Quintana Roo has improved its performance faster than the national average in several dimensions: housing, safety, education, environment and health. However, it has worsened more than the country in income, jobs, civic engagement and work-life balance.

Changes in well-being over time in Quintana Roo

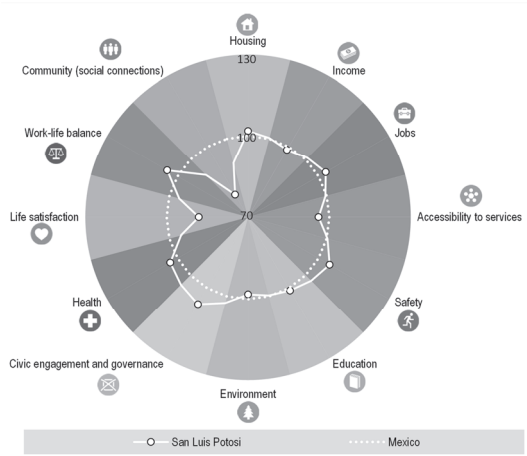
Difference in the score between the last and the first year



San Luis Potosi

With respect to the national average, well-being in San Luis Potosi is higher in five dimensions: jobs, safety, work-life balance, civic engagement and governance, and health. It displays national average performance in housing and education, and lags behind in the remaining five dimensions. The good health outcomes (it ranks 7th among the 32 states) are driven by a low obesity rate and maternal mortality rate. Residents report among the country's lowest values of life satisfaction and community (social connections).

Well-being in San Luis Potosi, 2014 or latest available year

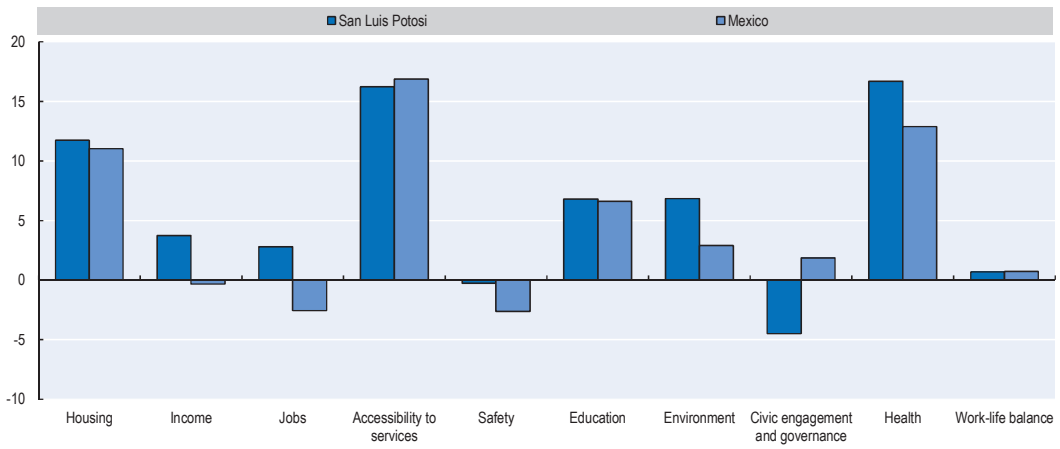


Well-being dimension	State ranking (out of 32)
Housing	14
Income	23
Jobs	12
Accessibility to services	24
Safety	16
Education	12
Environment	20
Civic engagement and governance	8
Health	7
Life satisfaction	27
Work-life balance	16
Community (social connections)	31

In recent years, San Luis Potosi has improved its performance in eight out of ten dimensions and more than the country's average in housing, income, jobs, environment and health.

Changes in well-being over time in San Luis Potosi

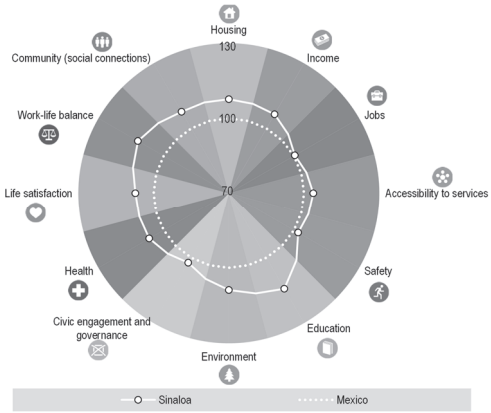
Difference in the score between the last and the first year



Sinaloa

In all the 12 well-being dimensions, Sinaloa performs better than the national average, although in jobs and safety the difference with the national performance is very small. The relatively strong performance in health (second ranked state) and education (third place) is mainly driven by the high educational attainment of the labour force, low secondary school drop-out rates, low maternal and infant mortality rates, and good self-reported health. However, obesity rates are relatively high. Sinaloa ranks 25th among the 32 states in safety, as the homicide rate is the third highest in the country, although the residents' perception of personal safety is, in contrast, very high.

Well-being in Sinaloa, 2014 or latest available year

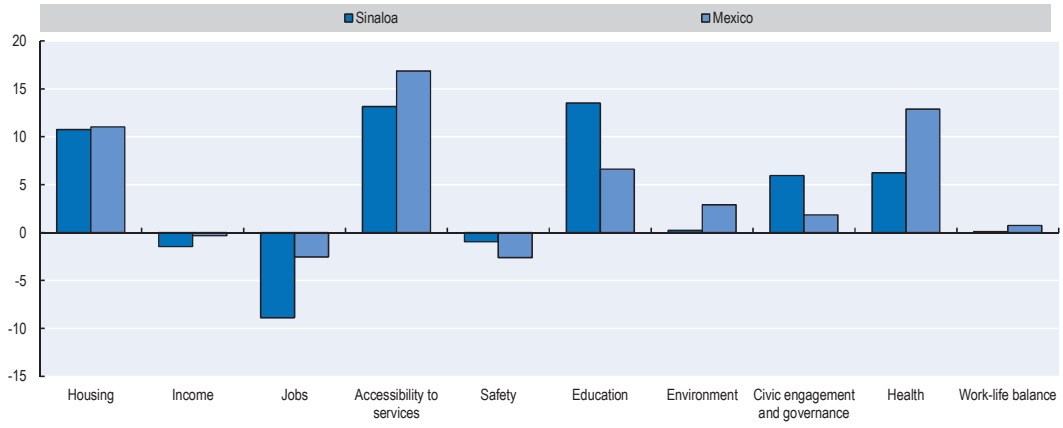


Well-being dimension	State ranking (out of 32)
Housing	6
Income	14
Jobs	15
Accessibility to services	13
Safety	25
Education	3
Environment	7
Civic engagement and governance	15
Health	2
Life satisfaction	8
Work-life balance	7
Community (social connections)	13

Sinaloa has improved its performance in education at a faster pace than the country average: the labour force with secondary educational attainment has increased from 39% to 48% and the share of secondary school drop-outs has decreased from 12% to 8% in three years. Sinaloa's performance has worsened more than the country as a whole in income and jobs.

Changes in well-being over time in Sinaloa

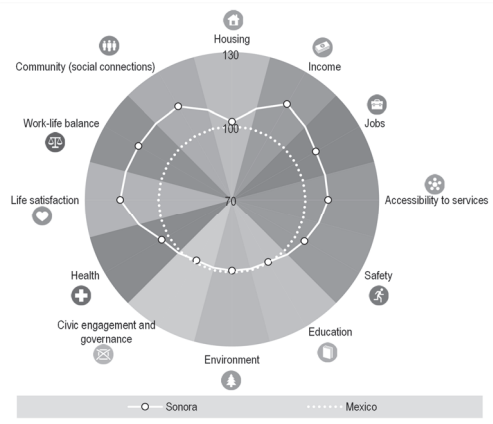
Difference in the score between the last and the first year



Sonora

Sonora exceeds the national performance in nine well-being dimensions and lags slightly behind in education, environment, and civic engagement and governance. The strong performance in work-life balance (third ranked state), jobs, accessibility to services and life satisfaction (fourth ranked state) is mainly driven by the residents' high satisfaction with time devoted to leisure and life in general, a high employment rate, a low rate of informal employment, broadband connection in 46% of households, and more than 85% of residents with access to health services.

Well-being in Sonora, 2014 or latest available year

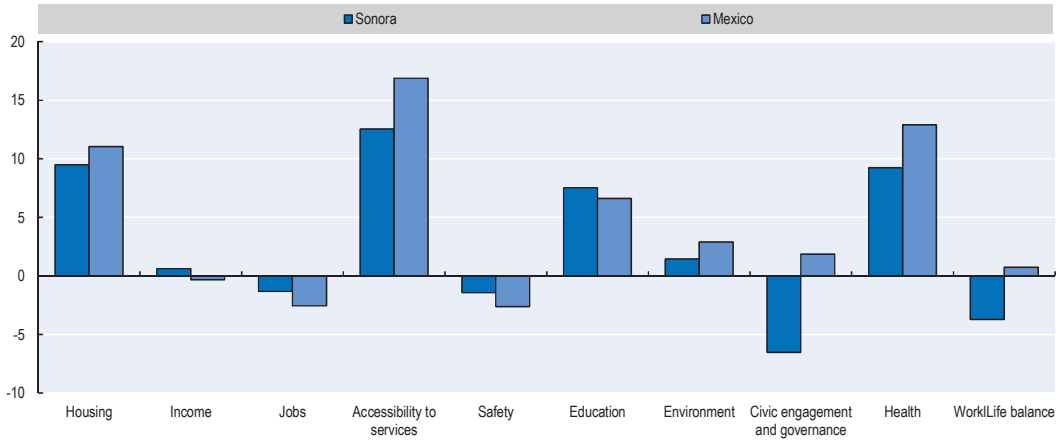


Well-being dimension	State ranking (out of 32)
Housing	15
Income	5
Jobs	4
Accessibility to services	4
Safety	20
Education	15
Environment	19
Civic engagement and governance	20
Health	8
Life satisfaction	4
Work-life balance	3
Community (social connections)	6

Sonora has improved its performance in education more than the national average, although more efforts are needed to reduce the number of secondary school drop-outs, which still exceeds the national average of 13%. Work-life balance and civic engagement and governance have worsened in Sonora despite improvements in these dimensions country-wide.

Changes in well-being over time in Sonora

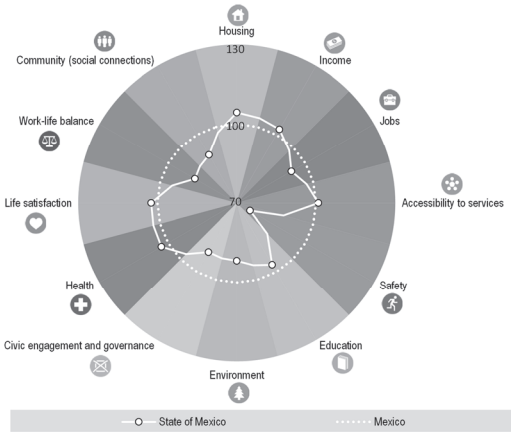
Difference in the score between the last and the first year



State of Mexico

The State of Mexico exceeds the national average in four dimensions and performs similarly with respect to accessibility to services. The state ranks eighth in housing (due to the ninth best result in quality of housing). It ranks 32nd in safety as the state shows the worst performance in both the crime rate and self-reported safety (in 2013, crime rates were up to 25 126 crimes per 100 000 people and in 2014, around 40% of the population felt unsafe in their locality).

Well-being in the State of Mexico, 2014 or latest available year

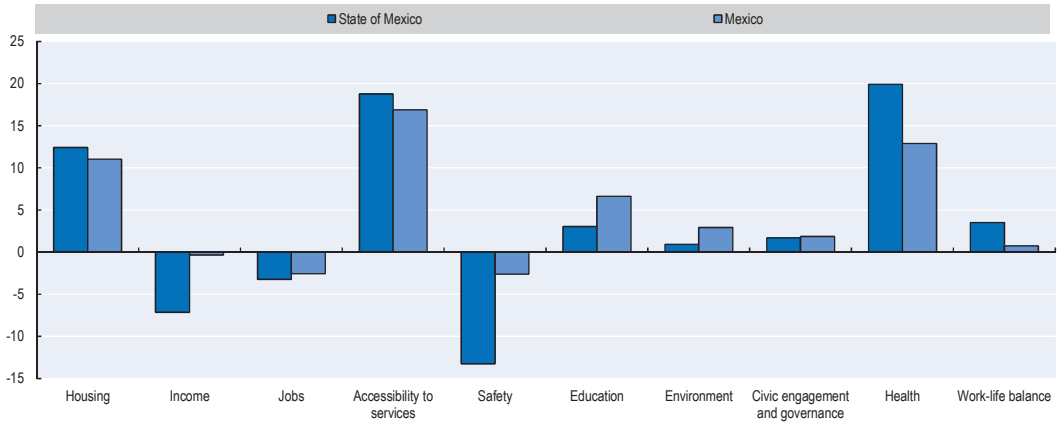


Well-being dimension	State ranking (out of 32)
Housing	8
Income	19
Jobs	27
Accessibility to services	17
Safety	32
Education	18
Environment	26
Civic engagement and governance	27
Health	9
Life satisfaction	15
Work-life balance	26
Community (social connections)	23

The State of Mexico has improved its well-being more than the country in the dimension of health: maternal mortality and obesity have decreased in recent years (they represent the third and fifth best improvements, respectively). However, the state's performance has worsened more than the national average in the dimensions of safety (with a 180% increase in the crime rate and a 25% increase in the feeling of being unsafe) and income (with an increase in inequality of .034 in terms of the Gini coefficient and a 6.7 percentage point increase in multidimensional poverty).

Changes in well-being over time in the State of Mexico

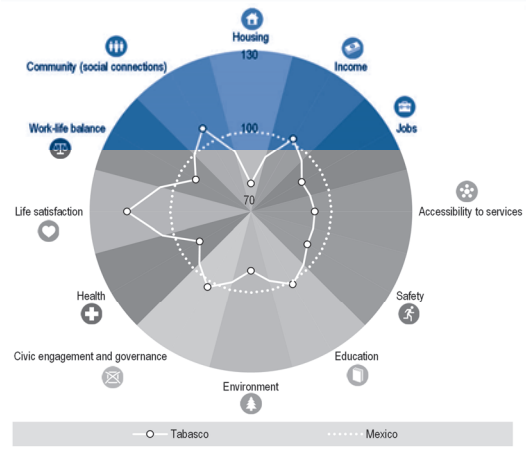
Difference in the score between the last and the first year



Tabasco

Residents in Tabasco report the third highest level of life satisfaction and higher than the country average values in civic engagement and governance, community (social connections), income and education. Jobs outcomes are rather poor as Tabasco fares among the five worst states for both employment and unemployment rates.

Well-being in Tabasco, 2014 or latest available year

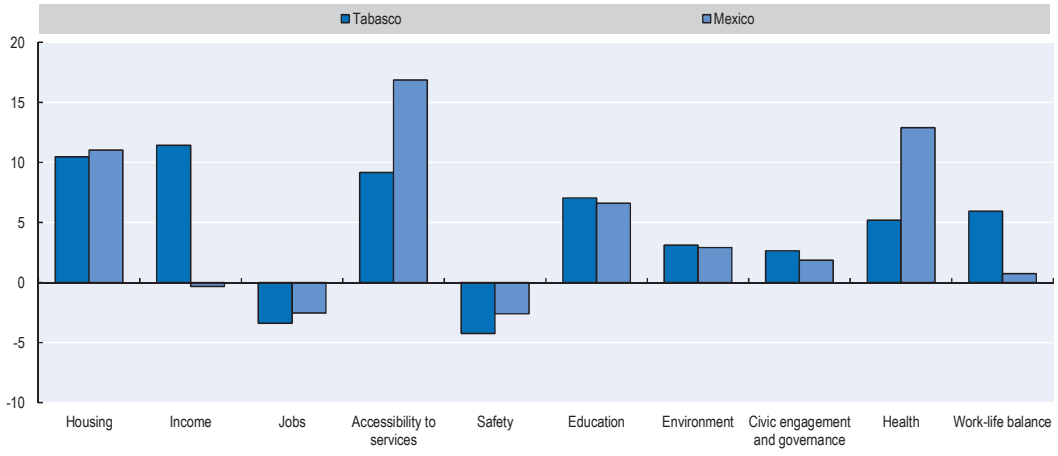


Well-being dimension	State ranking (out of 32)
Housing	29
Income	20
Jobs	30
Accessibility to services	26
Safety	27
Education	11
Environment	25
Civic engagement and governance	16
Health	29
Life satisfaction	3
Work-life balance	22
Community (social connections)	14

Well-being has improved in eight out of ten dimensions in Tabasco. Improvements larger than those observed country-wide are registered in income, thanks to a strong reduction in inequality and poverty levels, as well as in education, work-life balance, civic engagement and environment.

Changes in well-being over time in Tabasco

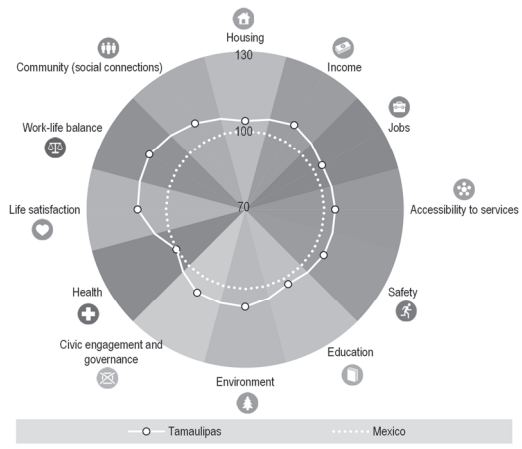
Difference in the score between the last and the first year



Tamaulipas

In all of the 12 well-being dimensions, Tamaulipas performs better than the rest of the country. Crime rates are the second lowest in the country, trust in the judicial system the 5th highest and life expectancy the 6th longest. Residents in Tamaulipas report high levels of life satisfaction (the sixth highest in the country).

Well-being in Tamaulipas, 2014 or latest available year

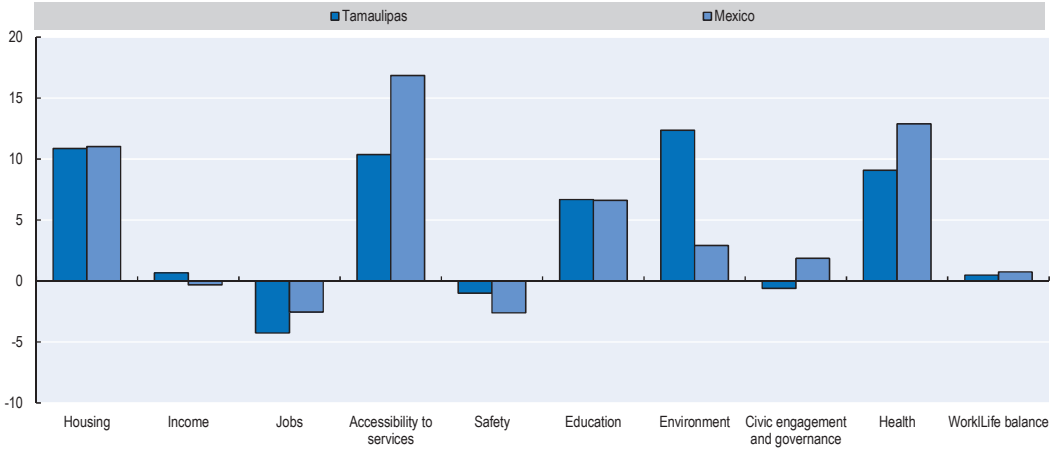


Well-being dimension	State ranking (out of 32)
Housing	10
Income	13
Jobs	11
Accessibility to services	12
Safety	17
Education	10
Environment	9
Civic engagement and governance	9
Health	18
Life satisfaction	6
Work-life balance	6
Community (social connections)	12

Well-being in Tamaulipas has improved in five dimensions in the past decade, in environment at a faster pace than in the rest of the country. The percent of waste management in controlled sites has increased from 50% to 71% in four years, and air pollution has been halved in nine years.

Changes in well-being over time in Tamaulipas

Difference in the score between the last and the first year

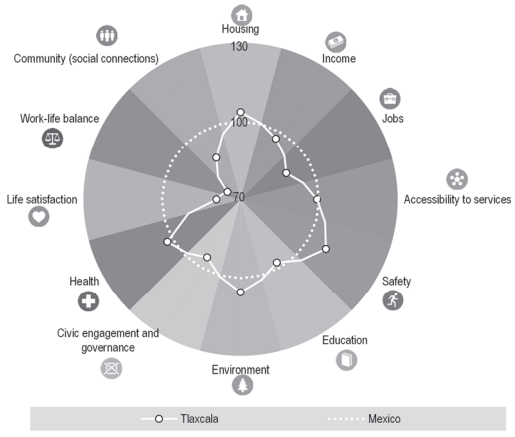


Tlaxcala

Performance in the safety, environment, housing and health dimensions are above the national averages in Tlaxcala, while the other eight well-being dimensions lag behind. Good performance is attributed to the relatively low homicide and crime rates, good waste management and housing quality. Maternal mortality and obesity rates are among the country's ten lowest.

For the jobs dimension, the quality of working conditions lags behind other states. Informal employment affects 73% of workers, which is 15 percentage points higher than the country's average, and 17% of Tlaxcala's employees work in critical conditions, the second highest value among Mexican states. The work-life balance indicators are among the worst in the country, both in terms of working hours and dissatisfaction with time devoted to leisure.

Well-being in Tlaxcala, 2014 or latest available year

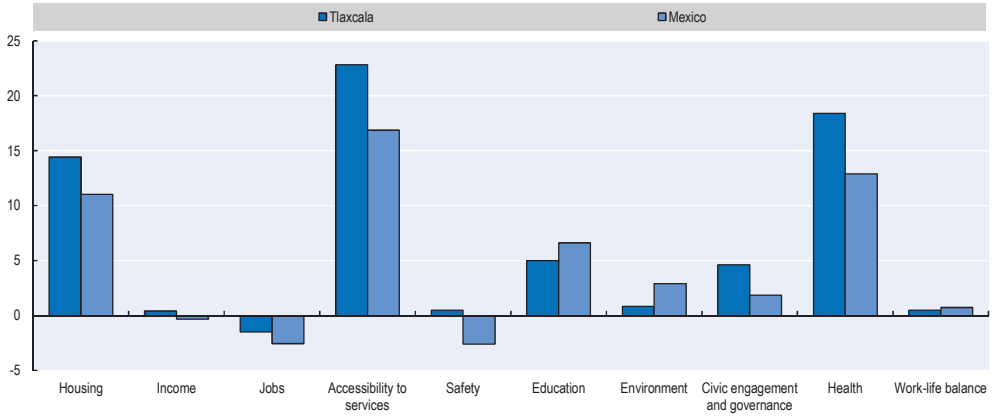


Well-being dimension	State ranking (out of 32)
Housing	12
Income	24
Jobs	31
Accessibility to services	20
Safety	11
Education	17
Environment	11
Civic engagement and governance	26
Health	10
Life satisfaction	31
Work-life balance	32
Community (social connections)	27

Accessibility to services, health and housing improved in Tlaxcala at a faster pace than in the country's average over the period 2000-13. Life expectancy increased by almost 3 years and infant mortality rates have decreased from 26 deaths per 1 000 live births to 15 deaths, the 4th greatest improvement in the country.

Changes in well-being over time in Tlaxcala

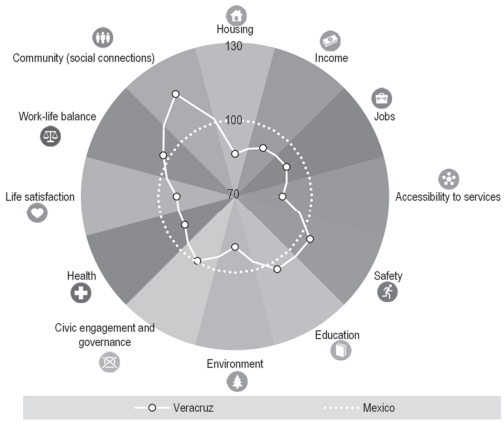
Difference in the score between the last and the first year



Veracruz

Well-being in Veracruz exceeds the national average in four dimensions and lags behind in eight. Material conditions are relatively low in Veracruz. It ranks among the six last states in the dimensions of housing, income and jobs. Low access to basic and advanced (broadband connection) services for households, and one of the lowest shares of residents with access to health services explain the poor performance in the dimension accessibility to services. The small proportion of secondary student drop-outs, the fourth lowest in the country, drives the relatively good performance in education.

Well-being in Veracruz, 2014 or latest available year

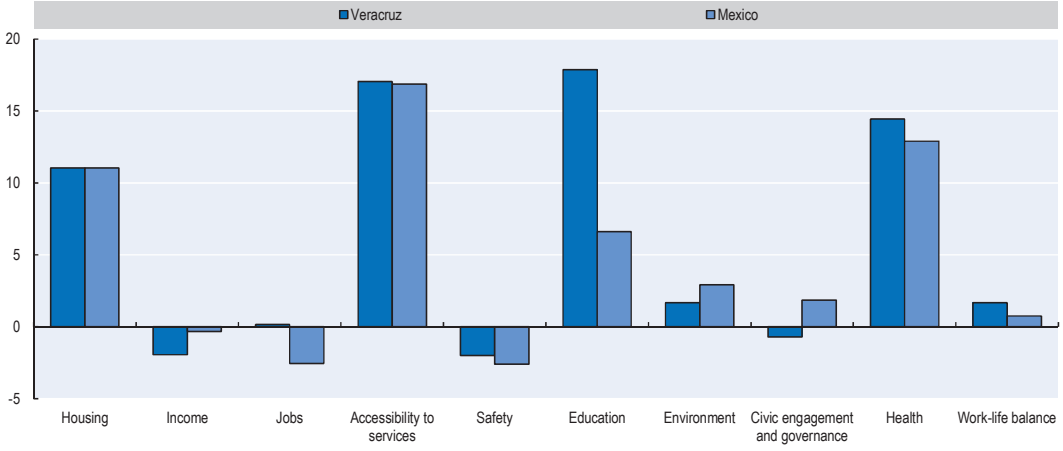


Well-being dimension	State ranking (out of 32)
Housing	27
Income	28
Jobs	28
Accessibility to services	29
Safety	22
Education	9
Environment	28
Civic engagement and governance	19
Health	28
Life satisfaction	24
Work-life balance	17
Community (social connections)	4

Housing and accessibility to services improved in line with the country trend between 2000 and 2013, while education, health and work-life balance improved at a faster pace than the country average.

Changes in well-being over time in Veracruz

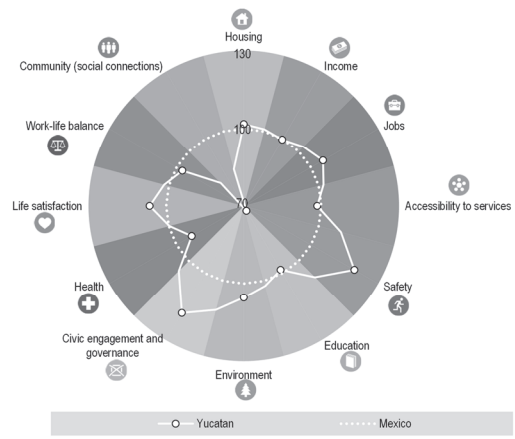
Difference in the score between the last and the first year



Yucatan

Well-being in Yucatan exceeds the national average in six dimensions, registers a similar value to the national average in housing and income, and lags behind the national average in four dimensions. Outcomes are very different among dimensions: while Yucatan ranks first among Mexican states in safety and civic engagement, it has the lowest share of residents who report to have a friend to rely on in case of need (community).

Well-being in Yucatan, 2014 or latest available year

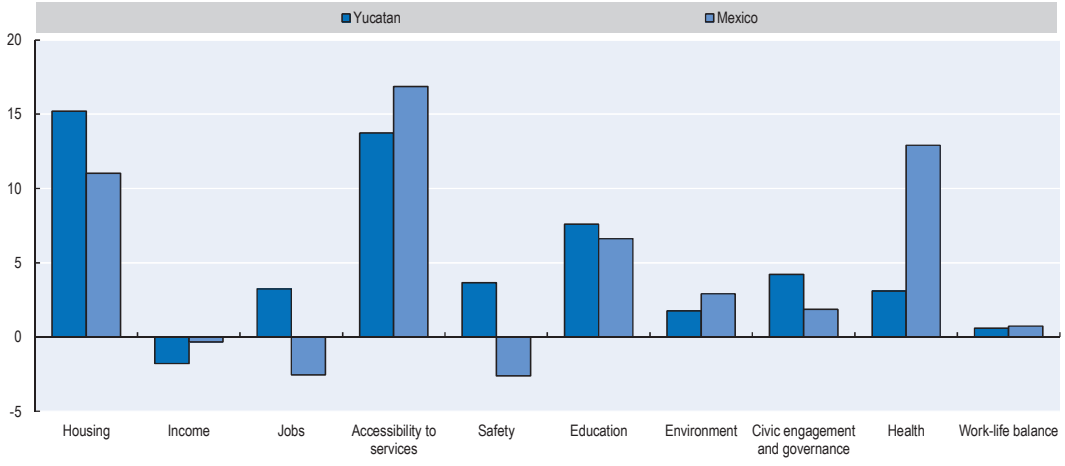


Well-being dimension	State ranking (out of 32)
Housing	16
Income	21
Jobs	9
Accessibility to services	22
Safety	1
Education	16
Environment	10
Civic engagement and governance	1
Health	25
Life satisfaction	10
Work-life balance	19
Community (social connections)	32

Well-being has improved in Yucatan in all the dimensions, with the exception of income. Almost 90% of the houses had ceilings made of durable material in 2013, while fewer than 70% did in 2000, the greatest improvement in the country.

Changes in well-being over time in Yucatan

Difference in the score between the last and the first year

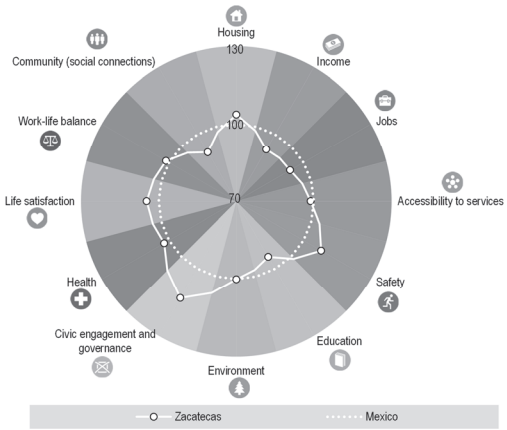


Zacatecas

Well-being in Zacatecas exceeds the national average in civic engagement and governance, safety, life satisfaction, health and housing dimensions. It registers a similar value as the national average in environment and work-life balance, and lags behind in the remaining five dimensions. Trust in the state police and in the effectiveness of the judicial system, as well as participation in volunteering activities, are among the third highest in the country.

The poor outcomes in income and jobs are mainly driven by relatively high income inequality and poverty, the third lowest employment rate in the country, an above average rate of informal employment and a larger share of the workforce subject to critical working conditions.

Well-being in Zacatecas, 2014 or latest available year

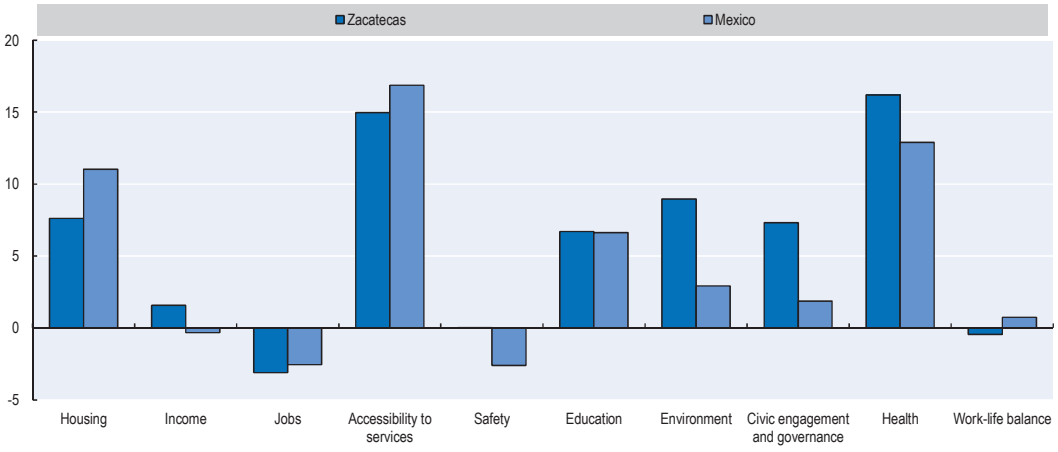


Well-being dimension	State ranking (out of 32)
Housing	11
Income	27
Jobs	26
Accessibility to services	21
Safety	10
Education	21
Environment	17
Civic engagement and governance	4
Health	11
Life satisfaction	13
Work-life balance	18
Community (social connections)	22

Well-being has improved in seven out of ten dimensions in Zacatecas over the past decade. The largest improvements are found in health and access to services. Obesity rates have decreased from 38% to 30% since 2006, the largest improvement in the country.

Changes in well-being over time in Zacatecas

Difference in the score between the last and the first year



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(04 2015 09 1 P) ISBN 978-92-64-24606-5 – 2015-01

Measuring Well-being in Mexican States

The report provides a comprehensive picture on the territorial differences in many well-being dimensions across the 31 Mexican states and the Federal District. It represents a sound base for state and local policy makers, political leaders and citizens to better understand people's living conditions, gauge progress in various aspects of economy and society and use these indicators to improve the design and implementation of policies. It is a part of the "*How's Life in Your Region?*" work produced by the OECD Public Governance and Territorial Development Directorate at the behest of the Regional Development Policy Committee.

Contents

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Chapter 2. The geography of well-being in Mexico

Chapter 3. Supporting the use of well-being indicators in Mexican states

Annex A. Well-being snapshots of Mexican states

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ISBN 978-92-64-24606-5
04 2015 09 1 P