
NATIONAL CENTER FOR EDUCATION STATISTICS

Education in States and Nations:

Indicators Comparing
U.S. States with Other
Industrialized Countries in 1991



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NCES 96-160

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July 1996

The Cover:

The **countries shaded** on the **world map** are those included in the two sources providing most of the international **data used** in this report — **Education at a Glance,** of the Organization for Economic Cooperation and Development (OECD), and **Learning Mathematics,** of the International Assessment of Educational Progress (IAEP).

Suggested Citation:

U.S. Department of **Education.** National Center for Education **Statistics.** *Education in States and Nations,* (2nd ed.), NCES 96-160, by Richard **P. Phelps,** Thomas **M. Smith,** and Nabeel **Alsalam.** Washington, D.C.: 1996.

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FOREWORD

Today's shrinking world brings us closer to other nations through improved communications, transportation, and an increasingly global marketplace. Many Americans now agree that our nation's ability to compete in the world economy depends vitally on continuous improvements not only at the workplace, but in our education system as well.

Education in States and Nations reflects two realities — increasing globalization and the centrality of the states in American education. In *Education in States and Nations*, indicators provide international benchmarks for assessing the condition of education in the U.S. states and in the United States as a whole by comparison with many other industrialized countries for which data are available. On six sets of education indicators — background, participation, processes and institutions, achievement and attainment, labor market outcomes, and finance — country-level and state-level measures are arrayed side-by-side in order to facilitate that comparison.

The country-level data come from a variety of sources, but two sources are most prominent: the second edition of international education indicators, *Education at a Glance*, of the Organization for Economic Co-operation and Development (OECD); and the International Assessment of Educational Progress, which administered a mathematics test to 13-year-olds in about 20 countries and surveyed them and their school administrators about various aspects of the education process. The indicators in *Education in States and Nations* correspond to as many of the international indicators for which state-level data were both applicable and available.

This report is the second effort of its kind; the first edition, produced in 1993, was based on state and country data from the late 1980s. This edition, using data primarily from the early 1990s, is much larger than its predecessor. This reflects both a greater availability of suitable international indicators and state-level data, as well as a greater effort to find relevant indicators, both domestic and international.

Like its predecessor, this edition of *Education in States and Nations* may provoke discussions over what it includes, what it does not include, and how the data are presented. Thus, this report may raise some questions even as it answers others. That, however, should not diminish its usefulness. On the contrary, it will be beneficial if *Education in States and Nations* sparks a desire in readers to better understand the education systems of other countries or to improve on this set of indicators in future publications. This publication represents another step in an evolving process, not the conclusion of a limited study. As such, NCES would welcome comments or suggestions for future editions.

Jeanne E. Griffith, Acting Commissioner
National Center for Education Statistics

ACKNOWLEDGEMENTS

The authors wish to thank all those who contributed to the production of this report. At the Pelavin Research Institute: **Sterlina D. Harper** managed and organized most of the production. Joel Sherman helped to plan and administer the project, and provided helpful advice on the finance indicators. Susan **Staib** McGee provided the state-level data for several indicators, reading the 1990 Census 5 percent PUMS sample on her PC. Jack **Easton** helped to assemble and polish various pieces of the report in the final months, Michael **S. Garet** co-wrote the supplemental note "Issues in Linking Tests," which discusses different methods of linking tests and how they apply to Indicator 25 — Mathematics Proficiency,

Others at the Pelavin Research Institute making important contributions included: **Bing Deng**, Laura **O'Neal**, **Sonya Gross**, Jon **Cohen**, **B.J. Horgeshimer**, Clayton Best, Andrew **Cullen**, Eric **Grodsky**, David **Nohara**, Dee **White**, Amy **O'Malley**, Art **Mitchell**, Nancy **Matheson**, Anne **Anderson**, Ray **Varisco**, **Brandon Pennix**, and Eve Jones,

Others *outside* the Pelavin Research Institute also made important contributions. They included: Peter **Pashley** of the Law School Admissions Council and formerly of the Educational Testing Service; Charles Lewis and Nancy Mead of the Educational Testing Service; Eugene Gonzales of Boston College; **Jean** Johnson and John **Jankowsky** of the National Science Foundation **Timothy Smeeding**, Janet **Gornick**, and **Lee Rainwater** of the Luxembourg Income Study, the Maxwell School of Citizenship at Syracuse University, and Harvard University; **Norberto Bottani** and Catherine **Duchêne** of the INES Project of the OECD; **F.** Howard Nelson of the American Federation of Teachers; Steve **Barro** of SMB Economic Research; Leonard **Bianchi** of the TIMSS Project at Michigan State University; **François Gendron** and Douglas **Lynd** of Statistics Canada; Juan **Martínez** and Judy **Weitz** of the Children's Defense Fund; **Vittoria Cavicchioni** of UNESCO; Cheryl Oaks and **Kristina Hansen** of Child Trends; and John **Hesemann**. Michelle Brown of Pinkerton Computer Consultants color separated the graphics and provided technical assistance relating to graphics preparation. Rebecca Pratt of Pinkerton helped us by editing an early draft of this document. Anita Wright of the American Institutes for Research gave the report a final, thorough editing.

At the National Center for Education Statistics (NCES), Thomas **D.** Snyder provided invaluable assistance in helping us understand the U. S. data submission to OECD; and Mary **Frase** reviewed several drafts of this report, catching errors and making suggestions which greatly improved its quality,

Several individuals served as invited peer reviewers of the draft manuscript and made many insightful contributions. Reviews were submitted within very tight time constraints and at the expense of the reviewers' many other responsibilities. The peer reviewers were: **William J. Fowler**, Laura **H. Lippman**, and Eugene Owen from NCES; Amy **Friedlander**, formerly the Deputy Director of the National Education Goals Panel; Leslie **Lawrence**, currently at the Goals Panel; Professor Robert **Lehnen** and **Sabrina** Lutz of the School of Public and Environmental Affairs at Indiana University in Indianapolis; and Suzanne **Triplett** of the Research Triangle Institute and, until recently, the Assistant State Superintendent for Accountability Services of the North Carolina Department of Public Instruction.

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NOTE ON INTERNATIONAL COMPARISONS MADE IN THIS REPORT

One intention behind the design of this report was to make comparisons among "like-sized" entities. Thus, whenever possible, the United States is compared to other countries with large economies, such as those of the G-7, and the U. S. states are compared to countries with both large and small economies, such as those of the OECD or those that participated in the IAEP. Each of these country groupings is described below. The careful reader might also appreciate the clarification of the status of Germany as used in this report, also provided below, since data are used from both before and after that country's reunification.

The Group of Seven (G-7): This group is composed of seven nations with large economies, the seven largest economies in the world at the time of the group's formation. Officials of each country meet periodically to discuss mutually beneficial agreements, most conspicuously in "G-7 Economic Summits." The member countries are: Canada, France, Germany, Italy, Japan, the United States, and the United Kingdom.

The Organization for Economic Co-operation and Development (OECD): The OECD is an organization of 24 nations whose purpose is to promote trade and economic growth in both member and non-member nations. OECD's activities cover almost all aspects of economic and social policy. The member countries in 1991 were: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, the United Kingdom, and the United States. Greece and Iceland did not participate in the data compilation used for this report, whereas Czechoslovakia and Hungary, which had applied for membership in the OECD at the time of the data compilation, did participate.

The International Assessment of Educational Progress (IAEP): In 1990-91, as part of an international effort coordinated by the Educational Testing Service (ETS), 20 countries assessed the mathematics and science achievement of their 13-year-old students. In addition, the students spent about 10 minutes responding to questions about their backgrounds and home and school experiences. School administrators completed a school questionnaire. The participating countries included: Brazil (the cities of São Paulo and Fortaleza), Canada, China, England, France, Hungary, Ireland, Israel, Italy (the province of Emilia Romagna), Jordan, Korea, Portugal, Scotland, the Soviet Union, Slovenia, Spain, Switzerland, Taiwan, and the United States.

Germany: In 1990, the former German Democratic Republic (East Germany) acceded to the Federal Republic of Germany. Some indicators presented in this report use data that predate the reunification and use the country names "Germany (West)" or "Germany (East)." Indicators with data from the entire reunified country use the country name "Germany." Still other indicators use data from the period after reunification but prior to the combination of the relevant education statistics of the two former, separate countries. These indicators also use the country name "Germany (West)" to indicate that the data refer only to the former territory of the Federal Republic, that is, West Germany.

Other international organizations whose data are also used in this report include: Asia Pacific Economic Cooperation (APEC), the European Community (EC), the Luxembourg Income Study (LIS), the United Nations Educational, Scientific, and Cultural Organization (UNESCO), and the World Health Organization (WHO). International data collections of the American Federation of Teachers, the National Science Foundation, and the Census Bureau are also used in this report.

INTRODUCTION AND OVERVIEW

INTRODUCTION AND OVERVIEW

In 1983, when *A Nation at Risk* highlighted both the state of American education and its essential role in our nation's prosperity, the report's first piece of evidence was international comparisons of mathematics and science achievement. It appeared then that U.S. students were being outperformed by students in other countries, including some countries that educate their students at lower cost. This report from an independent commission appointed by the Secretary of Education suggested that, at a time when a nation's power and prosperity were more than ever before determined by the collective brain power of its citizenry, the U.S. education system seemed not to be performing as well as it could.^{1,2}

A few years later, in 1986, the National Governors' Association issued *A Time for Results*, a report similar to *A Nation at Risk* in tone, in the nature of its evidence, and in its recommendations. *A Time for Results* asserted even more strongly than *A Nation at Risk* that global economic competition meant that the most appropriate benchmarks for education system performance were now global as well. This report by a national association of state governors was at once an assertion that education was a national concern, and that it was still primarily a state and local responsibility.³

Since publication of *A Time for Results*, Americans have seen much activity on education policy at the interstices of authority between the separate branches and levels of government. The Federal government and the nation's governors joined their efforts formally at the Charlottesville, Virginia "education summit" in 1989; and the subsequently-formed National Education Goals Panel and National Council on Education Standards and Testing both included members from the Congress, the White House, the U.S. Department of Education, and the ranks of governors and state legislators. Agreement on six National Education Goals followed the Charlottesville summit. In 1994, Congress added two additional goals related to parental involvement and teacher professional development.

A commitment to reaching world-class education performance levels is explicitly expressed in National Education Goals 5 and 6. Goal 5 declares that U.S. students will be first in the world in science and mathematics achievement by the year 2000. Goal 6 asserts that every adult American will possess the knowledge and skills necessary to compete in a global economy.⁴

By joining efforts with the Federal government, the governors did not intend to share the management of the public schools. However, they did agree that the Federal government had an important role to play in the collection and dissemination of comparative data needed to manage the quality of American education.

In 1988, the U.S. Congress authorized the establishment of a Special Study Panel on Education Indicators for the U.S. Department of Education's National Center for Education Statistics (NCES). This panel was chartered in July 1989 and directed to prepare a report, published in 1991, *Education Counts: An Indicator System to Monitor the Nation's Educational Health*. The Panel's report recommended a variety of ways in which NCES should increase its collection and presentation of indicator data. Among the many recommendations, the report urged NCES to: strengthen its national role in data collection and provide technical assistance to the states; improve its capacity to collect international data; and develop a "mixed model" of indicators — international and national indicators, state and local indicators, and a subset of indicators held in common.

Two of NCES's primary indicators projects include *The Condition of Education* and the National Assessment of Educational Progress (NAEP).⁵ The *Condition* is an annual compendium of statistical information on American education, including trends over time, international country comparisons, and some comparisons among various groups (by sex, ethnicity, socioeconomic status, and others). However, the *Condition* contains very few state-by-state comparisons.

The National Assessment of Educational Progress (NAEP) is a congressionally-mandated assessment of the academic achievement of American students. Begun in the late 1960s, NAEP has been reporting assessment results state-by-state, on a trial basis, only since 1990. In that year, 37 states, the District of Columbia, and 2 territories participated in a Trial State Assessment program in eighth-grade mathematics. In the 1992 Trial State Assessments in 4th-grade reading and mathematics and 8th-grade mathematics, voluntary participation increased to 41 states, the District of Columbia, and 2 territories. The same number of jurisdictions participated in the 1994 Trial State Assessment of fourth grade reading.

At the same time that U.S. officials began looking outside our borders for education policy lessons and performance benchmarks, officials in other countries were doing likewise. The Organization for Economic Cooperation and Development (OECD), which had for years published indicators on macroeconomics, trade, industry, and agriculture, began an effort in the 1980s to develop and collect social indicators, starting with health care. Turning its attention next to education, the organization launched, in 1987, the Indicators of Education Systems project (INES) in its Center for Educational Research and Innovation (CERI).⁶ CERI organized several international groups of experts to develop conceptual frameworks, to agree on definitions, and to execute pilot studies to determine the set of possible indicators that best illustrated the condition of education in the OECD countries. In 1992, the OECD published a set of indicators, employing data from the late 1980s, in *Education at a Glance*.⁷ An updated second edition, *Education at a Glance (Edition 1993)*, was published in December 1993, and a third edition was released in January 1995.⁸

The first edition of *Education in States and Nations: Indicators Comparing U.S. States with the OECD Countries in 1988*, produced in 1993, served as a logical next step and a U.S. companion volume to *Education at a Glance*, incorporating U.S. state-level data from the late 1980s. It not only allowed state-to-state and country-to-country comparisons, but state-to-country comparisons as well. For perhaps the first time, states could compare their support for education, the participation of their youth in the education system, or their educational outcomes with those of a

number of industrialized countries, including some quite similar in size or wealth. In other words, on a variety of measures, education in U.S. states could now be compared internationally.

Why compare states to nations? In many countries public responsibility for education is vested in the national government, in an education ministry.⁹ In the United States, however, public responsibility for education rests primarily at the state level.³ In 1995 state-level governments provided 46 percent of revenues for public elementary and secondary schools. This share of contribution ranged from 8 percent in New Hampshire to 90 percent in Hawaii. In many cases, the most valid American counterparts to other countries' national ministries of education are our state education departments.

This edition, *Education in States and Nations: Indicators Comparing U.S. States with Other Industrialized Countries in 1991*, is much larger than its predecessor. This reflects both a greater availability of suitable international indicators and greater effort to find relevant indicators, both domestic and international. The large size of this volume was not a goal in itself, but is coincident to others. *Education in States and Nations/1991* has two goals:

- 1) To improve the quality of indicators, where possible, with better data; and
- 2) To expand the domain of indicators to encompass more topics pertinent to education policy.

With the addition of more topics and more and better sources of data, this second edition of *Education in States and Nations* offers more depth and breadth than did its predecessor.

The Content of *Education in States and Nations/1991*

Education in States and Nations/1991 includes 37 indicators. They were chosen to take advantage of the data available in *Education at a Glance (Edition 1993)*, from the International Assessment of Educational Progress (IAEP), and from several other contemporary sources of international education indicators. International indicators were selected for use in *Education in States and Nations/1991* if they were relevant to states and

comparable state-level data on the indicators existed. The indicators **are** grouped into six categories:

- 1) **Background;**
- 2) **Participation;**
- 3) **Processes and Institutions;**
- 4) **Achievement and Attainment;**
- 5) **Labor Market Outcomes;** and
- 6) **Finance.**

Indicators were selected in an attempt to cover the domain of the educational **enterprise**. The background and finance indicators could be described as “**stocks**” or “**input**” **measures**. Both of these groups of indicators are richly **represented**, with background indicators relating to **geographic, demographic, economic, and** sociological **factors**, and with **finance** indicators presenting revenues and expenditures viewed several different **ways**. **Similarly**, the indicators for participation and for processes and institutions could be described as “**flows**” or “**throughput**” **measures**, which represent aspects of the **size, character,** and practices of the formal education **system**. **Finally**, the indicators for achievement and attainment and *for* labor market outcomes present the “**product**” or “**output**” of education systems, as measured by degree **completion, educational attainment,** and economic **benefits**.

The data come from a variety of **sources**. The data on countries come from the Indicators of Education Systems (INES) project of the OECD, the International Assessment of Educational Progress (IAEP), the National Science Board, the Luxembourg **Income Study**, Asia Pacific Economic Cooperation, the **European Community**, the World Health Organization, UNESCO, the American Federation of **Teachers**, and several other **sources**. The data on individual states come from NCES, the Department of Labor’s Bureau of Labor **Statistics**, the Department of **Commerce**’s Bureau of the **Census**, the Department of Health and Human **Services**’ National Center for Health **Statistics**, the National Science **Board**, the American Federation of **Teachers**, the Center for the Study of Social Policy, and Child **Trends, Inc.** All these sources are described in more detail in the “**Sources of Data**” section in the back *of* the **report**. **In addition**, results from the 1992 NAEP study of mathematics

achievement of American 8th-graders have been statistically linked to results from a similar 1991 study of the mathematics achievement of 13-year-old students in various **countries**. This **linkage** allows comparisons of academic achievement between states and **countries**.

The presentation of each indicator includes an explanation of what it **measures**, why it is **important**, and key results from a comparison of countries **and** states. Throughout the **report**, comparisons are most often made in the text among “**like-sized**” **entities**: the United States to the other large **and** relatively wealthy countries that compose the so-called Group of Seven, or G-7 (Canada, **France, Germany, Italy, Japan,** and the United **Kingdom**); and U.S. states to all industrialized countries for which data are available, including the smaller **and** relatively less wealthy ones.

It should be kept in **mind, however**, that these comparisons are based on the data **available**. Not **all** countries are represented **here**. Some countries are not members of the international organizations which collected the **data**. Other countries are **members**, but did not participate in the relevant data collections. **Some** countries participated in the OECD’s data collection but not the **IAEP**’s, and vice versa. If there is any systematic bias in such “**data driven**” **international** comparisons, it is probably toward the inclusion of countries with a **well-developed** public data collection **and management** capability and the exclusion of countries **without**.

In **addition** to the explanations **and** key **results**, the presentation of each indicator includes **separate** tables for states and countries **and** a **graph** or set of graphs that display states and countries **together**. The graphs **are**, in most **cases**, simple bar graphs with the states and countries listed in order of highest value to **lowest**. This type of graph highlights the distributional aspects of the data — where countries and states **stand in relation** to one another **and** the magnitude of the differences between **them**. Where **appropriate**, notes on interpretation describe special **circumstances** affecting an indicator that **warrant** particular consideration in making **comparisons**. Data sources are **listed** at the bottom of each table and **graph**. Because some of the terms used in this **report** may not be familiar to **all readers**, a glossary is included in the **back**. **Finally**, appendices include

supplemental and technical information on how various measures in the indicators were calculated.

In the remainder of the overview, we highlight some of the more important concepts and results from each of the six sections of the report.

Section 1: Background

Understanding the context in which education systems exist is important to proper interpretation of indicators. Each indicator in this report, while measuring one particular aspect of education, is affected by a host of other factors, some not directly connected to education. The first group of indicators in this report represent some of these other factors that make up the context in which education takes place. Indicators in this group are:

- (1) Population and area;
- (2) Youth and population;
- (3) Labor force participation;
- (4) GDP/GSP per capita;
- (5) Percentage of population age 17 or younger in poverty;
- (6) Births to teen mothers; and
- (7) Youth violent death rate.

A complete comparative understanding of education would require a consideration of still more factors not represented here, such as: differences in the levels of development of education systems, national and state education priorities and strategies, and cultural differences. Nonetheless, the seven indicators presented in the "Background" section provide some understanding of the environments in which education programs are set and should be considered when evaluating data in the categories of participation, processes and institutions, achievement and attainment, labor market outcomes, and finance.

How closely do the states resemble other industrialized nations demographically and economically?

In general, the industrialized nations selected in this publication had higher population densities than the U.S. states. However, the U.S. states tended to be wealthier, to have higher labor force participation rates, and to have greater proportions of youth (i.e.,

persons 5- to 29-years-old) in the overall population. For every indicator, one can find individual states closely resembling certain industrialized countries. For example:

- ▶ Pennsylvania had a population just slightly larger than that of Hungary (*Indicator 1*), and had the same percentage of 5- to 29-year-olds in its population. (*Indicator 2*)
- ▶ Texas, North Dakota, New Zealand, and Italy had similar labor force participation rates. (*Indicator 3*)
- ▶ The gross product per capita in South Dakota was only marginally greater than that in Japan. (*Indicator 4*)

How closely do the states resemble other industrialized nations sociologically?

Thirty-eight of the U.S. states had higher percentages of children living in poverty than all 11 of the other countries to which they are compared. Births to teen mothers generally constituted a high percentage of all births in the states than in many of the industrialized nations, but the range of rates in those nations was the same as that of the states. For the most part, a greater percentage of youth died violently from accidents, suicides, and homicides in the states than in the nations. As with the demographic and economic background indicators, a comparison can be found between individual states and nations for each sociological indicator included. For example:

- ▶ With the exception of New Hampshire and Connecticut, the child poverty rate was higher in the states than in Italy, France, the former West Germany, the Netherlands, Sweden, the United Kingdom, and several other countries — in some cases several times higher. (*Indicator 5*)

The poverty threshold used is an approximation of the U.S. average — 40 percent of median household income — and other countries' data are adapted to it. These poverty rates are measured after taxes and transfers; that is, they account for the effect of taxes and of governmental aid programs to the poor. These data for nations come from the Luxembourg Income Study's collection of national household surveys.

- ▶ The proportion of all births that were to 15- to 19-year-old mothers was similar in Alaba

and Greece, 7.1 per 100 births. In 30 states, fewer than 6 out of every 100 births was to a teen mother, compared with 9 of the 12 European countries for which data are available. (*Indicator 6*)

- ▶ While only 3 of the 30 countries for which we have data had violent death rates among youth higher than 500 per million, 19 of the U.S. states did. The rates of suicide and accidental death among youths aged 5 to 24 in Austria were almost identical to those of Wisconsin; the rates of homicide within the same age group were slightly higher in Argentina and slightly lower in the Soviet Union than they were in Oregon, Kansas, or Kentucky. (*Indicator 7*)

In summary, economic, demographic, and sociological characteristics of the U.S. states were similar in many cases to those of other industrialized countries. While these similarities between nations and states could almost always be found, some overarching trends differentiating states and nations are apparent. For example, the states tended to have lower population densities, greater wealth, and higher labor force participation rates than the other industrialized countries. Youths aged 5 to 29 typically composed a larger portion of the population in states than they did in other countries. This high proportion of young citizens in the states seemed to confront a relatively more negative social environment as well, manifested in higher rates of violent death among youth, of births to teen mothers, and of child poverty.

Section 2: Participation

Participation in formal education is influenced not only by demand — the number of persons who can and wish to attend school — but also by the supply — the number of places available. In terms of supply, preprimary (which includes both kindergarten and pre-kindergarten programs) and postcompulsory education are more available in some states and countries than in others. High participation can reflect a large public or private investment in education, a high valuation of education by society, or an economy dependent on a highly trained workforce. Measures of the degree to which young people participate in their state or

country's education system are included in this section. Indicators in this group are:

- (8) Participation in formal education;
- (9) Enrollment in preprimary education;
- (10) Secondary education enrollment;
- (11) Entry ratio to higher education;
- (12) Non-university higher education enrollment; and
- (13) University enrollment.

(International comparisons based on levels of education can sometimes cause confusion because the levels do not always have the same entrance requirements or the same duration across countries. To aid in understanding such comparisons, an explanatory note is included in the supplemental notes on page 231.)

How does participation in education change as people move from childhood to adulthood?

Two different measures of enrollment are used in this section: enrollment rates and enrollment ratios. Enrollment rates represent the percentage of students in a certain age group enrolled in a particular level of education. Enrollment ratios reflect the number of students of any age enrolled in a particular level of education per 100 persons in a reference age group, the ages typical of those enrolled at that level. Although enrollment rates are preferred to enrollment ratios, as they are not inflatedly enrollments either outside the typical age of enrollment or by periods of enrollment longer than the typical duration, the requisite data needed to calculate enrollment rates — enrollment by age — are often unavailable.

- ▶ For most countries and states, the ratio of persons enrolled in formal education (total enrollment divided by the population in the 5-29 age range) was between 50 and 60 (*Indicator 8*).
- ▶ Of the states, Nevada had the smallest ratio of persons enrolled in formal education, with a ratio of 52, which was higher than in 9 of the 22 other countries for which data are available. (*Indicator 8*)

Preprimary participation rates are affected by the relative value placed on early socialization of children in society, the availability of low-cost or

public **preprimary** programs, and the degree of participation of women in the labor market. Enrollment rates *in* preprimary education at ages 3 and 6 varied greatly across states and nations. (*Indicator 9*)

- ▶ In the G-7 countries for which data are available, 1991 preprimary education enrollment for 3-year-olds ranged from approximately 20 percent in Japan to almost 100 percent in France. In the United States, about one-third of 3-year-olds were enrolled.
- ▶ None of the states had an enrollment rate higher than 39 percent among 3-year-olds, while 7 of 14 other countries did.

In the 50 U.S. states and in most industrialized countries, participation in primary and lower secondary education (the equivalent of grades 1 to 9 in the United States) has become almost **universal**, and in most cases is legally **mandated**. Upper secondary education (the equivalent of U.S. grades 10 to 12) encompasses the final stage of compulsory education in most industrialized countries. Because the age at which students can legally leave school typically arrives before their secondary education is complete, participation rates for those age 16 and older reflect the desirability and importance of secondary education credentials (like the high school diploma).

Furthermore, the nature of secondary education varies across countries. For example, in Germany and Austria, many vocational students obtain the equivalent of apprenticeship training in a basic skill while enrolled in secondary school. Some of them even return to secondary school later, after gaining several years' work experience, to obtain a second credential, typically in a higher skilled trade. In the U.S. states, participation in secondary education was minimal beyond age 18, whereas enrollment rates for 20- and 21-year-olds were significant in some countries. (*Indicator 10*)

- ▶ In 9 of the 19 other countries, over 20 percent of 19-year-olds attended secondary school; however, none of the U.S. states had enrollment rates above 10 percent among 19-year-olds. Likewise, among 21-year-olds, 7 of the 19 other countries had rates above 5 percent, while none of the U.S. states had rates above 3 percent at that age. (*Indicator 10*)

Participation rates continue to drop off as secondary students make the transition to non-university higher education (the equivalent of U.S. community colleges) and university education (4-year colleges and universities in the United States), although some countries and states are higher than others. For example, higher education enrollment rates are generally much higher in the United States and Canada than in other industrialized countries. (*Indicator 8*) When students are counted at the location of their higher education institution rather than at the location of their original residence entry ratios into higher education at the entry reference age ranged from approximately 74 percent in North Dakota to 15 percent in Turkey. (*Indicator 11*)

In some countries, higher education is highly career oriented, and admission is often quite selective. In the U.S. states, however, the higher education system in general is less selective and is available to almost any high school graduate. Many U.S. students also enter higher education without focusing on a particular career, while their peers in many other countries focus exclusively on their area of specialization from day one of higher education

- ▶ Among 18- to 21-year-olds in 1991, the United States had relatively high full-time enrollment rates in non-university higher education (7.5 percent), as did Canada and France. (*Indicator 12*).
- ▶ There was much variation in full-time enrollment rates of 18- to 21-year-olds in non-university higher education in both U.S. states and other countries. The range was wider across the states, however, than across the countries. The states ranged from 0.3 percent enrolled in the age group in South Dakota to 18.3 percent in Wyoming for a difference of 18 percentage points, while the countries ranged from 0.7 percent in Denmark to 14.0 percent in Belgium for a difference of 13.3 percentage points. (*Indicator 12*)
- ▶ In university education, the U.S. states generally had higher full-time enrollment rates among 18- to 21-year-olds than did the countries for which data were available. Full-time enrollment rates exceeded 20 percent in 36 states, but did so in only 2 countries. The range of part-time enrollment rates among 18- to 21-year-olds was wider across the states than across the countries.

Part-time enrollment rates were 6.2 percent in Alaska, and 2.3 percent in Australia, the country with the highest rate. (*Indicator 13*)

In summary, participation in formal education was virtually universal in every state and country for youths at the primary and lower secondary levels. Enrollment rates in early childhood education fluctuated across countries and states, with rates ranging from 0 to almost 100 percent for each age of preprimary enrollment. Early childhood enrollment in the U.S. states was most prevalent among 5-year-olds, with sparse enrollments among children aged 3 and 6 (most 6-year-olds in the United States are enrolled in primary school). Participation was nearly universal for only part of the upper secondary years; enrollment rates dropped dramatically in some countries beginning at age 16. Higher education participation rates were highest in Canada and the United States and more people enrolled in university than non-university higher education in every country except the Netherlands.

Section 3: Processes and Institutions

The indicators in this section measure two components of the instructional arena — the instructional process and the organization of personnel serving students' instructional needs. The instructional process involves both the time spent in the classroom — how students are taught and the tools used to teach them — and the effort required of students at home to reinforce classroom learning. Indicators in this group are:

- (14) Staff employed in education;
- (15) Number of schools and school size;
- (16) Class size;
- (17) Students use of technology;
- (18) Student time spent doing homework and watching television;
- (19) Instructional strategies in mathematics courses; and
- (20) Time in formal instruction.

How does the amount of time students in the United States spend in the classroom compare to that of students in other countries? Do students in the

United States spend more or less time doing homework or watching television than their international counterparts?

Although the number of days per year that U.S. students spend in school is generally lower than that in other countries, the hours of instruction per day often are greater. For the most part, the U.S. states had a higher average number of hours per year in formal instruction than the other industrialized countries. (*Indicator 20*)

- ▶ The average hours of instruction per year in the United States (1,003) exceeded that of 13 of the other countries for which data are available. Only France, Taiwan, China, Switzerland, and Scotland had more instructional hours annually; the former West Germany and Israel had about the same.
- ▶ U.S. states and most countries were fairly evenly distributed throughout the range defined by Ireland (931 hours of instruction per year) and China (1,276 hours per year). Nonetheless, 7 countries had less than 900 hours of instruction per year.

When not in class, however, lower secondary students in the United States reported doing less homework than did their counterparts in most other countries. Across the states, between 19 and 34 percent of public 8th grade students reported that they did 2 or more hours of homework each day. Instead, U.S. students spent more time watching television than did students in most other countries for which data are available. Across the states, between 72 and 90 percent of public 8th grade students reported watching 2 hours or more of TV daily. (*Indicator 18*)

- ▶ The percentage of public 8th grade students in the states who reported doing 2 or more hours of homework daily was generally lower than it was for 13-year-old students in the other countries for which data are available. Twelve of 18 other countries had percentages above 40, whereas none of the states did.
- ▶ Among the states, only Utah, Wyoming, and Colorado had less than 80 percent of 8th grade public school students report watching TV for 2 hours or more daily. However, 12 of the 18 other countries had percentages that low.

How do teaching strategies employed in mathematics classrooms differ across countries and states?

Similar resources **can** be applied in quite different ways to achieve desired educational **goals**. Sometimes the **manner** in which instruction is organized derives from tradition or some other cultural **context**; other **times**, it may result from an **explicit policy decision to adopt one instructional strategy over another**. For example, 8th grade mathematics classes in U.S. public schools were more likely to be **organized** by ability groups than their counterparts in other **industrialized countries**. Ability grouping was used more frequently only in **England, Israel, Ireland, and Taiwan**. It must be kept in **mind, however**, that ability grouping **can** occur at the **school**, in addition to the class **level**. School-level tracking (**or streaming**, as it is called in England) occurs both in countries that allow greater parental choice of schools and in those that assign students to either vocational or academic lower secondary schools based on their prior academic **performance**.

- ▶ For the most part, a higher percentage of students were in math classes based on ability in the U.S. states in 1992 than in the other nations for which data are available in 1991. Fourteen of **19 nations**, but only **1 state**, had less than **40 percent** of their students in math classes based on ability. (*Indicator 19*)

Another instructional strategy is to have students work in small groups within **classes**. In 1991, 49 percent of U.S. **13-year-olds** reported working in such small groups in their mathematics classes each **week**. A higher percentage of students reported working in small **groups** in **8** of the **18** other countries for which data are **available**. (*Indicator 19*)

- ▶ In **13** of **18** other **nations**, over **40 percent** of **13-year-olds** reported working in **small groups** in their math classes at least once a **week**. In only **4** states **did 8th grade** public school students report working in **small groups** that **often**.

Relative frequency of classroom testing is another form of instruction for which *cross* national data are **available**. U.S. **13-year-olds** were more likely to take math tests or quizzes weekly than their counterparts in almost **all** of the other nations

included — only Taiwan **and Jordan** had equal or higher **frequencies**. (*Indicator 19*)

- ▶ In **11** of **18** other **countries**, **40 percent** or fewer of the **13-year-olds** reported taking math tests or **quizzes** at least once a **week**. In every **state**, at least **40 percent** of public **8th grade students** reported being quizzed that **often**. **Louisiana, Taiwan, Mississippi, and Alabama** had percentages greater **than 80**.

Are U.S. students more or less likely than their counterparts in other countries to use computers and calculators in the classroom?

Some educators argue that **technology**, effectively **employed, can** assist students in developing **higher-order thinking skills**. Two of the **more** common technologies utilized by teachers and students are calculators **and computers**. The use of calculators in class was relatively common in the United States in **1991**, with **54 percent** of **13-year-olds** using them in school. Although this rate was about average for the **countries**, it was significantly lower **than** that in **France**, where **94 percent** of the **students** used calculators in school. (*Indicator 17*)

- ▶ In **1991**, **90 percentage points** separated the countries with the highest **and** lowest rates of in school calculator usage among **13-year-olds**: **France** at **94 percent** **and** Korea and **Brazil** at **4 percent**. **Half** of **all** the nations for **which** data are available reported percentages of less **than 50 percent**. Across the U.S. states in **1992**, calculator usage rates among public school **8th graders** **ranged from** at least **87 percent** in Minnesota and Maine to **47 percent** in **Mississippi**.

In every U.S. **state**, at least a **quarter** of the students used computers for homework or school **work**. Half of the nations reporting data had lower rates of computer **use**. (*Indicator 17*)

- ▶ About a quarter of public **8th grade** students in Tennessee reported that they use computers for **school work** or **homework**. Although this percentage was the lowest among the **states**, it was higher than in **9** other **countries, including** the **former Soviet Union, Spain, and Taiwan**. The students of Maine matched those of **Slovenia** in the highest rate of computer **usage**. (**61 percent**)

The instructional process is also affected by the way in which resources are organized in different education systems. Do the states and nations organize their instructional and non-instructional efforts differently? The organization of students and staff is the subject of the following three indicators: staff employed in education, class size, and the number of schools and average number of students per school.

How do the states and nations compare in their level of staffing?

A large proportion of the labor force employed in education reflects an extensive education system. Among the several industrialized nations for which data are available, teaching and non-teaching staff employed in education comprised between 3 and 7 percent of the total labor force. In the United States this proportion was 5.6 percent, slightly below France's 5.9 percent, but well above Japan's 3.1 percent. Countries vary, however, in the degree to which social and other non-instructional services are provided directly by the schools. In the United States, for example, school districts commonly pay directly for school-based health services, school cafeterias, pupil transportation, vocational and psychological counseling, building construction and maintenance, and administrative management of the schools. In other countries, many or all of these services are either provided by non-education public authorities (such as the Ministry of Health) or by the private sector. The United States had the largest non-teaching staff in education, as a percentage of the total labor force (2.9 percent), of the 7 countries reporting data. (Indicator 14)

- ▶ The range across countries in the percentage of the total labor force employed in teaching was 3 percentage points: from about 2 percent in Turkey to over 5 percent in Belgium. This exceeded the range across the states of 1.4 percentage points: from 2.2 percent in Florida to 3.6 percent in Alaska.
- ▶ For the 6 countries other than the United States for which data are available, teaching staff outnumbered non-teaching education staff. Teaching staff outnumbered non-teaching staff in 18 of the 49 U.S. states for which data are available.

How do the states and nations compare in their class sizes?

The number of students a teacher faces during a period of instruction — measured as average class size — is an indicator of the typical teacher's pupil load. Small classes may allow students to receive more personal attention from their teachers. Large classes, however, can be less expensive and do not necessarily hinder instruction. Depending on teaching style, student behavior, and other factors — such as the opportunity for students to meet with teachers outside of class — large classes may function as effectively as small ones.

- ▶ The countries reported a wide range of average class sizes, from 18 in Switzerland to 49 in Korea. That range is three times wider than the range across the states, from 19 in Wyoming and Vermont to 30 in Utah. (Indicator 16)

How do the states and nations compare in their school sizes?

School size may be determined by population density or a more deliberate organizational policy. The prevailing educational philosophy in the United States for the past three decades has been that large schools could offer more comprehensive curricula and a wider variety of programs at lower cost. Small schools, however, may have beneficial effects upon student participation, attendance, satisfaction, and achievement. (Indicator 15)

- ▶ Students were organized into larger schools in the United States than they were in most other countries. Only Taiwan and Korea, among 12 other countries, had larger schools on average than did the United States at the preprimary through secondary level. Only Germany, Taiwan, and Korea, of 10 other countries, had larger schools at the higher education level.
- ▶ The average number of students per preprimary through secondary school in Taiwan was 873, a figure more than five times greater than those of Finland or France, the countries with the smallest averages (at 156 and 166, respectively). For the most part, the schools in the U.S. states from the preprimary through secondary levels were larger than those in other countries: schools in 28 states, but only 2 countries — Korea and Taiwan — averaged above 400 students

- ▶ The U.S. states **generally** had higher average numbers of students per school at the higher education level than did the other **countries**. Five **states**, but none of the **countries**, had averages above 6,000; whereas half of the other **countries**, but only 15 of the **states**, had averages below 3,000.

In **summary**, although students in the United States spent fewer days per year in **school**, they received a larger number of instructional hours per day than students in most other industrialized **countries**. U.S. **students, therefore**, received more instructional hours per year than **did** students in the majority of industrialized countries included **here**. The type of instruction students receive in class and the prevalence of student adoption of common instructional technologies varied across countries and **states**. U.S. lower secondary students were *more* often placed in math classes according to ability than were students in other **nations**. U.S. lower secondary teachers also tended to give math tests or quizzes more often than teachers in other **countries**; **68** percent of U.S. **13-year-olds** reported taking a math test or quiz at least once a **week**. Work in small groups was also more common in lower secondary math classrooms in the United States than it was in math classrooms in other **countries**. Calculator usage was of average prevalence among U.S. math students (**54 percent**) compared to that among students in other industrialized **nations, where**, in 12 of 17 other **countries**, calculator usage was either above 70 percent or below **30 percent**. **However**, the use of computers for homework and school work was more common among students in the United States than it was among their international **counterparts**. At least **25** percent of public school **8th-graders** in each U.S. state claimed to use computers for school work or **homework**.

Outside of **class**, students in other nations generally reported spending less time watching television and more time doing homework than students in the United **States**. Only **29** percent of **13-year-olds** in the United States **did 2** hours or more of homework each day — a percentage lower than that in **all but 4** other countries included **here**. Eighty-four percent of U.S. students watched TV for **2** hours or more **daily**.

In the United **States**, teaching and non-teaching staff employed in education accounted for **5.6** percent of

the total **workforce**, an average proportion in comparison to that of other **countries**. The percentage of the total **workforce** employed as **non-teaching educational staff, however**, was higher in the United States than in any other industrialized nation included **here**. In no other country reporting **data, but** in almost two-thirds of the U.S. **states**, non-teaching staff outnumbered teaching **staff**. Compared to other **countries**, the organization of education personnel in relation to students resulted in larger schools for the most part (**at both the primary-secondary and higher education levels**) but smaller classes (**at the lower secondary level**).

Section 4: Achievement and Attainment

There are many outcomes of **education**. The six indicators in this section provide **information** on educational **attainment**; completion rates for programs of **study**; and exhibited academic skills and **knowledge**. They are:

- (21) Educational attainment of the **population**;
- (22) Educational equity for **women**;
- (23) Secondary school **completion**;
- (24) University **completion**; and
- (25) Mathematics achievement (**experimental**).

The organization of levels of education in the United States is often quite different than it is in other **countries**. In most countries the end of compulsory education is the completion of lower secondary education which is roughly equivalent to **8 or 9** years of **education**. In the United **States**, compulsory education is described in **terms** of age or the completion of high **school**. For **example**, most states require young people between the age of **6 and 15** to be enrolled in **school**. In many **countries**, upper secondary education is **differentiated**; that is, several different types of programs are **available**. Some programs are designed to prepare young people to work in a particular **occupation**; others are designed to prepare young people to pursue studies at a **university**. In the United **States**, almost **all** high schools (**grades 10 to 12**) are **comprehensive**, providing both academic and vocational **courses**; **however**, the latter is rare of great **depth**.

Despite differences in the organization of education, it is useful to compare the educational attainment of the population in states and countries in order to compare the investment people in these states and countries have made in their own education.¹⁰

How well educated are the citizens of the states and the industrialized countries?

Although there was considerable variation among U.S. states, most had higher levels of educational attainment than most of the other industrialized countries. (Indicator 21) For the most part, the percentages of 25- to 64-year-olds who had finished high school in the states were greater than the percentages of 25- to 64-year-olds who had completed upper secondary education in other countries — for the purposes of international comparisons, high school completion is regarded as roughly equivalent to upper secondary completion. University completion rates (a bachelor's degree or higher in the United States) for this age group in the other industrialized countries ranged from 3 percent in Portugal to 17 percent in Canada, while the percentage holding this level of education in the states ranged from 14 percent in West Virginia to 31 percent in Massachusetts and Connecticut.

Included in the age range of 25 to 64 are many people who grew up in an era when educational opportunities in their countries, particularly for higher education, were less available than they are today. It is, therefore, illustrative to compare levels of educational attainment of older and younger members of the working-age population. For all countries and all but 3 states, high school (upper secondary) attainment levels were higher for younger people (25- to 34-year-olds) than for older people (25- to 64-year-olds). This indicates that over time larger and larger percentages of new cohorts are finishing high school or its equivalent. (Indicator 21)

- ▶ Across the states, the percentage of 25- to 34-year-olds having attained at least an upper secondary level of education (high school or more) ranged from 77 percent in Mississippi to 93 percent in Minnesota and North Dakota. Across other countries, the distribution was wider, ranging from 22 percent in Turkey to 88 percent in Norway, Germany, and Switzerland.

The same trend is not as prevalent for college completion. In 2 of 21 countries and in 18 of the U.S. states, the proportion of persons in the older age cohort completing university education (a bachelor's degree or higher in the United States) exceeded that in the younger age cohort. (Indicator 21)

- ▶ University completion rates were generally higher for U.S. states than for other industrialized countries. The percentage of 25- to 34-year-olds holding bachelor's degrees ranged from 14 percent in Nevada and West Virginia to 34 percent in Massachusetts, while university attainment rates in other countries ranged from 5 percent in Spain to 18 percent in Canada.

Is there a gap between the levels of educational attainment reached by women and men in the nations and states?

To illustrate whether or not women share in the educational opportunities available to their male counter-parts in their nation or state, the percentage of various educational attainment groups who were women are compared across countries and states. Because women represented about 50 percent of 25- to 64-year-olds in each state or country, percentages above 50 percent suggest women were over represented in the group, and percentages below 50 percent suggest they were underrepresented in the group. In general, U.S. women seem to have fared better than women in other industrialized countries relative to their male counterparts in attaining upper secondary and university levels of education. Across all nations and states, however, women continued to compose a smaller proportion than men of the population having attained a university degree. (Indicator 22)

- ▶ In 15 of the 20 other countries represented here, over half of women 25 to 64 years old had not completed upper secondary education. However, women comprised that large a proportion of high school dropouts in only 2 U.S. states.
- ▶ In every country or state, women comprised less than half of 25- to 64-year-old university graduates (college graduates in the United States). In 14 of the 20 other countries represented here, the percentage of college

graduates who were women was 43 percent or less. However, in only 3 of the U.S. states was the percentage who were women that small.

How well do American students compare to students of other nations in mathematics achievement?

To compare the performance of students in states and nations on mathematics performance, an experimental indicator was developed. The mathematics proficiency scores of participants in the Second International Assessment of Educational Progress (IAEP) were mapped to a scale used to report scores of U.S. students in the National Assessment of Educational Progress (NAEP). This cross-linking allows comparisons of the average and percentile scores of 13-year-old students in selected industrialized countries (not all of them OECD members) to 8th graders from public schools in selected U.S. states. (Indicator 25) The NAEP scale for mathematics ranges from 0 to 500. The supplemental note to Indicator 25 addresses the conceptual issues surrounding the task of linking two different assessments and the effects of alternative methods of linking assessments on the results.

- ▶ Among the 7 largest countries (who assessed virtually all age-eligible children) the average proficiency score of 13-year-olds ranged from 262 in the United States to 285 in Taiwan. The average proficiency score was 273 in France and 270 in Canada.
- ▶ The range in average mathematics proficiency across states was similar to the range across countries. Average proficiency scores for public 8th grade students in 1992 ranged from 246 in Mississippi to over 280 in Iowa, North Dakota, and Minnesota. Average scores for 13-year-olds students in 1991 ranged from 246 in Jordan to over 280 in Taiwan and Korea.
- ▶ Over 25 percent of 13-year-olds in Taiwan and Korea scored above 300 in 1991, while about 10 percent of students of the same age scored above that level in the United States. However, in 4 states 25 percent or more of U.S. 8th grade public school students (who are generally older than 13 years) scored above this level in 1992.

To help interpret these differences, it is useful to consider another type of comparison: differences within the United States between the mathematics

proficiency of better and poorer performers of the same grade level. The 10th percentile of mathematics proficiency among public 8th grade students in Mississippi was 201, and the 90th percentile was 291, a difference of 90 points, which is more than twice the 39-point difference between the average Taiwanese 13-year-old and Mississippi 8th grader. This suggests that variation among students within countries is far larger than variation in averages between countries.

In summary, the population of 25- to 64-year-olds in the United States generally had higher levels of educational attainment than did their international counterparts. The proportion of this age group that completed lower secondary education or less was smaller in the United States than it was in 18 of the 20 other countries included here. Inversely, of all the countries for which data are available, the United States had the second highest percentage of this age cohort that attained an upper secondary education, and the second highest proportion that attained a university education. However, much of the gap in educational attainment between the U.S. and other countries has narrowed considerably in recent years, as one can see by looking at the educational attainment rates in the younger age groups.

Section 5: Labor Market Outcomes

Although the four indicators in this section also measure educational outcomes, they focus on long-term outcomes, such as unemployment rates and earnings among graduates of various levels of schooling, and gender differences in earnings. The labor market outcome indicators are:

- (26) Unemployment and education;
- (27) Earnings and education;
- (28) Gender difference in earnings; and
- (29) New scientists and engineers.

What are the long-term economic effects of educational attainment in states and nations?

In general, higher levels of educational attainment are associated with lower rates of unemployment and higher earnings. In the United States in 1990, the unemployment rate for 25- to 64-year-olds who did not complete high school was 5 percent;

points higher than for high school **graduates**. In 19 countries and **all 50 U.S. states**, the unemployment rates for university graduates were lower than for those with only the equivalent of a high school **education**.

The relationship between education **and** earnings can be illustrated by calculating the mean annual earnings for a particular level of educational attainment as a percentage of the mean annual **earnings** of workers who completed just upper secondary **education**. For **example**, in **46 states** and **7 of 12 countries** university-educated males had mean earnings percentages of **150 or greater** on this **measure**; that is, they received a **50 percent** premium in earnings compared to their counterparts who only completed upper secondary **education**. The **strength** of the earnings and education relationship is indicated by the difference between the earnings premium of being a university graduate to the earnings disadvantage of **completing**, at **most**, lower secondary **education**. In **general**, the relationship between earnings and educational attainment was **stronger** in the U.S. states **than** in many other **countries**.

- ▶ Almost without **exception**, higher **levels** of educational attainment were associated with lower rates of **unemployment**. Switzerland was **an exception**. Although their unemployment rates were generally very **low**, they were somewhat higher among **university** graduates than among those with **lower** educational **credentials**. (*Indicator 26*)
- ▶ In the United States in **1990**, the unemployment rate for people who had not completed high school (**10.4 percent**) was more **than** double that for those who had completed high school but not gone on to college (**5.1 percent**). A large difference in unemployment rates between those two education levels (**lower** and upper **secondary**) also existed in **Canada** (**5 percentage points**), but was not quite as large in **France**, **Germany**, or the United **Kingdom** (**each 4 percentage points**). (*Indicator 26*)
- ▶ In **all countries** and **all states** in the early **1990s**, higher levels of education were associated with higher mean annual **earnings**. (*Indicator 27*)
- ▶ For university-educated **females**, **45 states** and **9 of 12 countries** had earnings ratios of **150 or greater**. Similarly, for **university-educated**

males, **46 states** had ratios of **150 or greater**, as did **7 of 12 countries**. (*Indicator 27*).

- ▶ In **all the countries** represented **here**, not having completed *an* upper secondary education resulted in the lowest earnings ratio. In **1991**, Portugal had the lowest earnings ratio among the countries for the lowest level of educational **attainment**: below **70**, for both **males** and **females**. Not having finished high school by **1990** resulted in earnings ratios that low for males in **California**, **Louisiana**, and **Texas**, as well as for females in those three states **and** also **Colorado**, **Delaware**, and **Virginia**. (*Indicator 27*)

How well have women fared relative to their male counterparts in earnings in the states and in the nations ?

As *Indicator 22* illustrated, not only **did** women still constitute a smaller portion than men of those having attained a university **level** of education in **states and nations**, but earnings **within** that attainment population were also unequally distributed when broken down by **gender**. **U.S.** women seem to have fared better than women in other industrialized countries relative to their **male** counterparts in attaining upper **secondary** and university levels of **education**. **But**, they were generally paid less than women in other industrialized countries relative to their male counterparts at these **levels**. (*Indicator 28*) Included in the **age range 25 to 64**, **however**, **are** many people who grew up in an era when occupational **opportunities for women** were **less** available **than they are today**. **Thus**, even if selection for jobs is made equitably from this point **forward**, the disparity in earnings would take some time to **dissipate**.

- ▶ In **all countries** and **states**, the average annual earnings for females aged **25 to 64** was less than that of males of the same age cohort **and** level of educational **attainment**.
- ▶ Half of the other **countries** included **here** reported ratios of mean annual earnings of women to men of **64 or more** in **1991**. All of the **U.S.** states had lower ratios in **1990**. A similar pattern held for three of the four levels of educational **attainment**: half the countries had ratios of mean annual earnings of women to

men higher than the ratio of the U.S. state with the highest ratio.

Do more students in the United States pursue careers as scientists and engineers than in other countries?

At first **glance**, it would appear that the U.S. education system puts more emphasis on science and **engineering** training in its higher education system than do the education systems in other **countries**. Science and engineering graduates generally comprise a larger proportion of their age group (at a typical graduation age — **22 years** old) in the United States than they **do** in other countries, (*Indicator 29*) But, then, as was mentioned **previously**, the U.S. graduates more persons in the **typical** age group in **general**, regardless of the type of degree. When **the number of science** and engineering degrees in a nation or state are counted as a proportion of **all degrees**, the U.S. proportion is much lower than that in most countries.

▶ In 1991, **the number** of U. S, university students who graduated with science or engineering degrees amounted to about **5** percent of the population of **22-year-olds**. Among the **G-7** countries in various years between 1988 and **1991**, **only** Japan and **Canada** produced higher percentages of science and engineering **degrees**. German y's percentage was about the same as the United States'.

▶ **Four out of 30** other countries (Finland, Bulgaria, Japan, and South Korea) had percentages of science and engineering degrees among **22-year-olds** of 6 or above. Twenty of the states had percentages that high.

In summary, educational attainment exhibited a **strong correlation with labor market** outcomes as measured by unemployment and earnings. Educational attainment was positively associated with annual earnings and negatively associated with unemployment rates in all states **and** all countries, except **Switzerland**.

Gender differences in earnings indicate that **women**, in **general**, earn less than men. The ratio of mean annual earnings of women to men varied across states **and** countries, but **in all cases**, women earned less than men having the **same** educational attainment. In the United States, the ratio of

earnings of women to men was lower at every level of educational attainment than that of most of the other industrialized countries reporting **data**.

Section 6: Finance

This section includes the following indicators of education finance:

- (30) Current public expenditure on education as a percentage of **GDP/GSP**;
- (31) Current public expenditure on education as a percentage of total public **expenditures**;
- ^ (32) Current public expenditure per **student**;
- (33) Current public **expenditure** per student as a percentage of **GDP/GSP per capita**;
- (34) Distribution of current public expenditure on education;
- (35) Teacher **salaries**;
- (36) Sources of funds for primary and secondary education; **and**
- (37) Sources of funds for higher **education**.

Through most of this **section**, the focus is on expenditure from public **sources**, rather **than** on to **investment in education**, which would include money from private **sources**. In some **cases**, expenditure from private sources amounts to a substantial portion of total educational **expenditure**. However, **financial** data on private education are not available from some **countries**.¹¹

Which countries and states provide the strongest financial support to education?

Financial support for education can be viewed from several different **angles**, each of which focuses on certain factors and not on **others**. For **example**, to expenditure on education is useful for determining **who** spends the largest sum of money on **education** but may be misleading when comparing small countries or states to larger **ones**, for a **small** country may spend less in the aggregate but may spend more **per-student**. Likewise, a poorer country may spend as much per student as a richer **country**, **seeming** to make a greater effort to educate its **citizens**; however, that would not be apparent by looking only at **aggregate** spending or per-student **spending**.

Because there is no universally superior measure of public **financial** support for **education**, several indicators are presented **here**. The **first**, current public expenditure per student (*Indicator 32*), presents the amount of public financial support for one **student's** education in each country or **state**.

- ▶ At the primary through secondary **level**, the **United States** spent more public money per student (**\$4,605**), and at the higher education **level**, the **United Kingdom** (**\$10,228**) and **Canada** (**\$8,555**) spent more per **student**, than the other **G-7 countries**.
- ▶ For the primary through secondary **level**, **Sweden** (**\$5,825**) had the highest level of **per-student** public expenditure among the countries for which data are **available**; and **Alaska**, **Connecticut**, **New Jersey**, and **New York** had the highest levels **among** the states (**all above \$6,400**). **Japan**, **Australia**, **Spain**, and **Hungary** **all** spent about **the same** or less than **Mississippi**, **the lowest** spending state (**\$2,648**).
- ▶ At **the higher** education **level**, **public** expenditure per students varied greatly across both the countries and the **U.S. states**. The **United Kingdom** had the highest level of **per-student** expenditure among the countries (**\$10,228**), although **Alaska** and **Hawaii** spent **more**. **Spain** and **Japan** both spent less public money per student on higher education than **New Hampshire**, the lowest spending state (**\$3,624**).

An advantage of using per-student expenditure as an indicator of a nation's or **state's** financial effort to support education is that it takes into account the size of the student **population**. On the other **hand**, one disadvantage is that much of the variation between states and countries may in fact be caused by the relative wealth of that state or **nation**. The second finance **indicator**, current public education expenditure as a percentage of **GDP/GSP** (*Indicator 30*), *is* a measure of what states and nations spend on education in terms of the economic resources available to **them**.

- ▶ Of the **G-7 countries**, only **Canada** had a higher level of current public expenditure as a percentage of **GDP** (**6.1 percent**) than did the **United States** and **France** (**both 4.6 percent**). **Canada's** proportion was almost twice that of **Japan's** (**3.1 percent**).

- ▶ The **distribution** of levels of expenditure across states and countries was quite **similar**. **Montana**, **Canada**, **West Virginia**, **Vermont**, and **New Mexico** had the highest levels of educational expenditure as a percentage of **GDP/GSP** (**6.0 percent** or **above**). The lowest levels were found in **Japan**, **Nevada**, **West Germany**, and **Delaware** (**3.3 percent** or **less**).

Another disadvantage of the **simple** per-student expenditure measure is that much of the variation between states and countries may in fact reflect the relative size of the public sector in a nation or **state**. The third finance **indicator**, current public education expenditure as a percentage of total public expenditure (*Indicator 31*), attempts to show what states and nations spend on education in terms of the size of their public sectors **generally**.

- ▶ **Finland**, **Canada**, and the **United States** had the highest level of education expenditure as a percentage of total public **spending** among **the** countries represented **here**; **West Germany** and **Italy**, the **lowest**.
- ▶ The **U.S. states'** figures on this measure generally exceeded those of the countries represented **here**. Two-thirds of the countries reported levels of current public education spending as a **percentage** of **all** public spending to be lower than that of **Virginia**, the state with the lowest **level**.

The second and third finance indicators provide measures of a **nation's** or **state's** spending on education in relation to its available resources or in relation to its total public **spending**, but education spending is also highly **influenced** by the size of the student **population**. All other factors being **equal**, a country or state with a relatively **small** student population is likely to spend a smaller portion of its **GDP/GSP** or of its total public spending on education **than** a country with a large student **population**. **Thus**, the fourth finance **indicator**, current **public** education expenditure as a percentage of **GDP/GSP** per capita (*Indicator 33*), provides a measure of **fiscal** effort to support education that takes into account both a **country's** or **state's** available **financial** resources and the size of the student population. It is calculated by **dividing** the first finance **indicator**, public expenditure per

student, by a nation's or state's per-capita gross product.

On this measure, some states and countries with higher per-student expenditure (*Indicator 32*) appeared to be not so high when their available resources were taken into account (*Indicator 33*),

- ▶ For example, of the 4 states — New Jersey, New York, Alaska, and Connecticut — with the highest per-student expenditure at the primary through secondary level, New Jersey, New York, and Connecticut remained among the states with the highest ratios of per-student expenditure to per-capita GSP. Alaska, however, fell below 43 other states, moving from the highest on the first measure to near the bottom on the second.
- ▶ On the other hand, among countries for which data were available, those with the highest per-student expenditure at the primary through secondary level — Sweden, Denmark, the United States, Norway, and Canada — remained the highest ranking countries even when available resources were taken into consideration. However, the United States fell lower when education expenditure was divided by gross product per capita.

Do states and countries differ in the relative proportion of public expenditure devoted to different levels of education?

Many factors affect this “balance,” including the relative size of student populations and system-wide education goals and strategies. For example, some countries or states may choose to invest heavily in higher education in order to increase the number of professionals and managers, while others may feel a more pressing need to focus on basic education for the larger populace by providing more primary and secondary schools. It is important to note, however, that this indicator does not give a complete picture of the distribution of total resources between the two levels, since some countries (such as the United States, West Germany, and Japan) had considerable private funds going to education (see tables S3 through S6 in the Supplemental Notes for examples of the relative size of private expenditures across countries).

Regarding the balance of expenditure between levels of education (*Indicator 34*), the United States'

expenditure on the primary through secondary level as a percentage of all current public education expenditure lay in the bottom half of the range among all the nations represented here. Of the nations, Japan, Italy, and France devoted a larger share of current public expenditure to this level. West Germany's large “undistributed” proportion were allocated entirely to the primary-secondary level, its primary-secondary share might exceed those of the United States as well. Hungary, Spain and Sweden had the highest percentages of current expenditure at the primary through secondary level (without counting the undistributed proportion). New Jersey, New Hampshire, and Vermont, the highest-spending U.S. states, spent a slightly larger share at that level of education. At the higher education level, Australia, Canada, Utah, North Dakota, New Mexico, and Hawaii reported relatively high proportions of spending.

Where does the funding of education originate in each nation or state? What is the balance between public and private financing or among the levels of government?

Two more finance indicators trace the path of all education expenditures back to their origin among the levels of government and between public and private sectors. The initial source of money for education sometimes differs from the ultimate spender. For example, though local school districts in the United States generally operate and fund the local public schools, much of the financing arrives in the form of transfers from state governments. Some of the state money, in turn, arrives in the form of transfers from the Federal government. The initial sources of those transferred funds, then, are state and Federal governments. Likewise, the initial source of funds spent on public schools can be either public or private. Student tuition and fees are one example of a private source of public expenditure. Funding by private firms of youth apprenticeship programs in Germany and Austria are another example. Moreover, the initial source of funds spent on private schools can be either public or private. Unlike the United States, most other OECD countries maintain large numbers of privately-operated schools that are mostly or entirely publicly funded.

Tracking funds to their initial source illuminates where responsibility is actually assumed in a nation.

or state for financing **education**, either at the primary through secondary level (*Indicator 36*) or at the higher education level (*Indicator 37*).

- ▶ Of the **11** other countries reporting public elementary and secondary expenditure data by level of government, only Canada raised less money for education at the national level **than** did **Mississippi**, the U.S. state that relied the **most** on the Federal government for **funds**.
- ▶ In the United **States**, local government provided a portion of public higher education funding higher than that in **any** of the **11** other countries reporting data (**6 percent**). **Conversely**, the percentage of funds derived initially from the central government was lowest in the United States among **all** the **nations**. **The United States** and Belgium **were** the only **2** nations in which the share of public funding of institutions of higher education **from** the **regional**, or **state**, level exceeded **50 percent**.

How much are teachers paid across nations and states ?

Teacher salaries **are an** important indicator of both the level of investment in **and** the quality of a **nation's** or **state's** education **system**. **Without** exception across nations **and** states, teacher salaries constitute the greatest portion of education **expenditure**. The amount of money paid to teachers is a primary factor in attracting and retaining **top-quality** candidates to pursue careers as **educators**. **Therefore**, salaries influence the level of quality and experience with which students are **instructed**. This **indicator** (*Indicator 35*) presents data on average salaries for teachers for the United States and its states and for secondary school teachers with approximately 15 years of experience in other **countries**. The ratio of teacher salary to country or state per capita gross product is also **included**.

- ▶ The average teacher salary in the United States for the school year **1991** to **1992** was about **\$34,000**. That was the median among the **G-7** countries for mid-career secondary **school teachers**. The mid-career salaries in former **West Germany**, **France**, and **Canada** were highest (**almost \$40,000** in **former West Germany**). **The** mid-tamer salaries in **England**, **Japan**, and **Scotland** (**representing** the United

Kingdom), and Italy were lowest (**less than \$22,000** in **Italy**).

- ▶ The range of mid-career **secondary** school teacher salaries was slightly wider across countries than **the** range of average salaries for teachers across **states**. Teachers in **Connecticut**, the state with the highest **salaries**, received twice the income of their counterparts in **South Dakota**. Secondary school teachers in **Switzerland**, the country with the highest-paid **teachers**, received almost **two-and-a-half** times the salary of Italian secondary school **teachers**.
- ▶ The ratio of a teacher's average **salary** to per capita gross domestic product was **about 1.5** in the United **States**. That was higher **than** Italy's ratio for secondary school **teachers** (**1.23**) but **lower** than the ratios for other **G-7** countries (**England** and **Scotland** **as** proxies for the United **Kingdom**). **The** ratios for **France**, former **West Germany**, **England**, and **Scotland** were about one-third higher than that of the United **States**.

In **summary**, a comparison of **1991** public **education** expenditures across countries finds that **the** United States spent more public funds **per student** at the primary through secondary level than did **any** of the other **G-7** countries. At the higher education **level**, the United States spent more public money per student **than** the other **G-7** countries except Canada and the United **Kingdom**. When public education expenditures are **measured** as a percentage of gross **product**, **only** **Canada's** ratio, among **all** the **G-7** countries, exceeded that of the United **States**, whereas France's was about the **same**. **Finally**, combining two of the previous **measures into** a single measure of fiscal effort — current public education expenditure per capita **divided** by per capita gross product — finds Canada on top **again**, ahead of **Italy**, **France**, and then the United States among the **G-7** countries.

Comparing the **U.S.** states to all the **countries** represented here (**rather than** just the **G-7**), sometimes presents a different picture of the relative level of public education spending in the United **States**. Particularly because some smaller northern European countries spent at **higher levels**, the distribution **among** states **was** more **uniform** than that among **countries**.

The proportional allocation of public education funds from among different levels of government varies widely across nations and states. The United States relied more on both state and local governments than did other countries.

Other related NCES projects

This second edition of *Education in States and Nations* continues a series of occasional reports comparing the education systems of different states and countries. This series, however, is just one part of an overall NCES international effort. NCES serves as the representative for the United States in the OECD's INES project mentioned earlier. In connection with the INES project, NCES commissioned two reports to improve the comparability of education finance data across countries: *The International Expenditure Comparability Study* and *Improving the Comparability of International Expenditure Data*. These studies have reviewed ten countries' statistical reports and interviewed their officials in order to identify differences in the content and categorization of expenditures, both in national finance statistics and in data submitted to the OECD and UNESCO. The studies have developed revised estimates of countries' education expenditures that adjust for deviations from an international standard. These reports should be available soon.

NCES has also sponsored another project to clarify the content of indicators published in international comparisons. *Education Indicators: An International Perspective* presents a set of indicators for the United States and other countries, along with additional information about the education systems in those countries. The various structures of the education systems and other contextual factors help to explain the structure of the indicators, and help U.S. readers understand the indicators in all their complexity.

These projects and others comprise a major ongoing effort to not only compare education systems across states and countries, but also to improve the comparability of data and to deepen understanding of the context of the data.

In addition to these indicators and research projects, NCES continues to work in cooperation with its

counterparts in other countries to administer international assessments and collect and analyze their data. These projects include: the International Association for the Evaluation of Educational Achievement (IEA) Reading Literacy Study, conducted from 1989 to 1992; the IEA's Third International Mathematics and Science Study (TIMSS), being conducted now; the pilot testing the OECD's Cross-Curricular Competency Test in 1995; and the International Adult Literacy Survey, conducted in 1994. The International Adult Literacy Survey (IALS) was a collaborative effort by seven governments and three intergovernment organizations (UNESCO, Eurostat and the OECD) to fill the information gap on literacy in industrialized countries.

NOTES :

¹ Many observers attribute the origins of the current wave of education reform in the United States to the 1983 publication of *A Nation at Risk*. Other observers trace the origins to the late 1970s, when the first of many states passed student minimum competency requirements. The National Commission on Excellence in Education, which wrote *A Nation at Risk*, and many others, however, would distinguish the "minimum competency movement" as an earlier, separate, and failed effort to reform education (see, for example, pages 19 to 21 of *A Nation at Risk*).

² The explicit mission of the commission that wrote *A Nation at Risk* was to set "the quality of learning and teaching in our nation's schools." Since then, education reformers have often employed the language and methods of the historically parallel quality management movement. *Indicators are needed in to monitor processes and measure progress toward goals. Outcome measures as important as input measures. Goals and standards should be universally accepted by stakeholders, clear enough to serve as a common focus, measurable and challenging. Standards, or benchmarks, from outside one's own organization serve to ground plans in a reality not defined by vested interests.*

³ It should be recognized that, in this publication, the meaning of the word "state" is the U.S. version, a sub-national, regional jurisdiction. *National* jurisdictions are called "countries" or "nations" throughout.

⁴ The other original National Education Goals were: 1) All children will start school ready to learn. 2) The high school graduation rate will increase to at least 90 percent. 3) Students will demonstrate subject area competency at grades 4, 8, and 12 and be prepared for good citizenship, further learning, and productive employment. 7) Every school will be free of drugs and violence and offer a safe and disciplined environment conducive to learning.

The two National Education Goals added in 1994 are: 4) Teachers will have access to programs to improve their skills. 8) Schools will promote parental involvement.

⁵ Since 1991, the National Education Goals Panel has developed education indicators that pertain to progress toward the National Goals, which are published in the annual *National Education Goals Report*. Other organizations making similar national efforts include the Council of Chief State School Officers, the National Science Board, and the Education Commission of the States.

⁶ The increased demand for information on education and the need for improved knowledge on the functioning of education systems raised many questions not only for data collection but also the organization, reporting and interpretation of the data. These questions led authorities in the member countries of the OECD to consider new ways of comparing their education systems. Agreement was reached on the feasibility and utility of developing an international set of indicators that

would present in statistical form the key features of the education systems of the member countries

The Centre for Educational Research and Innovation responded to this demand for comparative information by initiating the Indicators of Education Systems Project (INES). This project grew out of two preparatory conferences: one hosted by the government of the United States in November 1987, and the second by the French authorities in March 1988. A meeting to review progress and discuss the plan of work was subsequently convened in Austria in September 1989. The results achieved during the initial phases of the project were presented at an international conference in Lugano, Switzerland in September 1991.

⁷The nations of the OECD include Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, the United Kingdom, and the United States. Because Greece and Iceland did not participate in the OECD's Indicators of Education Systems (INES) project, data on these countries are not included in this report. Data for several OECD observer countries, such as Hungary and the former Czechoslovakia, are included as data are available.

⁸*Education at a Glance* was the product of collective effort to improve the gathering and reporting of comparative information on education in the OECD countries. In the process of developing the indicators, CERI established an international consultative mechanism for exchanging viewpoints and creating a common understanding of issues related to the definition, measurement, and organization of the indicators. *Education at a Glance* thus represents the combined effort of several networks and technical groups composed of policy-makers, administrators, and researchers.

The indicators were influenced by the concerns of the different parties that were involved in their development. Three principles guided the work. The first was that the indicators be targeted to a broad audience. Second, total coverage through a large and complex set of measures was not the aim; rather, the indicators were selective and intended to be policy-relevant, providing information useful for decision-making and evaluation. Third, in addition to being reliable and valid at the national level, the indicators were standardized in a way that makes them comparable among the OECD countries.

⁹Several other OECD countries have federal systems like the United States¹ in which a major responsibility for education rests with regional (provincial or state) governments. These countries are Australia, Belgium, Canada, Germany, Switzerland, and the United Kingdom.

¹⁰Again, international comparisons based on levels of education can sometimes cause confusion because the levels do not always have the same entrance requirements or the same duration across countries. To aid in understanding such comparisons, an explanatory note is included in the supplemental notes, starting on page 231.

¹¹See supplemental note on private higher education expenditure in Japan and the United States on pages 236 to 242.

INDICATORS

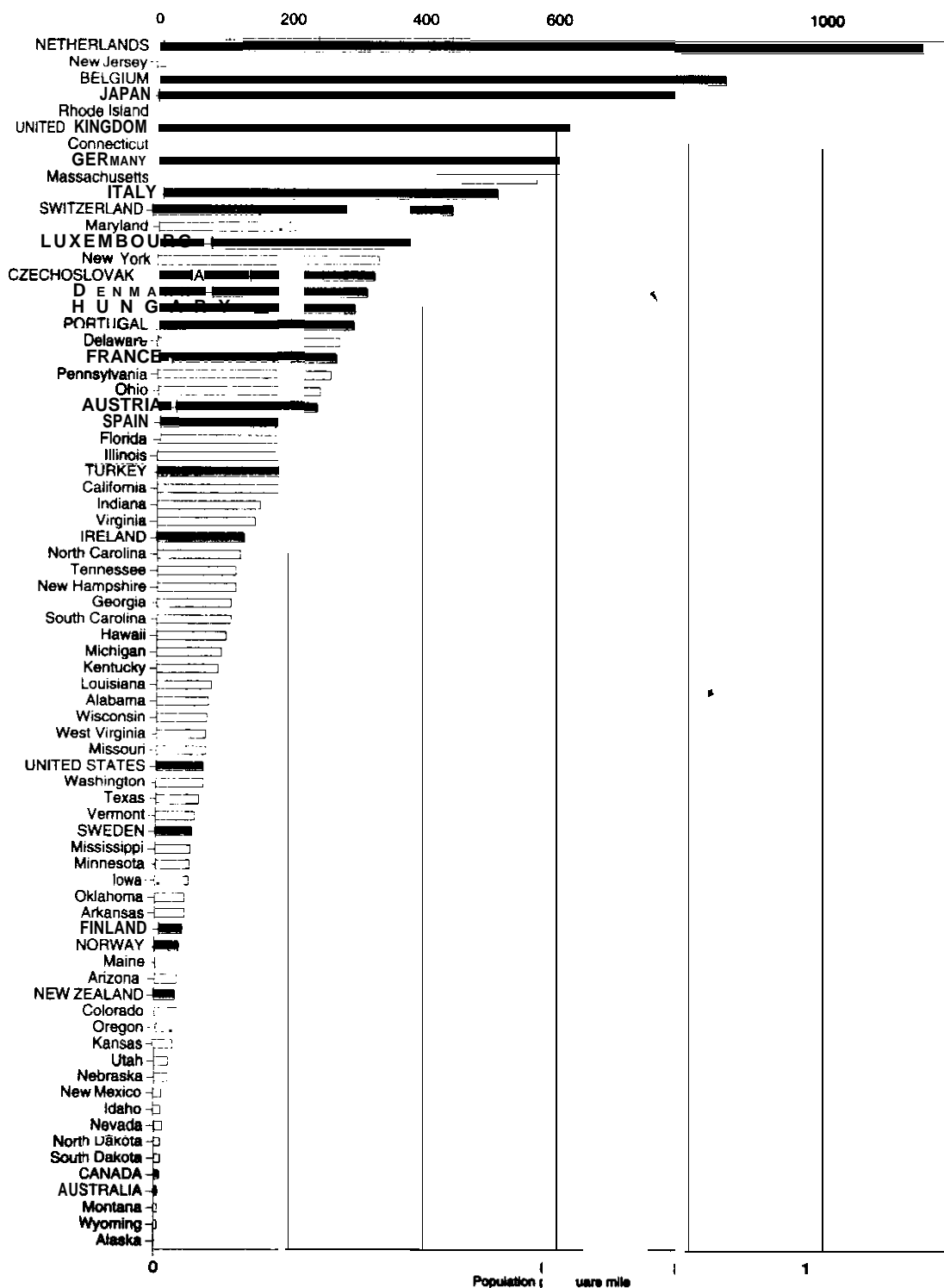
BACKGROUND INDICATORS

Indicator 1: Population and area

A country's or state's population and area **influence** both the **organizational** structure and the infrastructure of its education **system**. Countries or states with large **populations** tend to have large **numbers** of school-age children and face a greater demand **for** educational **services**. Countries or states with large areas face greater challenges in **providing** educational services since they must spread them over a wider geographical **domain**. High population densities may **make** it more **efficient** to support a wider range of specialized education and training **opportunities**. Each of these factors may **influence** the degree to which an education system is centralized and its ability to provide a wide range of **services**, but **may** only become critical **in** cases where **population, area, or density** is either extremely large or extremely **small**. **Otherwise**, factors such as **culture, history, and economics** may have a stronger **influence** in **determining** the structure of an education **system**. In this **indicator**, the sizes of the **U.S.** and its **fifty** states are compared to those of most of the current and prospective members of the **Organization** for Economic Cooperation and **Development**.

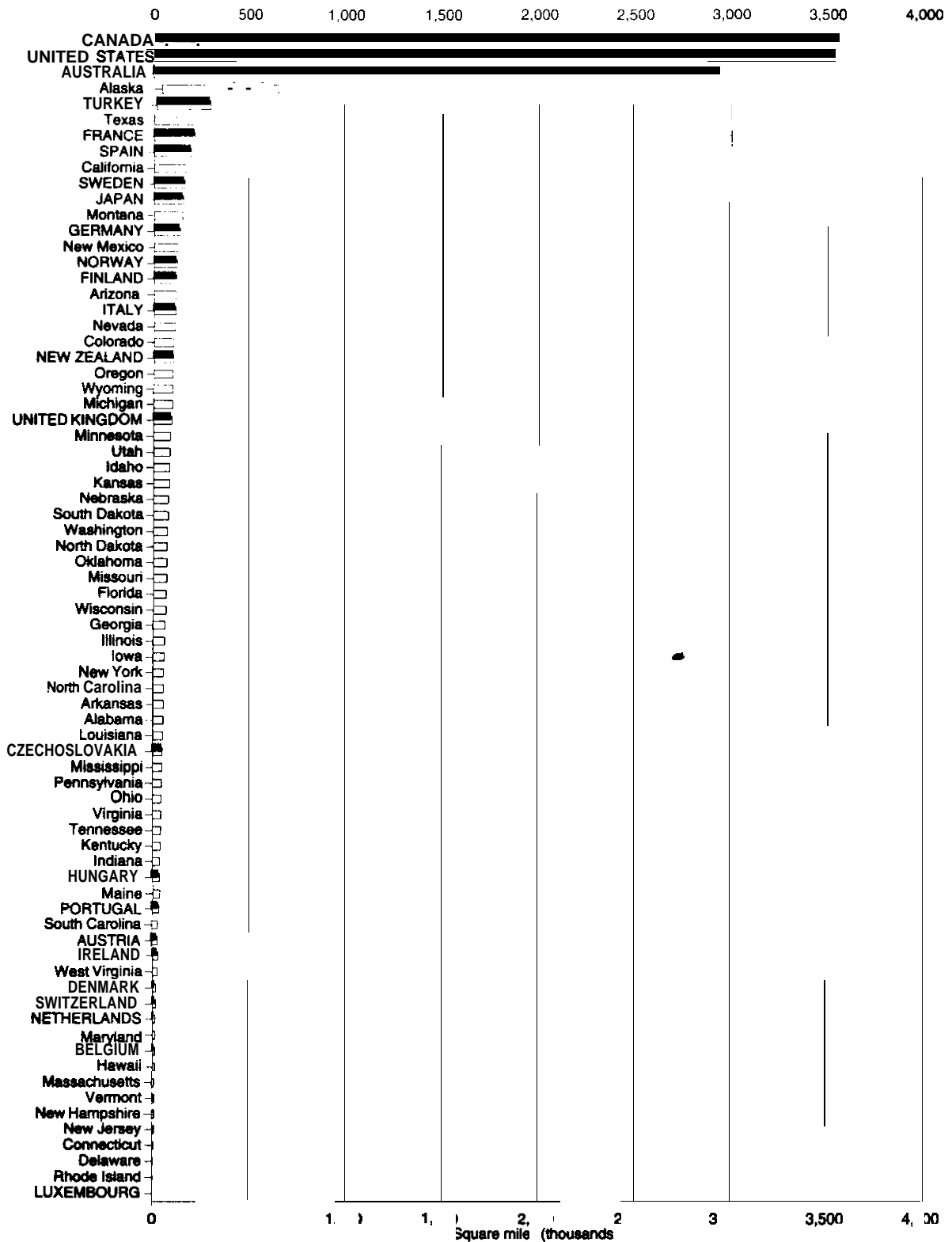
- ▶ **Three OECD countries — the United States, Canada, and Australia — have extremely large areas. Of the remaining countries, none has an area as great as one tenth the area of the United States.**
- ▶ **The United States was by far the most populous OECD country in 1991, with a population over twice as large as that of the country with the next largest population, Japan.**
- ▶ **While no state has an area near the size of one of the three largest OECD countries, Alaska, Texas, and California each have areas greater than at least 18 of the 23 other nations included here.**
- ▶ **California was the most populous state in 1991, with 12 million more persons than New York. Other states with populations greater than 10 million included New York, Texas, Florida, Pennsylvania, Illinois, and Ohio. Seven states had populations of less than 1 million.**
- ▶ **The range of population densities across the states paralleled the range across the OECD countries. At the low end, Alaska, Wyoming, Montana, North Dakota, South Dakota, Australia, and Canada all had population densities lower than 10 persons per square mile. At the high end, New Jersey, the Netherlands, Belgium, and Japan all had population densities higher than 800 persons per square mile.**

Figure 1a: Population density, by country and state: 1991



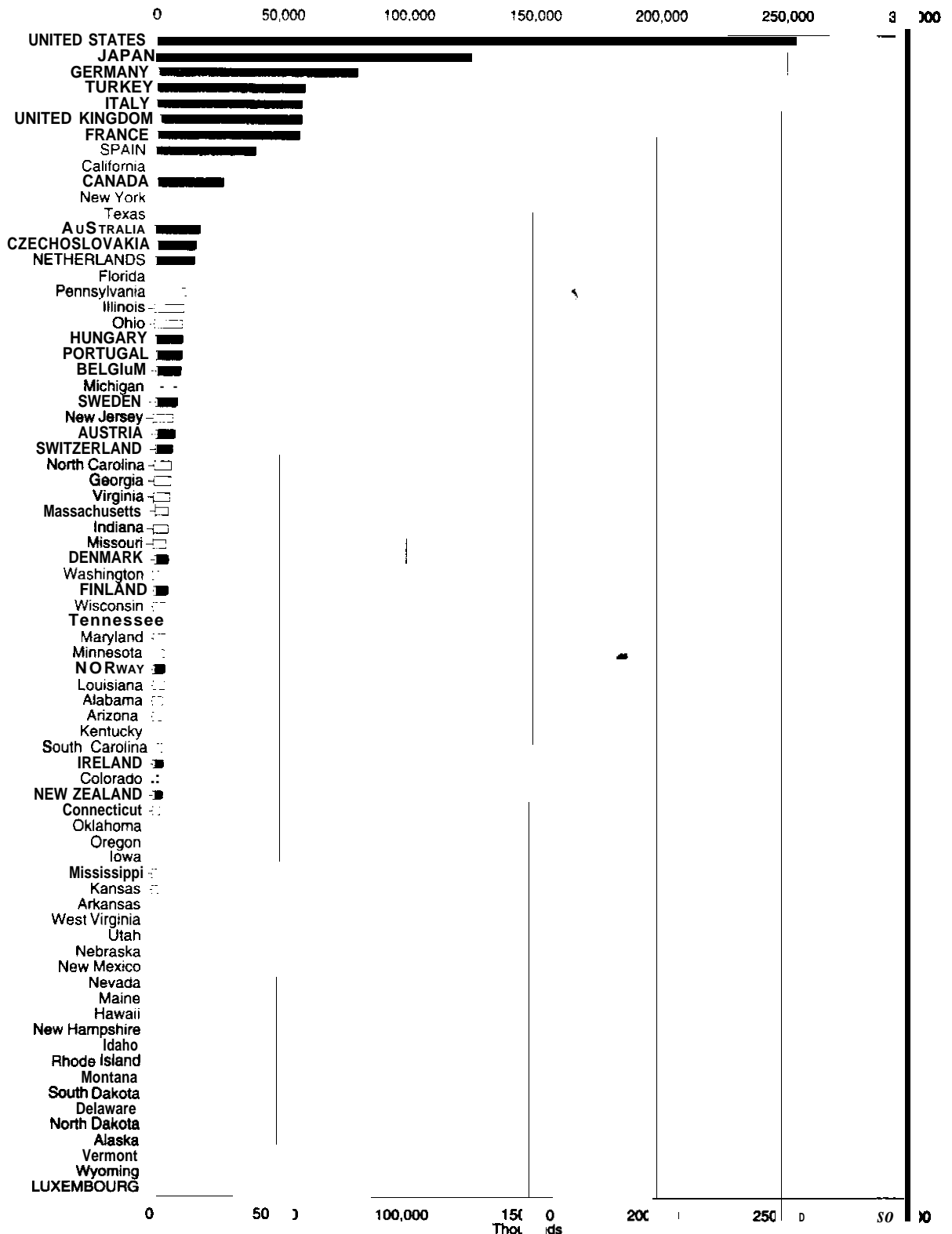
SOURCE: U.S. Department of Commerce, Bureau of the Census, *Statistical Abstract of the United States, 1992*, Tables 25, 340, and 1359.

Figure 1b: Area, by country and state: 1991



SOURCE: U.S. Department of Commerce, Bureau of the Census, *Statistical Abstract of the United States*, 1992, Tables 340 and 1359.

Figure 1c: Population, by country and state: 1991



SOURCE: U.S. Department of Commerce, Bureau of the Census, *Statistical Abstract of the United States*, 1992, Tables 25 and 1359

Table 1a: Population, area, and population density, by country: 1991

Country	Population (thousands)	Area (square miles)	Population density (persons per square mile)
Australia	17,288	2,941,285	6
Austria	7,666	31,942	240
Belgium	9,922	11,672	850
Canada	26,835	3,560,219	8
Czechoslovakia	15,725	48,440	325
Denmark	5,133	16,359	314
Finland	4,991	117,942	42
France	56,596	210,668	269
Germany	79,548	135,236	588
Hungary	10,558	35,653	296
Ireland	3,489	26,598	131
Italy	57,772	113,521	509
Japan	124,017	152,411	814
Luxembourg	388	998	389
Netherlands	15,022	13,104	1,146
New Zealand	3,309	103,734	32
Norway	4,273	118,865	36
Portugal	10,388	35,382	294
Spain	39,385	192,819	204
Sweden	8,564	158,927	54
Switzerland	6,784	15,355	442
Turkey	58,581	297,591	197
United Kingdom	57,515	93,278	617
United States	252,502	3,539,227	71

SOURCE: U.S. Department of Commerce, Bureau of the Census, *Statistical Abstract of the United States*, 1992, Table 1359.

Table 1b: Population, area, and population density, by state: 1991

State	Population (thousands)	Area (square miles)	Population density (persons per square mile)
Alabama	4,089	52,423	78
Alaska	570	656,424	1
Arizona	3,750	114,006	33
Arkansas	2,372	53,182	45
California	30,380	163,707	186
Colorado	3,377	104,100	32
Connecticut	3,291	5,544	594
Delaware	680	2,489	273
District of Columbia	598	68	8,794
Florida	13,277	65,758	202
Georgia	6,623	59,441	111
Hawaii	1,135	10,932	104
Idaho	1,039	83,574	12
Illinois	11,543	57,918	199
Indiana	5,610	36,420	154
Iowa	2,795	56,276	50
Kansas	2,495	82,282	30
Kentucky	3,713	40,411	92
Louisiana	4,252	51,843	82
Maine	1,235	35,387	35
Maryland	4,860	12,407	392
Massachusetts	5,996	10,555	568
Michigan	9,368	96,810	97
Minnesota	4,432	86,943	51
Mississippi	2,592	48,434	54
Missouri	5,158	69,709	74
Montana	808	147,046	5
Nebraska	1,593	77,358	21
Nevada	1,284	110,567	12
New Hampshire	1,105	9,351	118
New Jersey	7,760	8,722	890
New Mexico	1,548	121,598	13
New York	18,058	54,475	331
North Carolina	6,737	53,821	125
North Dakota	635	70,704	9
Ohio	10,939	44,828	244
Oklahoma	3,175	69,903	45
Oregon	2,922	98,386	30
Pennsylvania	11,961	46,058	260
Rhode Island	1,004	1,545	650
South Carolina	3,560	32,007	111
South Dakota	703	77,121	9
Tennessee	4,953	42,146	118
Texas	17,349	268,601	65
Utah	1,770	84,904	21
Vermont	567	9,615	59
Virginia	6,286	42,769	147
Washington	5,018	71,303	70
West Virginia	1,801	24,231	74
Wisconsin	4,955	65,503	76
Wyoming	460	97,818	5

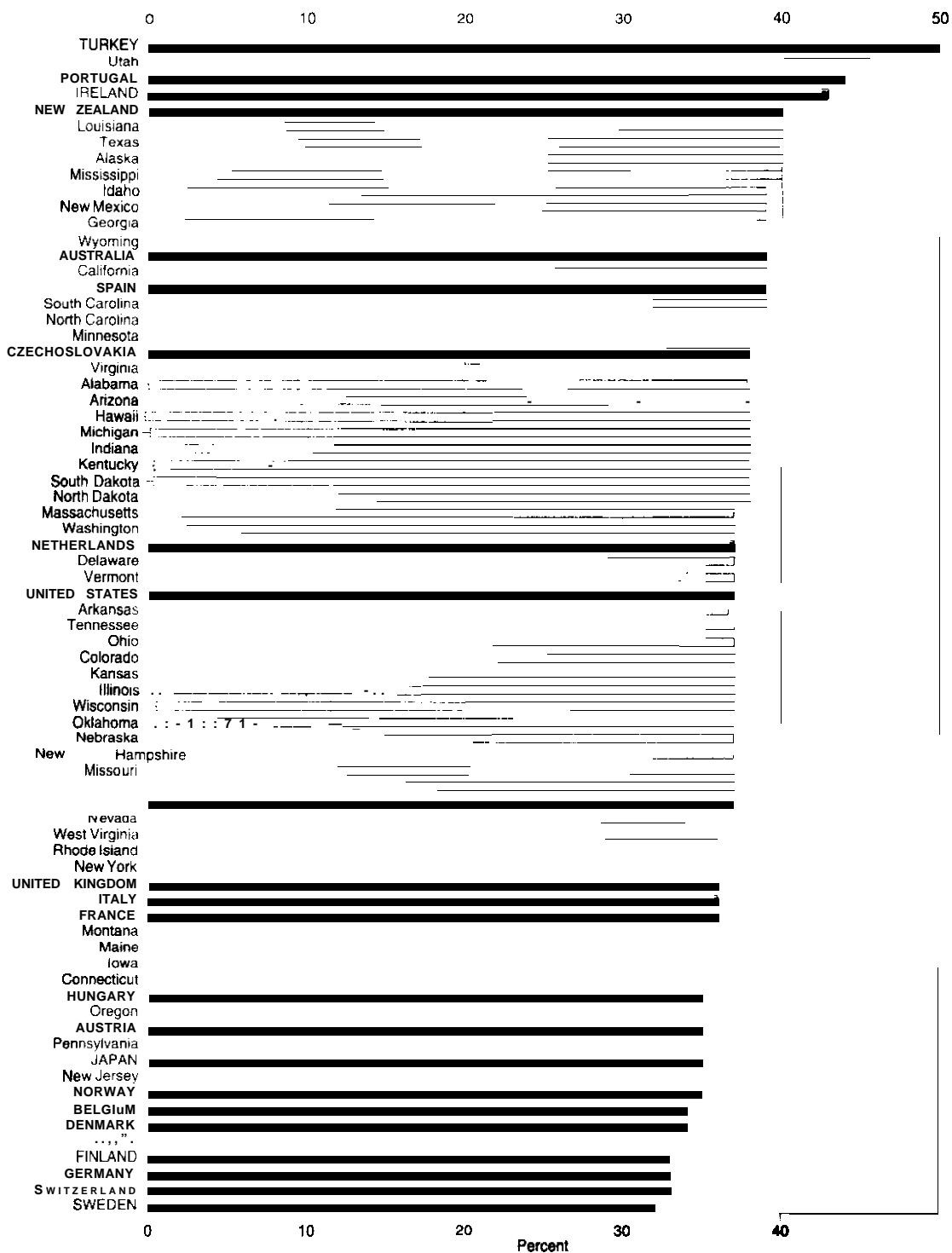
SOURCE: U.S. Department of Commerce, Bureau of the Census, *Statistical Abstract of the United States*, 1992, Tables 25 and 340.

Indicator 2: Youth and population

The percentage of persons aged 5 to 29 is an indicator of the potential demand for school enrollments in a country or state. That percentage also is an indicator of the potential demand on national or state budgets for educational funding. The percentage is not an exact measure of the proportion of students in a population, however, since some persons within the age range of 5 to 29 will not be students and some students will be outside the age range. A relatively higher percentage of persons in the 5 to 14 age range may indicate both a higher current demand for educational services at the primary and lower secondary levels, as well as a future demand on the higher levels of education.

- ▶ **The United States and Canada had a larger proportion of young people in their population than did most OECD countries in 1991. Young people aged 5 to 29 comprised 37 percent of the population of the United States and Canada — 4 percentage points higher than in Germany, one of the countries with the lowest percentage of young people.**
- ▶ **U.S. states tended to have higher proportions of young people in their populations than did the OECD countries. Youth aged 5 to 29 comprised more than 35 percent of the population in 45 of the U.S. states, whereas only 12 of 22 other countries represented here recorded proportions that high.**

Figure 2: Percentage of population aged 5 to 29, by country (1991) and state (1990)



SOURCE Organization for Economic Co-operation and Development, Center for Educational Research and Innovation, *Education at a Glance, 1993*, Table C3. U.S. Department of Commerce, Bureau of the Census, 1990 Census of Population and Housing.

Background

Table 2a: Percentage of population aged 5 to 29, by country: 1991

Country	Age groups in population			
	5-29	5-14	15-24	25-29
Australia	39	15	16	8
Austria	35	12	15	9
Belgium	34	12	14	8
Czechoslovakia	38	16	15	7
Canada	37	14	14	9
Denmark	34	11	15	8
Finland	33	13	13	8
France	36	13	15	8
Germany	33	11	13	9
Hungary	35	14	15	6
Ireland	43	19	17	7
Italy	36	12	16	8
Japan	35	13	15	7
Netherlands	37	12	16	9
New Zealand	40	15	16	8
Norway	35	12	15	8
Portugal	44	16	18	11
Spain	39	14	17	8
Sweden	32	11	14	7
Switzerland	33	11	14	8
Turkey	50	22	20	8
United Kingdom	36	13	15	8
United States	37	14	15	8

SOURCE: Organization for Economic Co-operation and Development, Center for Educational Research and Innovation, *Education at a Glance, 1993*, Table C3.

Table 2b: Percentage of population aged 5 to 29, by state: 1990

State	Age groups in population			
	5-29	5-14	15-24	25-29
Alabama	38	15	15	8
Alaska	40	17	14	9
Arizona	38	15	14	9
Arkansas	37	15	15	8
California	39	14	15	10
Colorado	37	15	14	9
Connecticut	35	12	14	9
Delaware	37	13	15	9
District of Columbia	37	10	17	10
Florida	33	12	13	8
Georgia	39	15	16	9
Hawaii	38	14	15	9
Idaho	39	18	14	7
Illinois	37	14	14	9
Indiana	38	15	15	8
Iowa	36	15	14	7
Kansas	37	15	14	8
Kentucky	38	15	15	8
Louisiana	40	17	15	8
Maine	36	14	14	8
Maryland	37	13	14	9
Massachusetts	37	12	15	9
Michigan	38	15	15	8
Minnesota	38	15	14	9
Mississippi	40	17	16	8
Missouri	37	14	14	8
Montana	36	16	13	7
Nebraska	37	15	14	8
Nevada	36	13	13	9
New Hampshire	37	14	14	9
New Jersey	35	13	14	9
New Mexico	39	17	14	8
New York	36	13	14	9
North Carolina	38	13	16	9
North Dakota	38	16	15	8
Ohio	37	14	15	8
Oklahoma	37	15	14	8
Oregon	35	14	13	7
Pennsylvania	35	13	14	8
Rhode Island	36	12	15	9
South Carolina	39	15	16	9
South Dakota	38	17	14	8
Tennessee	37	14	15	8
Texas	40	16	15	9
Utah	46	21	17	8
Vermont	37	14	16	8
Virginia	38	13	15	9
Washington	37	15	14	8
West Virginia	36	14	14	7
Wisconsin	37	15	14	8
Wyoming	39	18	13	8

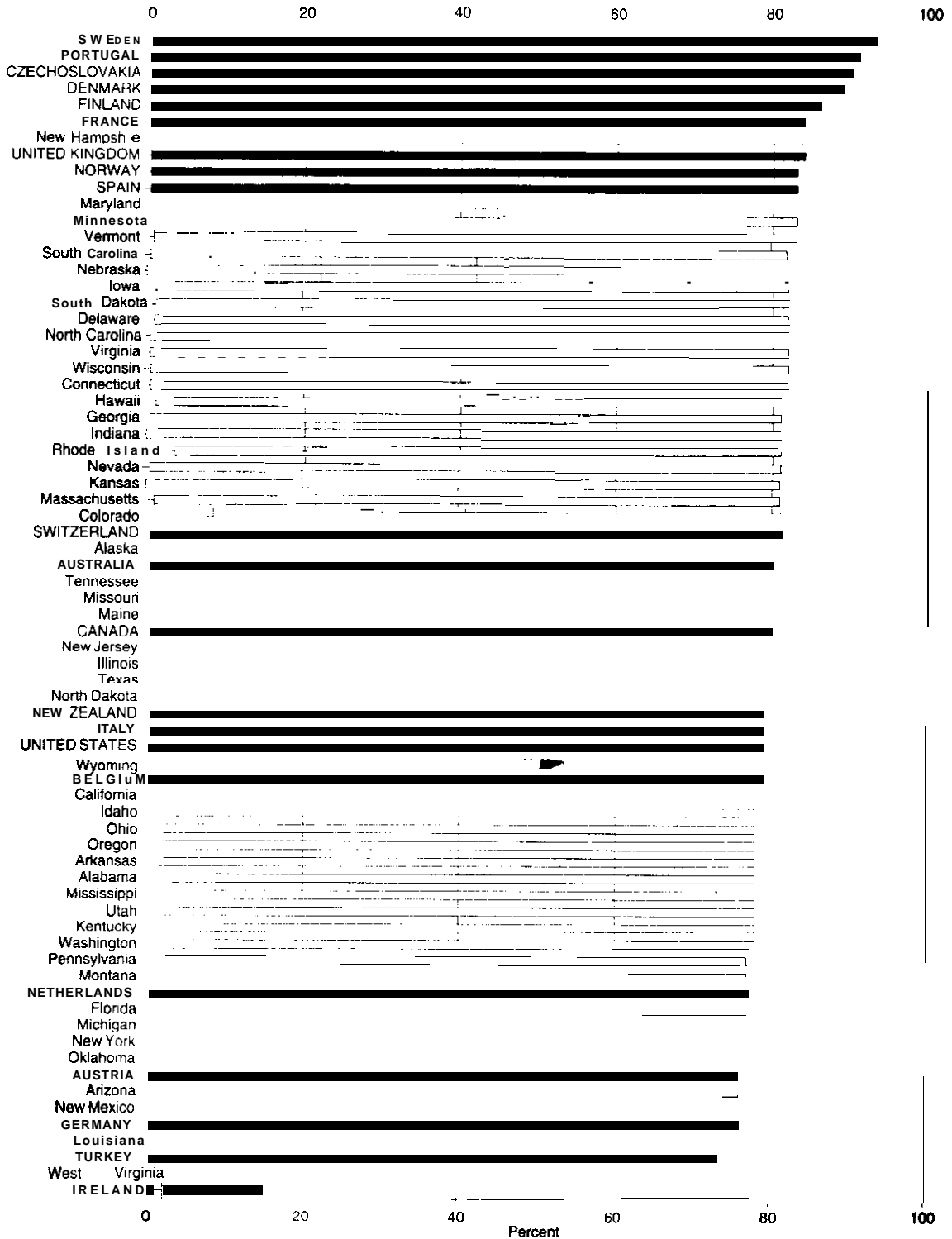
SOURCE: U.S. Department of Commerce, Bureau of the Census, 1990 Census of Population and Housing.

Indicator 3: Labor force participation

The labor force participation rate is the percentage of the total population aged 25 to 64 that is either employed or actively seeking work. Differences in participation rates between countries and states are the results of several factors, including (1) the percentage of the population enrolled full-time in education, (2) the number of people who have withdrawn from the labor force after being unable to find work, and (3) the continued prevalence in many societies of the tradition of women not working in order to care for their families.

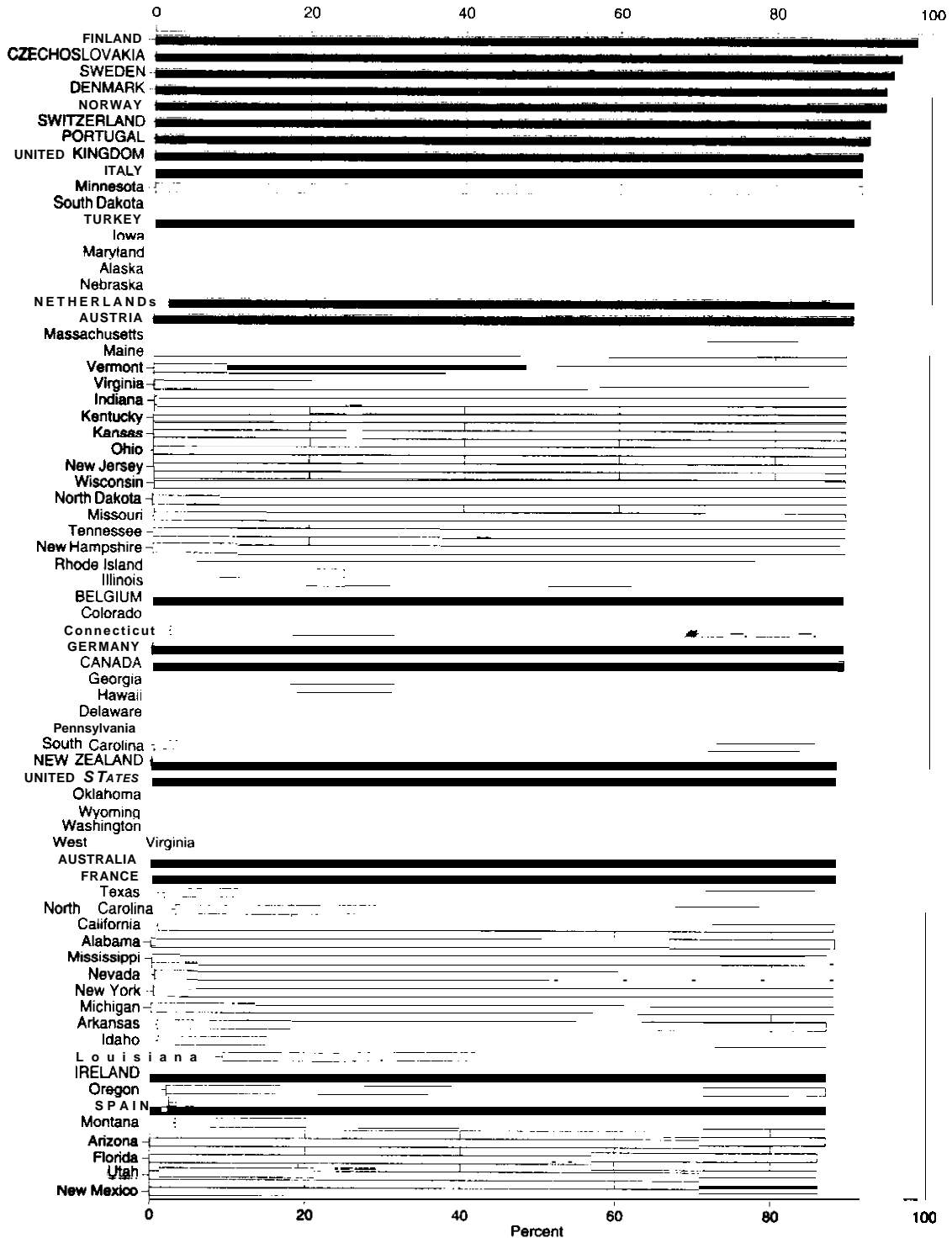
- ▶ **Among the five G-7 countries in 1991 that are represented here, the United Kingdom had the highest labor force participation rate, 79 percent. The United States' and Canada's rate was 78 percent; Germany and France's, 75 percent. Two non-G-7 countries — Czechoslovakia and Sweden — had rates of 85 percent or higher.**
- ▶ **In all countries represented here, the labor force participation rate was higher for men than for women. The highest female participation rates (above 70 percent) and the smallest gaps between rates for men and women (below 15 percentage points) were in Czechoslovakia, Sweden, Finland, Denmark, and Norway. The United States, Canada, and the United Kingdom had the next highest rate for females, 69 percent, which was 20 percentage points lower than the rate for males in the United Kingdom, 19 percentage points lower in Canada, and 18 percentage points lower in the United States.**
- ▶ **The U.S. states tended to have higher total labor force participation rates than the countries. More than half of the countries had rates at or below 75 percent, whereas only seven states — Alabama, Arkansas, Kentucky, Louisiana, Mississippi, New Mexico, and West Virginia — did.**
- ▶ **As in all the countries, labor force participation rates in all the states were higher for men than for women. This difference was greater than 20 percentage points in 12 of the 20 other countries, whereas only 3 of the U.S. states recorded differences this large.**
- ▶ **In all countries and all states, the labor force participation rate was higher among university graduates than among upper secondary school graduates. Likewise, the rate in all cases was higher among upper secondary school graduates than among those with less than an upper secondary degree.**

Figure 3a: Labor force participation rates for persons aged 25 to 64 whose highest level of educational attainment is upper secondary, by country (1991) and state (1990)



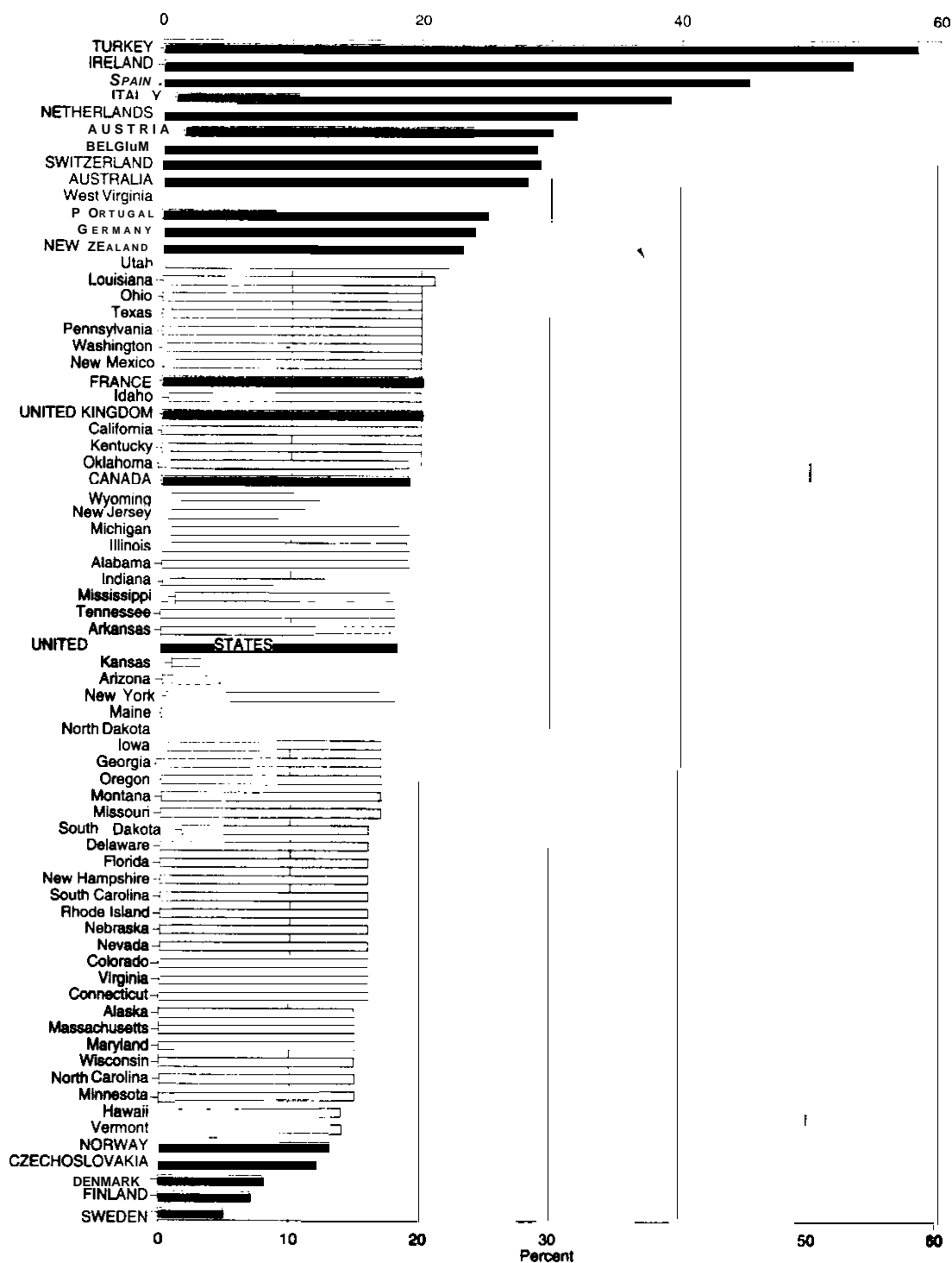
SOURCE: Organization for Economic Co-operation and Development, Center for Educational Research and Innovation, *Education at a Glance, 1993*, Table C5. U.S. Department of Commerce, Bureau of the Census, 1990 Census of Population and Housing.

Figure 3b: Labor force participation rates for persons aged 25 to 64 having attained a university level of education, by country (1991) and state (1990)



SOURCE: Organization for Economic Co-operation and Development, Center for Educational Research and Innovation, *Education at a Glance, 1993*, Table C5. U.S. Department of Commerce, Bureau of the Census, 1990 Census of Population and Housing.

Figure 3c: Difference between male and female labor participation rates among those aged 25 to 64, by country (1991) and state (1990)



SOURCE Organization for Economic Co-operation and Development, Center for Educational Research and Innovation, International Indicators Project, 1993. U.S. Department of Commerce, Bureau of the Census, 1990 Census of Population and Housing.

Table 3a: Labor force participation rate for persons aged 25 to 64, by level of educational attainment, sex, and country:1991

Country	Less than upper secondary	Upper secondary	Higher education (non-university)	Higher education (university)	All levels of education		
					Total	Female	Male
Australia	58	80	76	88	70	56	84
Austria	54	76	—	90	70	55	85
Belgium	55	79	85	89	67	53	82
Czechoslovakia	67	90	—	96	85	79	91
Canada	61	80	86	89	78	69	88
Denmark	72	89	93	94	83	79	87
Finland	70	86	86	98	80	77	84
France	65	84	89	88	75	65	85
Germany	55	76	87	89	75	63	87
Ireland	58	68	81	87	64	38	91
Italy	57	79	—	91	64	45	84
Netherlands	55	77	84	90	69	53	85
New Zealand	68	79	81	88	75	64	87
Norway	67	83	90	94	82	75	88
Portugal	74	91	91	92	75	63	88
Spain	57	83	—	87	63	41	86
Sweden	85	93	95	95	91	89	94
Switzerland	72	81	92	92	82	67	96
Turkey	64	73	—	90	66	31	89
United Kingdom	68	84	86	91	79	69	89
United States*	62	79	85	88	78	69	87

— Persons are included in counts of another level of education.
*1990 data.

NOTE: See supplemental note to Indicator 3 on pp. 231-233 for a discussion of levels of education; on pp. 243-248 for details on data provided by Australia, Austria, Belgium, Canada, Czechoslovakia, Finland, France, Germany, Ireland, Netherlands, New Zealand, Norway, Portugal, Sweden, Switzerland, Turkey, the United Kingdom, and the United States, and for a discussion comparing U.S. educational attainment data from the Current Population Survey to the same in the 1990 Census.

SOURCE: Organization for Economic Co-operation and Development, Center for Educational Research and Innovation, International Indicators Project, 1993. U.S. Department of Commerce, Bureau of the Census, 1990 Census of Population.

Table 3b: Labor force participation rate for persons aged 25 to 64, by level of educational attainment, sex, and state: 1990

State	Less than upper secondary	Upper secondary	Higher education (non-university)	Higher education (university)	All levels of education		
					Total	Female	Male
Alabama	59	78	87	88	75	66	85
Alaska	62	80	85	90	80	73	88
Arizona	59	76	83	87	76	67	85
Arkansas	59	78	84	87	74	66	84
California	64	78	84	88	78	68	88
Colorado	65	81	87	89	82	74	90
Connecticut	68	82	86	89	83	75	91
Delaware	65	82	85	89	81	73	89
District of Columbia	62	80	86	90	80	77	83
Florida	64	77	84	86	77	69	85
Georgia	64	81	87	89	79	71	88
Hawaii	64	81	89	89	82	75	89
Idaho	65	78	84	87	78	68	88
Illinois	63	80	87	89	79	70	89
Indiana	62	81	88	89	79	70	89
Iowa	63	82	88	90	82	73	90
Kansas	64	81	87	89	81	72	90
Kentucky	53	78	85	89	73	63	83
Louisiana	53	74	83	87	71	61	82
Maine	61	80	87	89	79	71	88
Maryland	64	83	87	90	82	75	90
Massachusetts	65	81	86	89	82	74	89
Michigan	56	77	85	88	76	67	86
Minnesota	64	83	88	91	83	76	91
Mississippi	59	78	84	88	74	66	84
Missouri	60	80	86	89	78	70	87
Montana	60	77	85	87	77	69	86
Nebraska	67	82	88	90	82	75	91
Nevada	70	81	85	88	80	72	88
New Hampshire	71	84	88	89	84	76	92
New Jersey	66	80	84	89	81	71	90
New Mexico	55	76	83	86	74	64	84
New York	59	77	85	88	77	68	86
North Carolina	67	82	88	88	80	73	88
North Dakota	64	79	87	89	80	72	89
Ohio	56	78	86	89	76	67	87
Oklahoma	58	77	84	88	76	67	86
Oregon	64	78	84	87	78	70	87
Pennsylvania	58	77	85	88	76	67	87
Rhode Island	68	81	88	89	81	73	89
South Carolina	65	82	88	88	78	70	86
South Dakota	67	82	87	91	82	74	90
Tennessee	60	80	86	89	76	68	86
Texas	63	79	85	88	78	68	88
Utah	65	78	83	86	79	68	90
Vermont	67	83	87	89	82	76	90
Virginia	65	82	87	89	81	73	89
Washington	61	78	84	88	79	69	89
West Virginia	45	71	82	88	67	54	80
Wisconsin	64	82	90	89	81	74	89
Wyoming	66	79	85	88	79	70	89

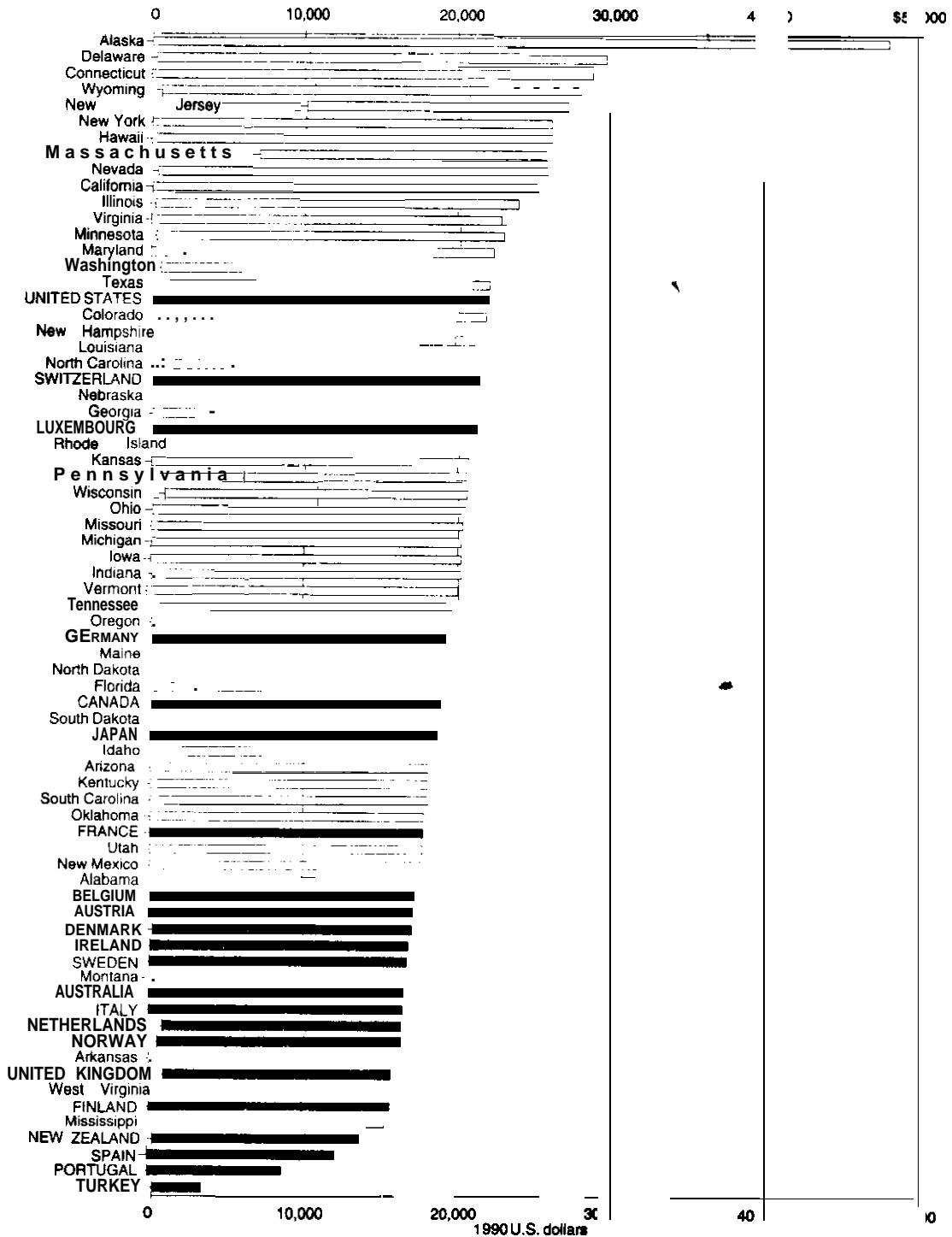
SOURCE: U.S. Department of Commerce, Bureau of the Census, 1990 Census of Population and Housing

Indicator 4: GDP/GSP per capita

Gross domestic product (GDP) is an aggregate measure of the value of goods and services produced in a country. Gross state product (GSP) is the **analogous** measure for U.S. states. Gross product is a measure of a country's or state's productive capacity or **wealth**. Countries or states with equal GDP/GSPs can have very different numbers of inhabitants, however. **GDP/GSP per capita** provides a measure of the resources available to a country or state relative to the size of its **population**. Countries or **states** with large gross products per capita generally are better able to provide educational services for their residents.

- ▶ **Among the G-7 nations, the United States had the highest GDP per capita in 1991, \$21,826 — over \$2,600 more than Germany, about \$3,000 more than Canada or Japan, and at least \$4,000 more than France, Italy, or the United Kingdom.**
- ▶ **The U.S. states generally had higher gross products per capita than the OECD nations. Twelve of the other 21 OECD nations reported GDPs per capita below \$17,000, whereas only four states — Mississippi, West Virginia, Arkansas, and Montana — had per capita GSPs below that level.**
- ▶ **Ten U.S. states — Alaska, Delaware, Connecticut, Wyoming, New Jersey, New York, Hawaii, Massachusetts, Nevada, and California — had GSPs per capita of \$25,000 or above. None of the other OECD nations had GDPs per capita higher than \$22,000.**

Figure 4: GSP/GDP per capita, by country and state: 1991



NOTE 1991 GSPs estimated from 1990 data

SOURCE: Organization for Economic Co-operation and Development, Center for Educational Research and Innovation, *Education at a Glance, 1993*, Table C7. U.S. Department of Commerce, Bureau of Economic Analysis, *Survey of Current Business*, December 1993; Bureau of the Census, *Statistical Abstract of the United States*, 1992, Table 25.

Table 4a: GDP per capita (in U.S. dollars), by country: 1991

Country	GDP per capita*
Australia	\$16,655
Austria	17,214
Belgium	17,220
Canada	18,832
Denmark	17,142
Finland	15,718
France	17,763
Germany	19,147
Ireland	16,918
Italy	16,543
Japan	18,634
Luxembourg	21,075
Netherlands	16,524
New Zealand	13,483
Norway	16,517
Portugal	8,716
Spain	12,250
Sweden	16,805
Switzerland	21,237
Turkey	3,426
United Kingdom	15,845
United States	21,826

*1990 U.S. dollars.

NOTE: See supplemental note to Indicator 4 on p. 249 for details of data provided by Australia, Canada, Finland, Japan, New Zealand, Sweden, the United Kingdom, and the United States, and for a definition of gross domestic product and a technical note on estimation of 1991 gross products.

SOURCE: Organization for Economic Co-operation and Development, Center for Educational Research and Innovation, *Education at a Glance, 1993*, Table C7.

Table 4b: GSP per capita, by state: 1991

State	GSP per capita
Alabama	\$17,408
Alaska	47,764
Arizona	18,353
Arkansas	16,477
California	25,024
Colorado	21,697
Connecticut	28,570
Delaware	29,471
District of Columbia	.
Florida	18,907
Georgia	21,129
Hawaii	25,856
Idaho	18,426
Illinois	23,812
Indiana	20,175
Iowa	20,201
Kansas	20,626
Kentucky	18,315
Louisiana	21,536
Maine	18,947
Maryland	22,709
Massachusetts	25,586
Michigan	20,230
Minnesota	22,858
Mississippi	15,476
Missouri	20,261
Montana	16,666
Nebraska	21,150
Nevada	25,581
New Hampshire	21,537
New Jersey	26,963
New Mexico	17,615
New York	25,949
North Carolina	21,293
North Dakota	18,915
Ohio	20,478
Oklahoma	17,806
Oregon	19,502
Pennsylvania	20,589
Rhode Island	20,915
South Carolina	18,284
South Dakota	18,790
Tennessee	19,571
Texas	21,898
Utah	17,761
Vermont	19,943
Virginia	22,896
Washington	22,470
West Virginia	15,790
Wisconsin	20,568
Wyoming	27,740

NOTE: 1991 GSPs are estimated from 1990 data and are in 1990 U.S. dollars

SOURCE: U.S. Department of Commerce, Bureau of Economic Analysis, *Survey of Current Business*, December 1993; Bureau of the Census, *Statistical Abstract of the United States*; 1992, Table 25.

Indicator 5: Percentage of population age 17 years or younger in poverty

The economic conditions of children's lives can affect their performance in school. Poor children may not have a **nutritionally-adequate diet**, and so may be less alert during **class**. They also may have less free **time** in which to study because they must work to earn extra income for their **family**. They may live in a home environment not conducive to study — crowded and noisy, perhaps — with few books or other materials that promote **learning**. Thus, poor children may come to school every day less prepared to learn than other children. "Children" are defined here as all those 17 years of age or younger.

- ▶ **The child poverty rate in the United States in 1991 was highest among the countries for which data are available and more than double the rate for 13 of the 17 other countries, as measured in various years from the mid-1980s to the early-1990s.**
- ▶ **Of the 17 other countries represented here, only 4 had child poverty rates above 10 percent, whereas all the U.S. states but New Hampshire had rates that high.**

Notes on interpretation:

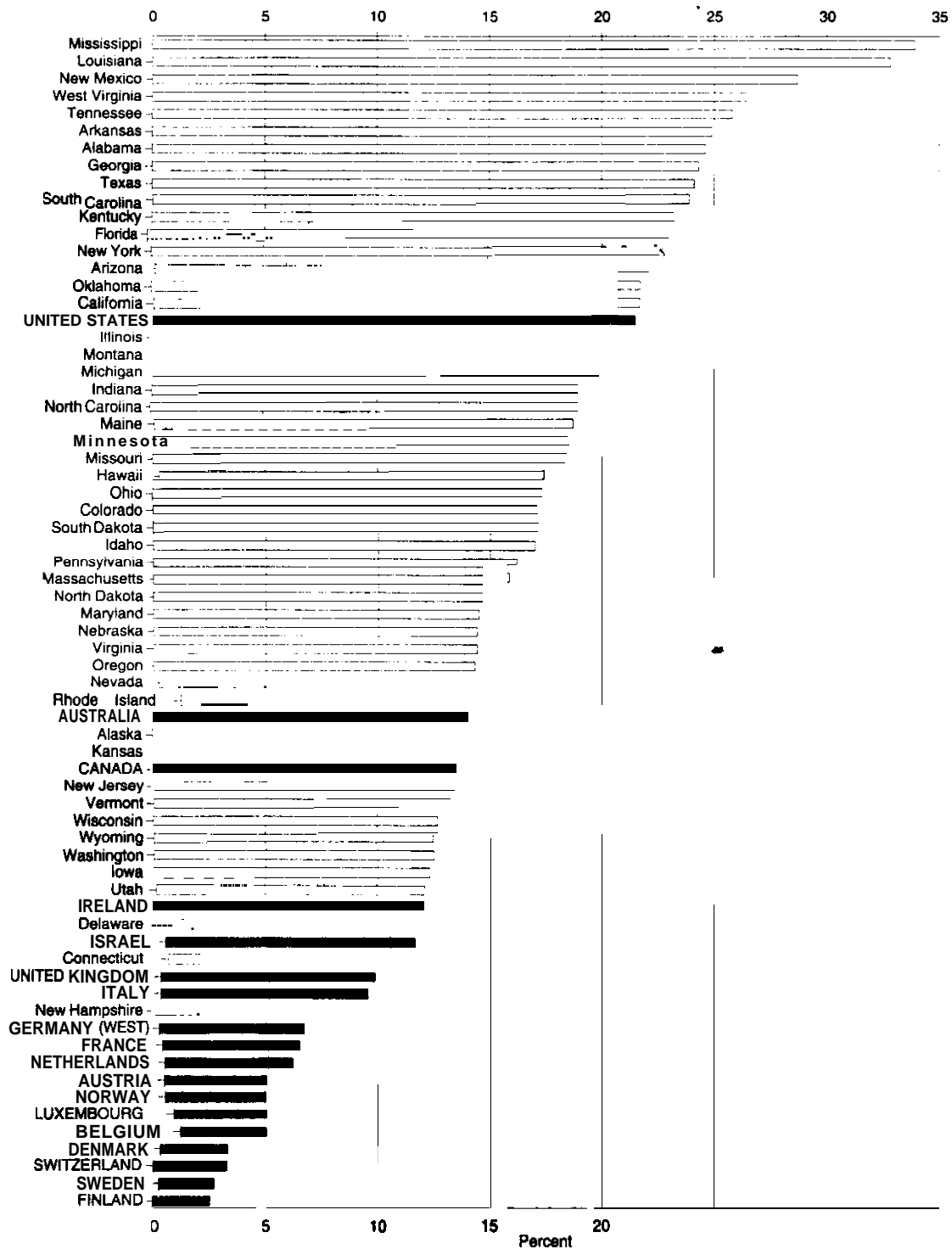
The poverty threshold used here is the U.S. standard — 40 percent of the median income — and other countries' data are adapted to it. All households with incomes below the threshold are classified as poor, as are any children living in those households. The percentage of children in poverty, then, is the percentage of all children who are classified as poor. However, this measure should not be Generalized to infer poverty rates for demographic groups other than children.

These poverty rates are measured *after taxes and transfers*; that is, they account for the effect of taxes and of governmental aid programs to the poor. Poverty rates also can be measured *before taxes and transfers*, in which case the effect of the government aid programs are not accounted for. Poverty rates before taxes and transfers primarily reflect people's job income, and ignore benefits from government transfer programs, such as (in the United States) social security, AFDC, food stamps, and Medicaid payments. Some other countries' child poverty rates are close to the U.S. rate before transfers; but the effect of government aid programs to the poor sets them spars after transfers. On average, European governments provide more generous transfer payments to their poor.

The poverty rate used here is a relative, rather than an absolute, measure of poverty. A household below the poverty threshold (of 40 percent of the median income level) in a relatively wealthy country could actually be wealthier than a household above the poverty threshold in a relatively poor country, where the median *income level* is lower. Taking that into consideration, this poverty measure is more a measure of the range of the income distribution in a country or state than it is of well-being or purchasing power. Government transfer programs to the poor usually have the effect of truncating the bottom end of the income distribution at a level deemed to be sufficient for a minimally acceptable standard of living.

The poverty rate used here is not adjusted for relative costs-of-living with a purchasing power parity index or other index of adjustment. Poverty rates may be higher in locations where the costs-of-living are lower and thus, one could argue, the real effect of lower income is less onerous.

Figure 5: Percentage of population age 17 years or younger in poverty, by country and state: Various years



SOURCE: Timothy M. Smeeding and Lee Rainwater, Luxembourg Income Study; The Annie E. Casey Foundation and the Center for the Study of Social Policy, *Kids Count Data Book*, 1994, Appendix 2 (based on U.S. Department of Commerce, Bureau of the Census, Current Population Survey, March, 1991).

**Table 5a: Percentage of population age 17 years or younger in poverty:
Various years**

Country	Year	Total
Australia	1990	14.0
Austria	1987	4.8
Belgium	1992	3.8
Canada	1991	13.5
Denmark	1991	3.3
Finland	1991	2.5
France	1984	6.5
Germany (West)	1989	6.8
Ireland	1987	12.0
Israel	1986	11.1
Italy	1991	9.6
Luxembourg	1985	4.1
Netherlands	1991	6.2
Norway	1991	4.6
Sweden	1992	2.7
Switzerland	1982	3.3
United Kingdom	1986	9.9
United States	1991	21.5

NOTE: See supplemental note to indicator 5 on p. 250 for a discussion of definitions used in this indicator.

SOURCE: Timothy M. Smeeding and Lee Rainwater, Luxembourg Income Study.

Table 5b: Percentage of population age 17 years or younger in poverty, by state: 1991

State	Total
Alabama	24.6
Alaska	13.9
Arizona	22.1
Arkansas	24.9
California	21.7
Colorado	17.1
Connecticut	10.2
Delaware	11.7
District of Columbia	29.5
Florida	22.9
Georgia	24.3
Hawaii	17.4
Idaho	17.0
Illinois	20.9
Indiana	18.9
Iowa	12.3
Kansas	13.9
Kentucky	23.2
Louisiana	32.8
Maine	18.7
Maryland	14.5
Massachusetts	15.9
Michigan	20.5
Minnesota	18.5
Mississippi	33.9
Missouri	18.4
Montana	20.7
Nebraska	14.4
Nevada	14.2
New Hampshire	8.7
New Jersey	13.4
New Mexico	28.7
New York	22.5
North Carolina	18.9
North Dakota	15.5
Ohio	17.3
Oklahoma	21.7
Oregon	14.3
Pennsylvania	16.2
Rhode Island	14.0
South Carolina	23.9
South Dakota	17.1
Tennessee	25.8
Texas	24.1
Utah	12.1

SOURCE: The Annie E. Casey Foundation and the Center for the Study of Social Policy, *Kids Count Data Book*, 1994, Appendix 2 (based on J.S. Department of Commerce, Bureau of the Census, Current Population Survey, March 1991).

Indicator 6: Births to teen mothers

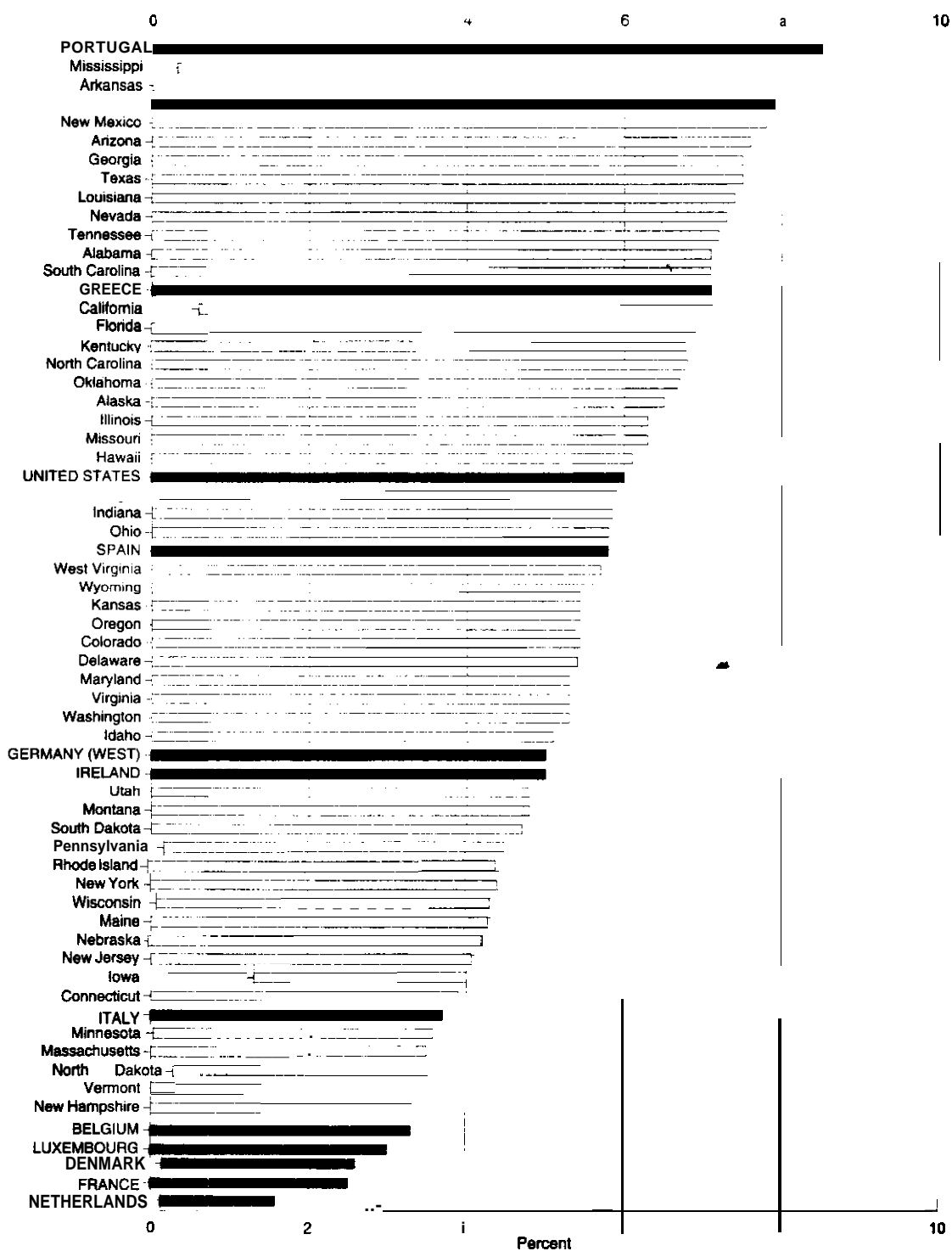
Births to teen mothers are represented here by the percentage of all live births in a country or state that occur to women aged 15 to 19. This percentage represents a proportion of the cohort of infants likely born into an environment of **disadvantage**. Teen mothers tend to have fewer resources than older mothers because they have had less **time** in which to accumulate savings or build up their own productive capacity through work **experience**, **education**, or **training**. **Moreover**, while most mothers can draw upon the **additional** resources of **fathers**, teen fathers tend to be plagued by the same paucity of resources as are teen **mothers**. Teen fathers are also less likely **than** older **fathers** to legally **commit themselves** to supporting the **family**. **Indeed**, in the **European** Community as a whole and in the **United States**, a majority of teen mothers are not **married**. With a baby to care for, a teen is also less likely to complete secondary school or to go on to higher **education**, thus further limiting economic opportunities.

- ▶ **Births to teen mothers in 1990 ranged from less than 2 percent of all births in the Netherlands to 8.5 percent in Portugal. Three countries — Portugal, the United Kingdom, and Greece (at 8.5 percent, 7.9 percent, and 7.1 percent, respectively) — reported higher percentages of teen births than did the United States (at 6.0 percent).**
- ▶ **There were five countries — Belgium, Luxembourg, Denmark, France, and the Netherlands — whose percentages of teen births were equal to or lower than that of New Hampshire, the state with the lowest percentage (3.3).**
- ▶ **In 30 states, fewer than 6 percent of births were to teen mothers. This was also the case in 9 of the 12 European countries for which data are available.**

Note on interpretation:

A number of teens aged 14 and younger in all the countries represented here do become mothers. But, the proportion of teen mothers aged 14 and younger in all countries is exceedingly small. It is possible that 14-year-old mothers were responsible for as many as 1.1 percent of births in Portugal in 1990. In all other European Community countries reporting age-specific fertility data, that percentage was well below 1.

Figure 6: Births to teen mothers aged 15 to 19 as a percentage of all births, by country and state: 1990



SOURCE: Statistical Office of the European Communities, *Demographic Statistics, 1992*, Table E-6. Child Trends, Inc., *Facts At A Glance*, March, 1993, Annual Newsletter on Teen Pregnancy (based on U.S. Department of Health and Human Services, National Center for Health Statistics, *Vital Statistics for the United States, 1990, Vol 1, Natality*).

Table 6a: Births to teen mothers aged 15 to 19 as a percentage of all births, by country: 1990

Country	Percent
Belgium ¹	3.3
Denmark	2.6
France	2.5
Germany (West)	5.0
Greece	7.1
Ireland	5.0
Italy ²	3.7
Luxembourg	3.0
Netherlands	1.6
Portugal	8.5
Spain ²	5.8
United Kingdom	7.9
United States	6.0

¹1987 data.

²1988 data.

NOTE: See supplemental note to Indicator 6 on p. 250 for details on data provided by European Community countries and on this indicator's calculation.

SOURCE: Statistical Office of the European Communities, *Demographic Statistics, 1992*, Table E-6.

Table 6b: Births to teen mothers aged 15 to 19 as a percentage of all births, by state: 1990

State	Percent
Alaska	7.1
Arizona	6.5
Arkansas	7.6
California	8.0
Colorado	7.1
Connecticut	5.5
Delaware	3.9
District of Columbia	5.4
Florida	9.3
Georgia	6.9
Hawaii	7.5
Idaho	6.1
Illinois	5.1
Indiana	6.3
Iowa	5.9
Kansas	4.0
Kentucky	5.6
Louisiana	6.8
Maine	7.4
Maryland	4.3
Massachusetts	5.3
Michigan	3.5
Minnesota	5.9
Mississippi	3.6
Missouri	8.1
Montana	6.3
Nebraska	4.8
Nevada	4.2
New Hampshire	7.3
New Jersey	3.3
New Mexico	4.1
New York	7.8
North Carolina	4.4
North Dakota	6.8
Ohio	3.5
Oklahoma	5.8
Oregon	6.7
Pennsylvania	5.5
Rhode Island	4.5
South Carolina	4.4
South Dakota	7.1
Tennessee	4.7
Texas	7.2
Utah	7.5
Vermont	4.8
Virginia	3.4
Washington	5.3
West Virginia	5.3
Wisconsin	5.7
Wyoming	4.3
	5.6

SOURCE: Child Trends, Inc., *Facts At A Glance*, March 1993, Annual Newsletter on Teen Pregnancy (based on U.S. Department of Health and Human Services, National Center for Health Statistics, *Vital Statistics of the United States, 1990, Vol. 1, Natality*).

Indicator 7: Youth violent death rate

Demographers classify deaths by accident, suicide, or homicide collectively as “violent deaths.” The three different types of violent death are rather different from one another in their character and societal implications, however. Homicide, for example, results from the violent behavior of one individual toward another, creating a social environment of danger. While suicide may be another way some individuals respond to social alienation or stress, it does not create a social environment of danger. The youth violent death rate is measured here by the number of deaths by accident, suicide, or homicide among young people aged 5 to 24 in a country or state. Some homicides and suicides may get misclassified as accidental deaths or “other”; perhaps deliberately so in some societies. A high youth violent death rate suggests that a society’s youth bear the burden of problems that compete with the schools for their attention. Moreover, youth suicide and homicide may represent only the most extreme responses to larger and deeper social problems among a state’s or nation’s youth.

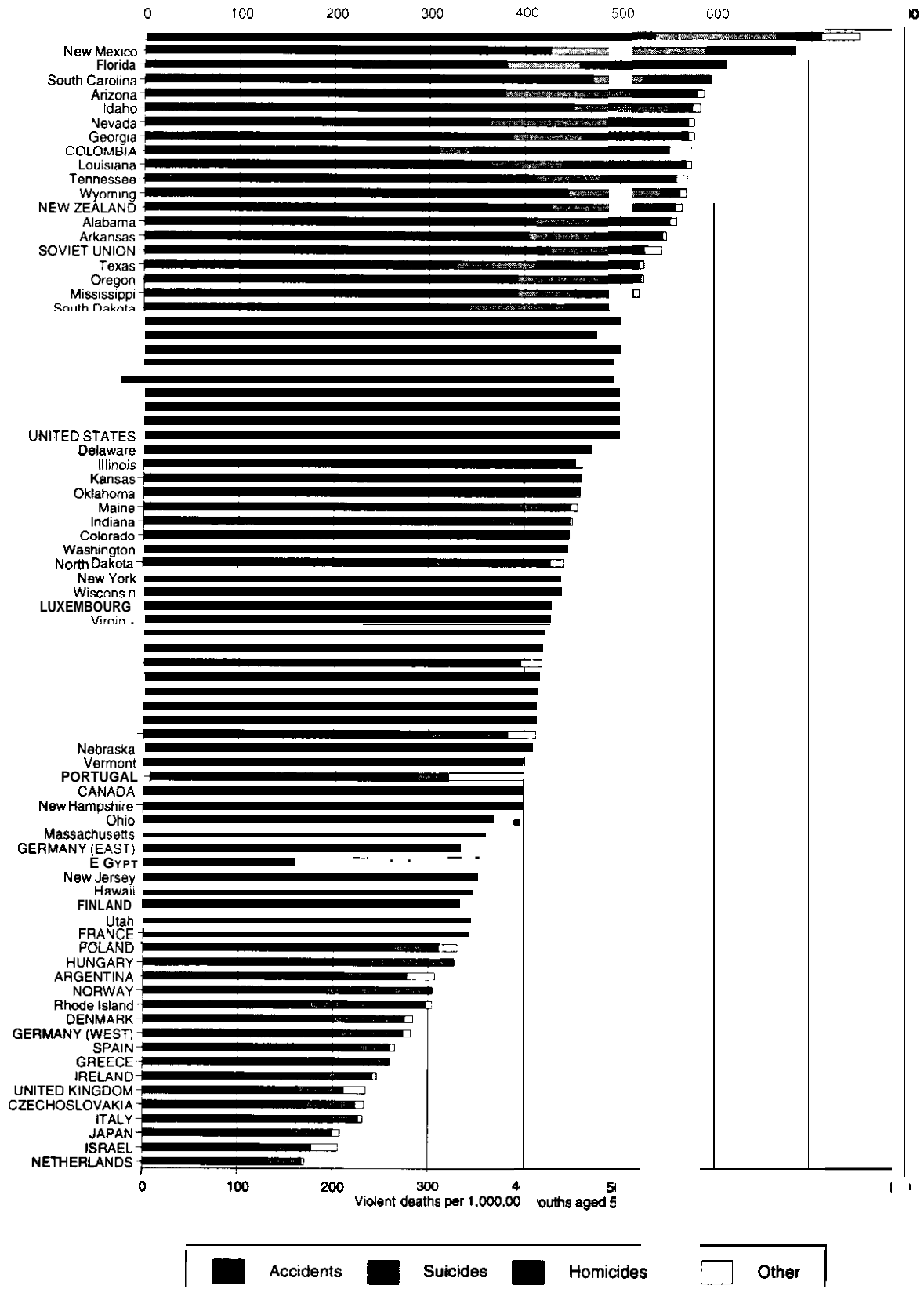
- ▶ Of the G-7 countries, in the late 1980s the United States had the highest overall violent death rate (481 per 1,000,000 youths), a rate more than twice as high as those of Japan, Italy, and the United Kingdom (207, 232, and 235, respectively) and almost 30 percent higher than that of Canada, the G-7 country with the second highest rate (378). The United States was the leader in accidents (315) and homicides (86), and was third after East Germany and Canada in suicides (72, 142, and 88, respectively). The United States’ youth homicide rate was over 20 times higher than that of Japan, the G-7 country with the lowest homicide rate (4), and over 6 times higher than that of Canada, the G-7 nation with the second highest homicide rate (13).
- ▶ Colombia was the only country with a homicide rate over 100, with 208 per 1,000,000 youths. Nine of the U.S. states recorded homicide rates higher than 100. Seventeen of the thirty countries, however, maintained youth homicide rates below 10, which none of the U.S. states did.
- ▶ For 25 of the 30 countries represented here, the number of suicides exceeded the number of homicides among youths. The United States, however, was one of the 5 countries in which the relationship was the reverse.
- ▶ New York and New Jersey were the only 2 states with suicide rates lower than 50 per 1,000,000 youths. Half of the countries had suicide rates this low.

Notes on interpretation:

Societies vary in their tolerance of the act of suicide. Some societies are more likely than others to judge that suicide represents justifiable behavior in certain circumstances; or, looked at another way, they may be less likely to condemn it without reservation.

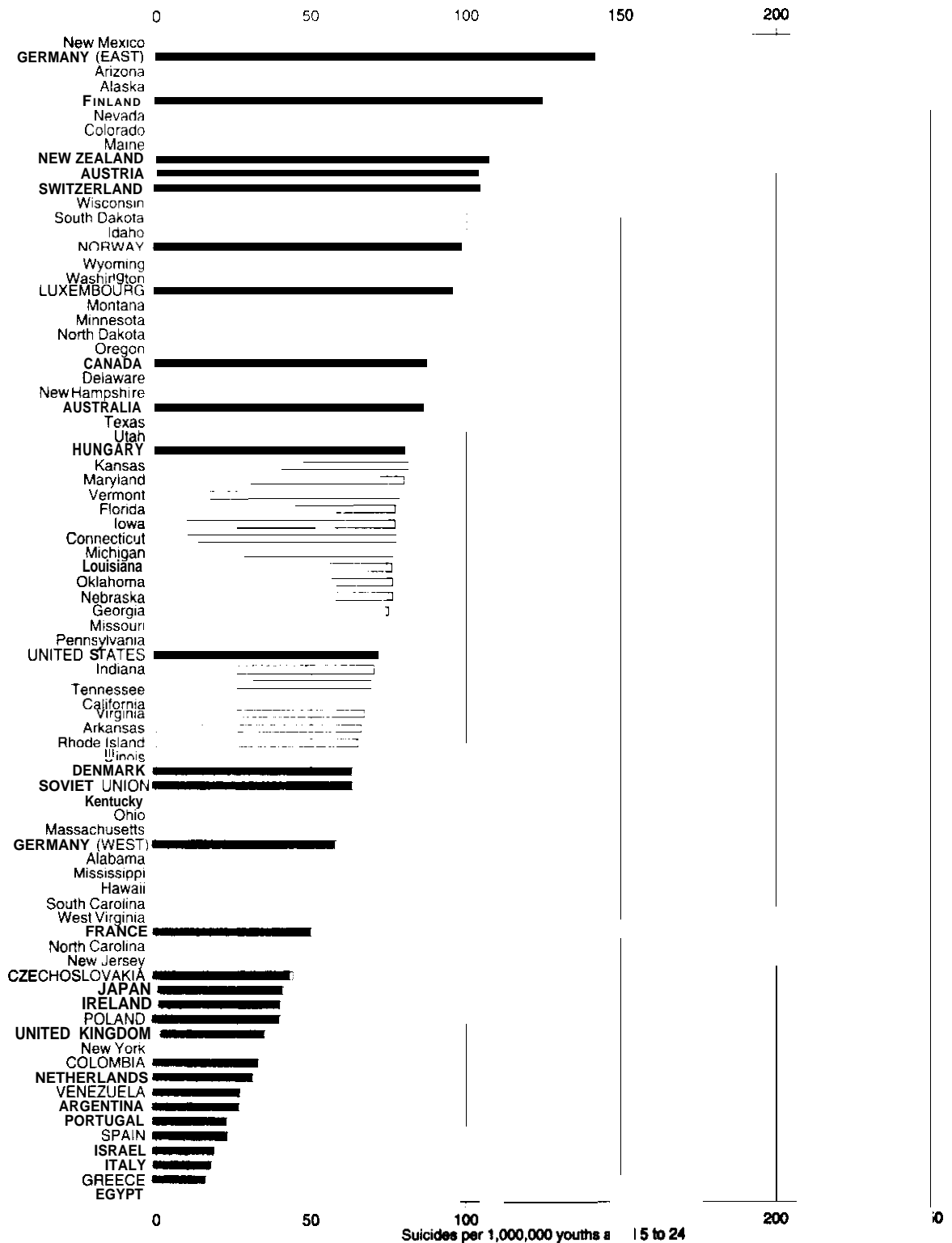
Countries also vary in their level of development in forensic science. Some countries are better able to precisely determine cause of death than others. To some degree, countries may show higher levels of suicide and homicide because they are better able to detect them. But countries and states also vary in the availability of critical care medical services. To some degree, countries or states may show higher levels of violent death because critical care medical services are not as available as in other countries or states. Critical care medical services are especially difficult to provide in predominantly rural countries or states where the population is dispersed over a wide area.

Figure 7a: Violent deaths per 1,000,000 youths aged 5 to 24, by type of death, country and state: Various years



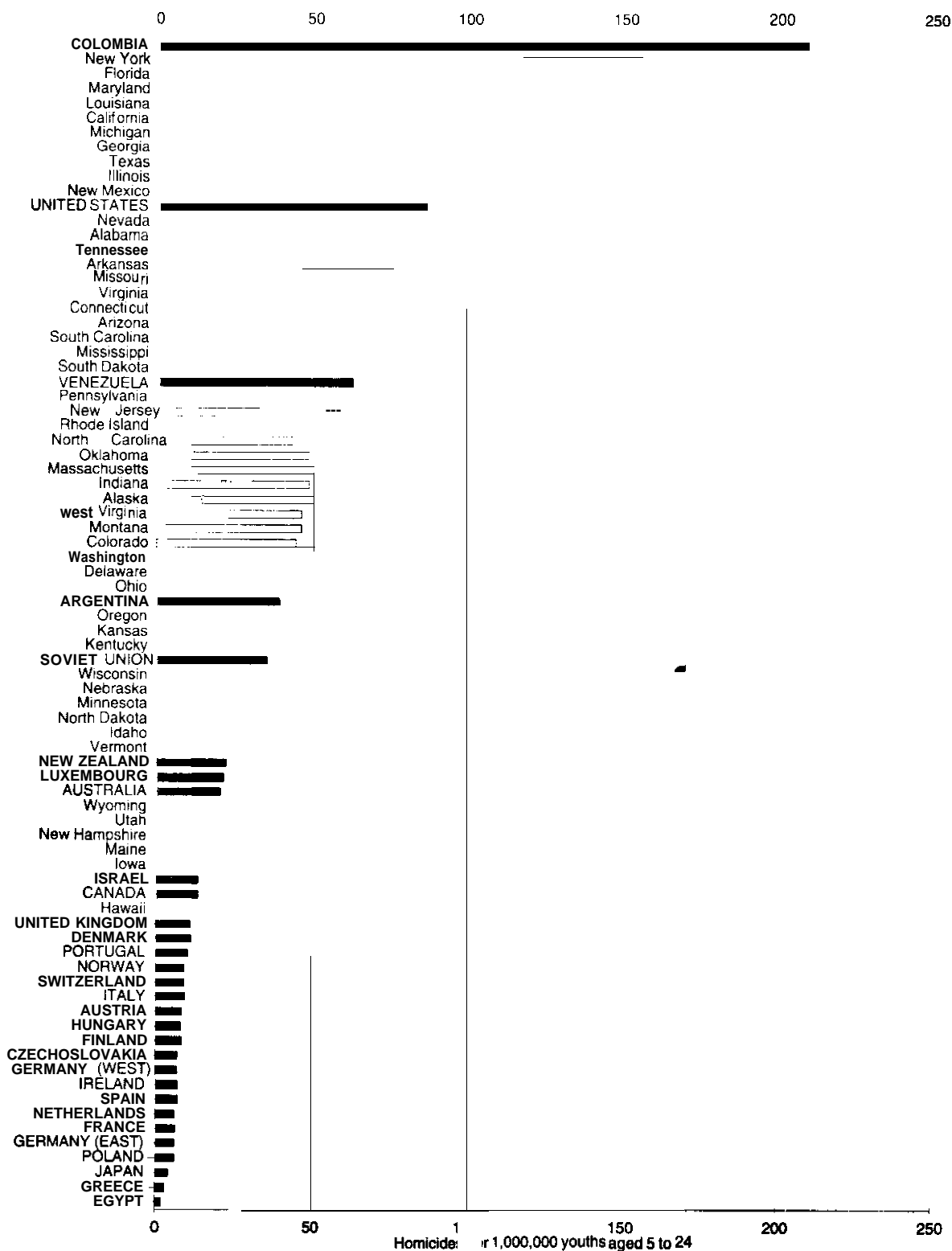
SOURCE: World Health Organization, *World Health Statistics Annual, 1990*, Section D, Table 9. U.S. Department of Health and Human Services, *Vital Statistics of the United States, 1988, Volume 2 - Mortality, Part B, Table 8-6.*

Figure 7b: Suicides per 1,000,000 youths aged 5 to 24, by country and state: Various years



SOURCE: World Health Organization, *World Health Statistics Annual, 1990*, Section D, Table 9. U.S. Department of Health and Human Services *Vital Statistics of the United States, 1988, Volume 2 - Mortality, Part B, Table S-5*

Figure 7c: Homicides per 1,000,000 youths aged 5 to 24, by country and state: Various years



SOURCE: World Health Organization, *World Health Statistics Annual, 1990*, Section D, Table 9. U.S. Department of Health and Human Services, *Vital Statistics of the United States, 1988, Volume 2 - Mortality, Part B, Table 8-6*.

Table 7a: Violent deaths per 1,000,000 youths aged 5 to 24, by type of death and country: Various years

Country	Year	Total	Accidents	Suicides	Homicides	Other
Argentina	1986	307	210	28	39	30
Australia	1988	415	301	87	20	6
Austria	1989	414	295	105	8	5
Canada	1988	378	269	88	13	8
Colombia	1984	575	309	34	208	23
Czechoslovakia	1989	232	172	44	7	10
Denmark	1988	284	200	64	11	9
Egypt	1987	356	156	0	2	197
Finland	1988	345	199	125	8	13
France	1988	342	269	51	6	17
Germany (East)	1989	355	184	142	6	23
Germany (West)	1989	281	207	59	7	9
Greece	1987	261	238	17	3	2
Hungary	1989	328	237	81	8	1
Ireland	1988	246	193	41	7	5
Israel	1987	205	144	20	13	29
Italy	1987	232	198	19	9	5
Japan	1989	207	153	42	4	8
Luxembourg	1989	436	309	96	21	11
Netherlands	1988	171	129	32	6	3
New Zealand	1987	565	427	108	22	8
Norway	1988	305	194	99	9	2
Poland	1989	331	263	41	6	20
Portugal	1989	386	287	24	10	64
Soviet Union	1988	544	426	64	35	19
Spain	1986	264	228	24	7	6
Switzerland	1989	412	268	105	9	30
United Kingdom	1989	235	164	36	11	23
United States	1988	481	315	72	86	8
Venezuela	1987	417	305	28	62	23

NOTE: See supplemental note to Indicator 7 on p. 251 for details on this indicator's calculation and on the data collected by the World Health Organization.

SOURCE: World Health Organization, *World Health Statistics Annual, 1990*, Section D, Table 9.

Table 7b: Violent deaths per 1,000,000 youths aged 5 to 24, by type of death and state: 1988

State	Total	Accidents	Suicides	Homicides	Other
Alabama	560	411	56	85	8
Alaska	750	535	128	47	41
Arizona	589	378	132	70	8
Arkansas	548	403	66	75	4
California	495	305	67	121	3
Colorado	448	279	115	44	9
Connecticut	420	267	77	72	3
Delaware	472	342	88	41	0
District of Columbia	1,064	224	38	776	26
Florida	610	380	77	147	6
Georgia	577	386	75	109	7
Hawaii	347	270	55	12	9
Idaho	584	450	101	24	9
Illinois	460	284	64	104	9
Indiana	451	329	70	48	4
Iowa	416	324	77	13	.
Kansas	461	338	81	37	4
Kentucky	493	388	64	37	3
Louisiana	574	363	76	129	6
Maine	456	323	108	17	8
Maryland	503	263	80	131	29
Massachusetts	360	232	60	49	18
Michigan	484	284	76	117	7
Minnesota	413	287	94	26	6
Mississippi	519	392	56	66	6
Missouri	498	342	74	73	9
Montana	500	354	96	46	4
Nebraska	408	296	76	30	6
Nevada	577	361	124	86	7
New Hampshire	375	259	88	19	9
New Jersey	352	243	45	59	4
New Mexico	701	426	163	96	17
New York	439	234	36	155	13
North Carolina	488	381	51	54	2
North Dakota	441	309	93	25	15
Ohio	367	263	61	40	3
Oklahoma	457	327	76	50	5
Oregon	525	392	91	38	4
Pennsylvania	423	279	73	60	10
Rhode Island	304	174	65	58	7
South Carolina	595	469	54	70	2
South Dakota	512	340	102	65	5
Tennessee	571	410	69	79	12
Texas	525	327	85	107	6
Utah	345	229	83	19	14
Vermont	398	295	78	24	0
Virginia	425	284	67	72	3
Washington	445	298	97	42	8
West Virginia	507	403	51	46	7
Wisconsin	438	296	104	31	7
Wyoming	569	444	98	20	7

SOURCE: U.S. Department of Health and Human Services, National Center for Health Statistics, *Vital Statistics of the United States, 1988*, Volume 2 - Mortality, Part B, Table 8-6.

PARTICIPATION INDICATORS

Indicator 8: Participation informal education

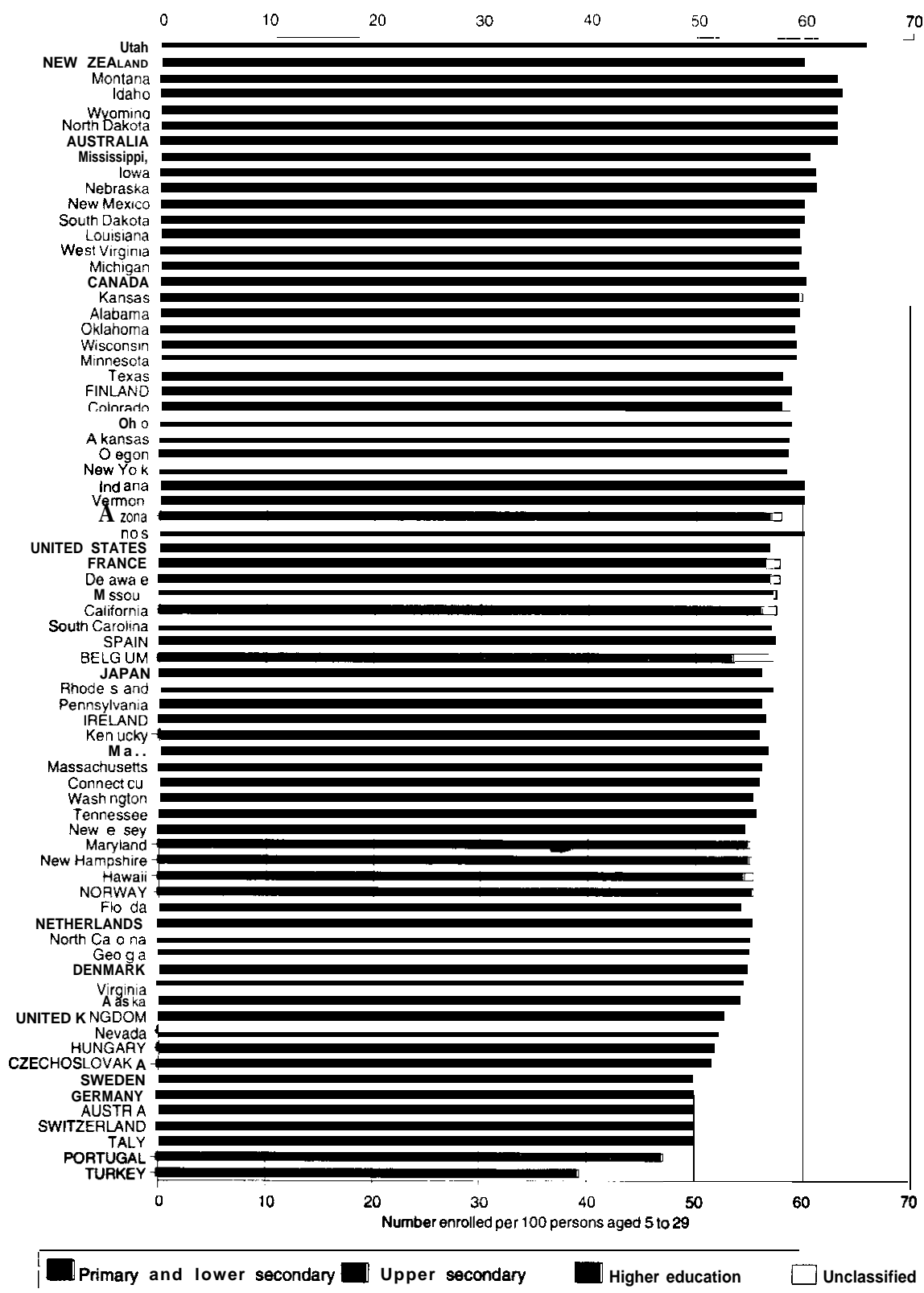
Participation in formal education is measured by the number of full-time equivalent (FTE) students enrolled in school per 100 persons aged 5 to 29 in the population. Participation is influenced not only by “demand” — the number of persons who can and wish to attend school — but also by “supply” — the number of places available. In terms of the latter, preprimary or post-compulsory education are more available in some states and countries than in others. A high participation ratio may reflect a corresponding high value placed on education by a society, or it may reflect an economy dependent on a highly trained workforce. In any event, national or state education strategies can produce a greater availability of educational opportunities.

- ▶ **The participation ratio for 5- to 29-year-olds in the United States in 1991 was 57.7, even with France’s ratio, and just above Japan’s (57.1). Among the G-7 countries, Italy, Germany, and the United Kingdom had lower ratios, whereas Canada had a participation ratio higher than that of the United States.**
- ▶ **The United States and Canada had the highest ratios of persons participating in formal education at the higher education level, with ratios close to 13. Among the states, the ratio of 5- to 29-year-olds enrolled in higher education ranged from 7 in Alaska to 17 in Massachusetts and Rhode Island.**
- ▶ **The state with the smallest ratio of persons enrolled in formal education, Nevada (52) had a higher ratio than 9 of the 22 other countries for which data are available.**

Note on interpretation:

This enrollment ratio should not be interpreted as an enrollment *rate*. Enrollment ratios allow comparisons across states and nations by standardizing enrollment in a particular education level or, as with this indicator, across all education levels, to the size of the population of the age groups typical for enrollment at those levels. It is not, however, an estimate of the percentage of persons in those age groups who are enrolled in education. See supplemental note to Indicator S on pages 251-253 for a discussion of the calculation of this indicator.

Figure 8: Public and private enrollment per 100 persons in population aged 5 to 29, by level of education, country (1991), and state (1990)



SOURCE: Organization for Economic Co-operation and Development, Center for Educational Research and Innovation, Education at a Glance, 1993, Table P1(A1). U.S. Department of Commerce, Bureau of the Census, 1990 Census of Population and Housing.

Table 8a: Public and private enrollment per 100 persons in population aged 5 to 29, by level of education and country:1991

Country	Primary and lower secondary	Upper secondary	Higher education	Unclassified	All levels ¹
Australia	45.6	9.7	7.6	0.0	62.8
Austria	25.8	14.6	8.7	0.0	49.1
Belgium	30.2	16.0	7.3	3.6	57.1
Canada	36.0	11.1	12.9	0.0	60.0
Czechoslovakia	33.8	14.8	2.9	0.0	51.5
Denmark	33.4	12.8	8.6	0.0	54.8
Finland	35.6	13.2	9.9	0.0	58.7
France	35.8	12.3	8.3	1.3	57.7
Germany	30.5	11.1	7.7	0.0	49.2
Hungary	33.0	16.4	2.5	0.0	51.9
Ireland	40.7	10.3	5.3	0.5	56.9
Italy	26.0	15.3	7.1	0.0	48.4
Japan	34.4	13.9	7.7	1.1	57.1
Netherlands	36.3	10.8	8.2	0.0	55.2
New Zealand	39.6	12.5	7.4	6.1	65.6
Norway	31.5	15.3	8.6	0.0	55.4
Portugal	34.0	9.1	4.0	0.0	47.0
Spain	32.0	17.0	8.0	0.3	57.3
Sweden	32.3	10.5	7.0	0.0	49.7
Switzerland	30.0	13.1	5.5	0.3	49.0
Turkey	31.8	4.9	2.6	0.0	39.3
United Kingdom	32.6	15.5	4.6	0.0	52.7
United States ²	33.7	10.3	12.8	0.9	57.7

¹Excludes the preprimary level.

²1990 data.

NOTE: Because of rounding, details may not add to totals. "Unclassified" figures represent programs not assigned to a level of education. Such programs may be strictly ungraded, as many special education programs are, or they may span across the international standard boundaries that separate levels. See supplemental note to Indicator 8 on pp. 231-233 for a discussion of levels of education; on pp. 233-236 for a discussion of enrollment reference groups — typical starting ages and years of completion for upper secondary and higher education; on pp. 251-253 for details on data provided by West Germany, the Netherlands, Spain, and Switzerland; on the calculation of full-time equivalent enrollments; and on comparing school enrollment in the Current Population Survey to the same in the 1990 Census.

SOURCE: Organization for Economic Co-operation and Development, Center for Educational Research and Innovation, *Education at a Glance, 1993*, Table P11(A1). U.S. Department of Commerce, Bureau of the Census, 1990 Census of Population.

Table 8b: Public and private enrollment per 100 persons in population aged 5 to 29, by level of education and state:1990

State	Primary and lower secondary	Upper secondary	Higher education	Unclassified	All levels*
Alabama	35.3	11.0	12.5	1.0	59.6
Alaska	36.8	9.4	7.4	0.6	54.2
Arizona	34.2	9.7	13.1	0.9	57.9
Arkansas	36.2	11.2	10.2	0.9	58.5
California	32.4	9.9	13.8	1.3	57.4
Colorado	34.6	10.0	13.2	0.8	58.6
Connecticut	31.4	9.9	14.0	0.9	56.3
Delaware	33.0	9.4	14.5	0.8	57.7
District of Columbia	24.4	8.2	19.7	1.1	53.4
Florida	32.4	9.9	11.9	1.0	55.2
Georgia	33.6	10.0	10.6	0.8	55.0
Hawaii	33.1	9.5	12.0	0.8	55.4
Idaho	41.0	11.4	10.4	0.5	63.3
Illinois	33.4	10.4	13.1	0.9	57.9
Indiana	34.7	10.4	12.3	0.7	58.1
Iowa	36.1	10.5	13.7	0.6	60.9
Kansas	35.5	10.1	13.6	0.6	59.9
Kentucky	35.1	10.1	10.7	0.8	56.7
Louisiana	37.7	10.3	11.3	1.1	60.4
Maine	35.1	10.6	10.3	0.7	56.6
Maryland	32.2	9.5	13.3	0.8	55.8
Massachusetts	29.0	9.5	17.2	0.7	56.4
Michigan	34.4	11.0	13.8	0.9	60.1
Minnesota	34.5	10.2	13.7	0.7	59.1
Mississippi	37.7	10.8	11.4	1.1	61.0
Missouri	34.4	10.1	12.2	0.7	57.4
Montana	39.9	11.6	11.2	0.7	63.4
Nebraska	35.8	10.9	13.6	0.7	60.9
Nevada	32.2	9.9	9.2	0.9	52.2
New Hampshire	33.2	9.5	12.3	0.6	55.5
New Jersey	31.6	10.6	12.7	1.0	56.0
New Mexico	38.4	10.6	10.8	1.1	60.9
New York	31.7	10.4	15.1	1.1	58.3
North Carolina	31.6	10.2	12.5	0.8	55.1
North Dakota	36.6	10.9	14.8	0.6	63.0
Ohio	34.7	10.9	12.3	0.8	58.6
Oklahoma	36.1	10.7	11.9	0.8	59.5
Oregon	35.5	10.5	11.7	0.7	58.3
Pennsylvania	32.6	10.5	13.1	0.7	56.9
Rhode Island	29.9	9.2	17.2	0.8	57.1
South Carolina	34.3	10.6	11.4	1.0	57.3
South Dakota	38.1	10.5	11.2	0.8	60.6
Tennessee	33.6	10.5	11.1	0.8	56.0
Texas	35.9	10.3	11.6	1.0	58.8
Utah	40.8	10.9	13.6	0.7	66.1
Vermont	32.6	10.4	14.4	0.7	58.1
Virginia	31.3	9.7	12.8	0.8	54.5
Washington	34.3	9.9	11.3	0.6	56.2
West Virginia	36.5	11.9	11.1	0.9	60.4
Wisconsin	35.1	10.5	13.0	0.5	59.2
Wyoming	39.9	11.4	11.1	0.6	63.0

*Excludes the preprimary level.

NOTE: Because of rounding, details may not add to totals. "Unclassified" figures represent persons who are attending school, who have completed the 12th grade, but who have not yet obtained a diploma. Those persons could be completing graduation requirements or attending a higher education institution with open enrollment.

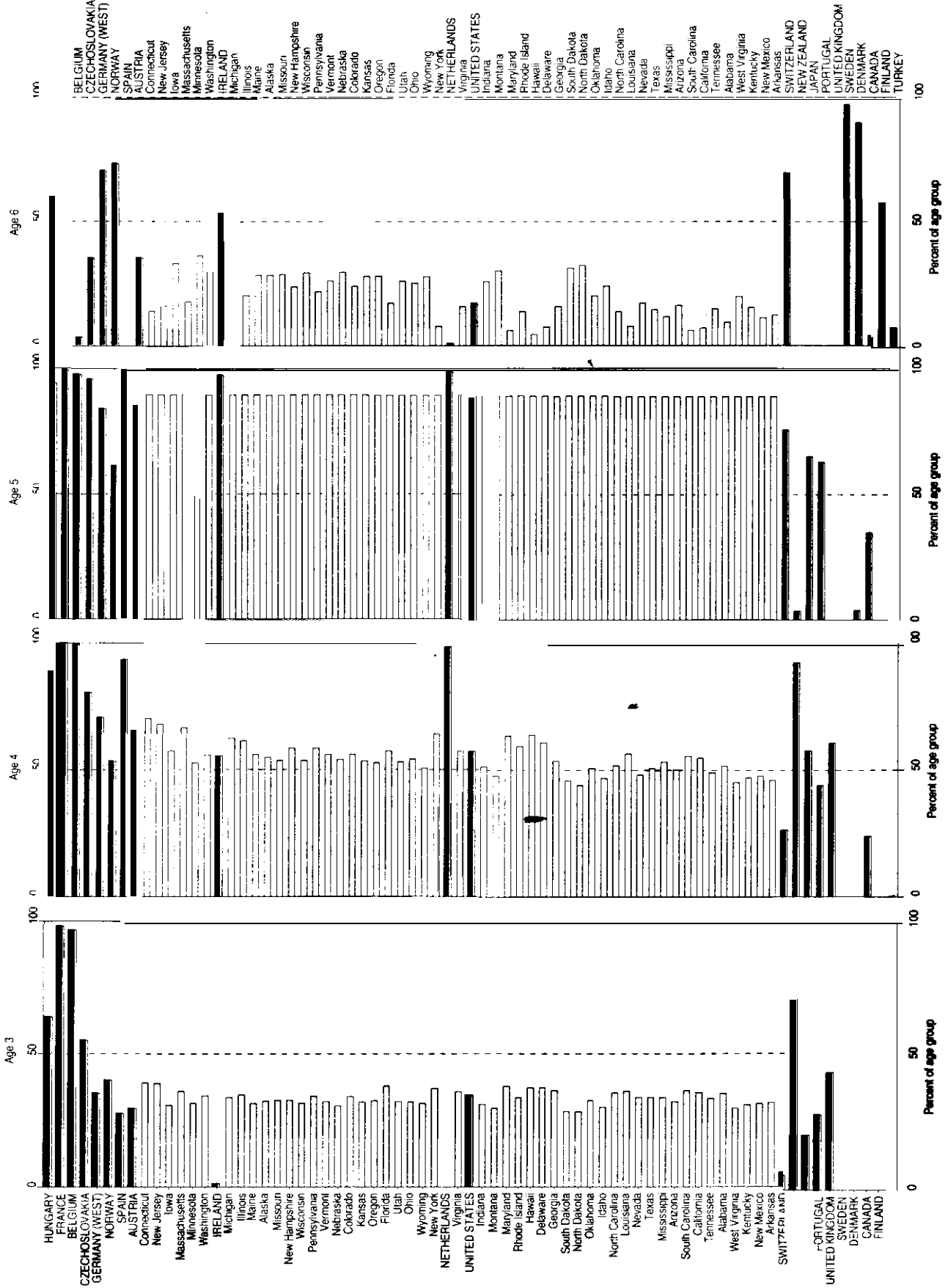
SOURCE: U.S. Department of Commerce, Bureau of the Census, 1990 Census of Population and Housing.

Indicator 9: Enrollment in preprimary education

This indicator measures the percentage of 3- to 6-year-olds enrolled full-time in public and private preprimary education by single year of age. This percentage reflects the importance placed on student participation in preprimary education and the availability of low-cost or public education. Variations in the percentage of children enrolled in preprimary education at different ages are affected by differences in the timing of entry and transition between preprimary and primary education. This indicator can be affected by inconsistencies in the definition of preprimary education among countries, however

- ▶ **In the G-7 countries for which data were available, 1991 preprimary education enrollment for 3-year-olds ranged from 21 percent in Japan to 98 percent in France. In the United States, about one third of 3-year-olds were enrolled.**
- ▶ **By age 4, over half of the children in the United States were enrolled (57 percent). In five countries — France, Belgium, the Netherlands, New Zealand, and Spain — enrollment among 4-year-olds exceeded 90 percent.**
- ▶ **Enrollment rates in preprimary education among children at the younger and older extremes of the 3- to 6-year-old population differed significantly between states and nations. Five of the 15 countries for which data were available reported that more than half of all 3-year-olds were enrolled in preprimary education programs. However, none of the U.S. states showed an enrollment rate that approached 50 percent among 3-year-olds. Less than one-fifth of the 6-year-olds in the U.S. were enrolled in preprimary education programs, while 10 of the 16 nations for which data were available reported enrollment rates above 35 percent for 6-year-olds.**
- ▶ **In most of the nations and states included — with the exception of Belgium, Denmark, France, New Zealand, Norway, and Turkey — the highest enrollment rates were among 5-year-olds. (Enrollment rates were not available for 5-year-olds in Finland, Sweden, and the United Kingdom.)**

Figure 9: Enrollment in public and private preprimary education, by age, country (1991), and state (1990)



NOTE: according to the sum of the four ages' enrollment rates.

Table 9a: Enrollment in public and private preprimary education, by age and country: 1991

Country	Age			
	3	4	5	6
Austria	29.5	65.7	85.4	35.4
Belgium	96.5	99.4	97.7	3.5
Canada	—	24.1	35.1	4.1
Czechoslovakia	55.0	80.5	95.9	35.2
Denmark	—	—	4.0	89.8
Finland	—	—	—	58.4
France	98.0	100.0	99.2	1.4
Germany (West)	35.1	70.6	84.1	70.8
Hungary	63.8	88.4	94.2	59.9
Ireland	1.3	55.3	97.6	53.7
Japan	20.5	57.8	65.1	—
Netherlands	—	98.3	98.9	0.8
New Zealand	71.6	92.6	3.7	—
Norway	40.0	53.5	61.4	73.6
Portugal	28.2	44.0	63.0	—
Spain	27.6	93.5	100.0	—
Sweden	—	—	—	97.1
Switzerland	5.5	26.4	75.8	69.8
Turkey	—	0.3	1.7	8.0
United Kingdom	44.0	60.7	—	—
United States ^a	34.4	57.1	89.3	17.0

—Problems of definition render the calculation of participation rates infeasible.
^a1990 data.

NOTE: See supplemental note to Indicator 9 on pp. 253–257 for details on data provided by Canada, Czechoslovakia, Finland, France, Ireland, the Netherlands, Spain, Sweden, Switzerland, and the United Kingdom, and on the calculation of full-time equivalent enrollments. United States figures are estimated by using the April, 1990 U.S. Census totals for preprimary enrollment and allocating them to age levels according to the pattern found in the October, 1990 Current Population Survey. See technical note on pp. 254–257 for a more detailed explanation.

SOURCE: Organization for Economic Co-operation and Development, Center for Educational Research and Innovation, *Education at a Glance, 1993*, Table PI 2. U.S. Department of Commerce, Bureau of the Census, 1990 Census of Population; Current Population Survey, October, 1990.

Table 9b: Enrollment in public and private preprimary education, by age and state: 1990

State	Age			
	3	4	5	6
Alabama	35.0	51.7	89.1	9.2
Alaska	32.2	54.7	89.4	28.3
Arizona	32.0	50.1	89.2	16.1
Arkansas	31.6	46.1	89.1	12.2
California	35.3	54.8	89.2	7.0
Colorado	33.9	55.9	89.5	23.7
Connecticut	39.0	70.2	89.6	14.0
Delaware	37.0	60.9	89.3	7.5
District of Columbia	41.8	65.9	89.1	0.2
Florida	37.8	57.2	89.3	16.9
Georgia	36.1	53.7	89.2	15.7
Hawaii	37.1	63.9	89.4	4.5
Idaho	29.8	46.8	89.4	23.9
Illinois	34.6	61.3	89.5	20.2
Indiana	30.8	51.5	89.4	25.7
Iowa	30.6	57.2	89.6	33.1
Kansas	31.8	53.3	89.5	27.8
Kentucky	30.7	47.0	89.1	15.2
Louisiana	35.9	56.4	89.2	7.6
Maine	31.3	55.9	89.5	28.3
Maryland	37.7	63.5	89.4	6.0
Massachusetts	35.8	66.5	89.6	17.7
Michigan	33.5	62.4	89.6	21.1
Minnesota	31.4	52.6	89.5	36.0
Mississippi	33.6	53.3	89.1	11.5
Missouri	32.4	53.5	89.4	28.6
Montana	29.4	47.8	89.4	30.1
Nebraska	30.4	53.8	89.5	29.4
Nevada	33.6	48.1	89.1	16.9
New Hampshire	32.6	58.3	89.5	23.6
New Jersey	38.9	68.0	89.5	16.1
New Mexico	31.3	47.8	89.1	11.1
New York	36.8	64.1	89.4	7.8
North Carolina	35.2	51.8	89.2	13.5
North Dakota	28.1	44.1	89.3	32.3
Ohio	31.8	54.0	89.4	25.1
Oklahoma	32.3	50.7	89.3	20.0
Oregon	32.2	52.6	89.4	28.0
Pennsylvania	34.1	58.3	89.5	21.7
Rhode Island	33.3	59.5	89.5	13.6
South Carolina	36.1	55.5	89.1	6.0
South Dakota	28.3	45.8	89.3	31.1
Tennessee	33.2	49.1	89.2	14.6
Texas	33.5	50.8	89.2	14.2
Utah	32.0	53.0	89.4	26.0
Vermont	31.9	55.8	89.5	26.1
Virginia	35.7	57.2	89.4	15.6
Washington	34.2	55.8	89.5	29.4
West Virginia	29.4	45.1	89.1	19.6
Wisconsin	31.3	53.4	89.5	29.3
Wyoming	31.2	50.4	89.3	27.8

NOTE: See supplemental note to Indicator 9 on pp. 253-257 for a detailed explanation of the adjustment of preprimary education enrollment rates for U.S. states. Figures are estimated by using the April, 1990 U.S. Census totals for preprimary enrollment and allocating them to age levels according to the pattern found in the October, 1990 Current Population Survey. See technical note on pp. 254-257 for a more detailed explanation.

SOURCE: U.S. Department of Commerce, Bureau of the Census, 1990 Census of Population and Housing; Current Population Survey, October, 1990.

Indicator 10: Secondary education enrollment

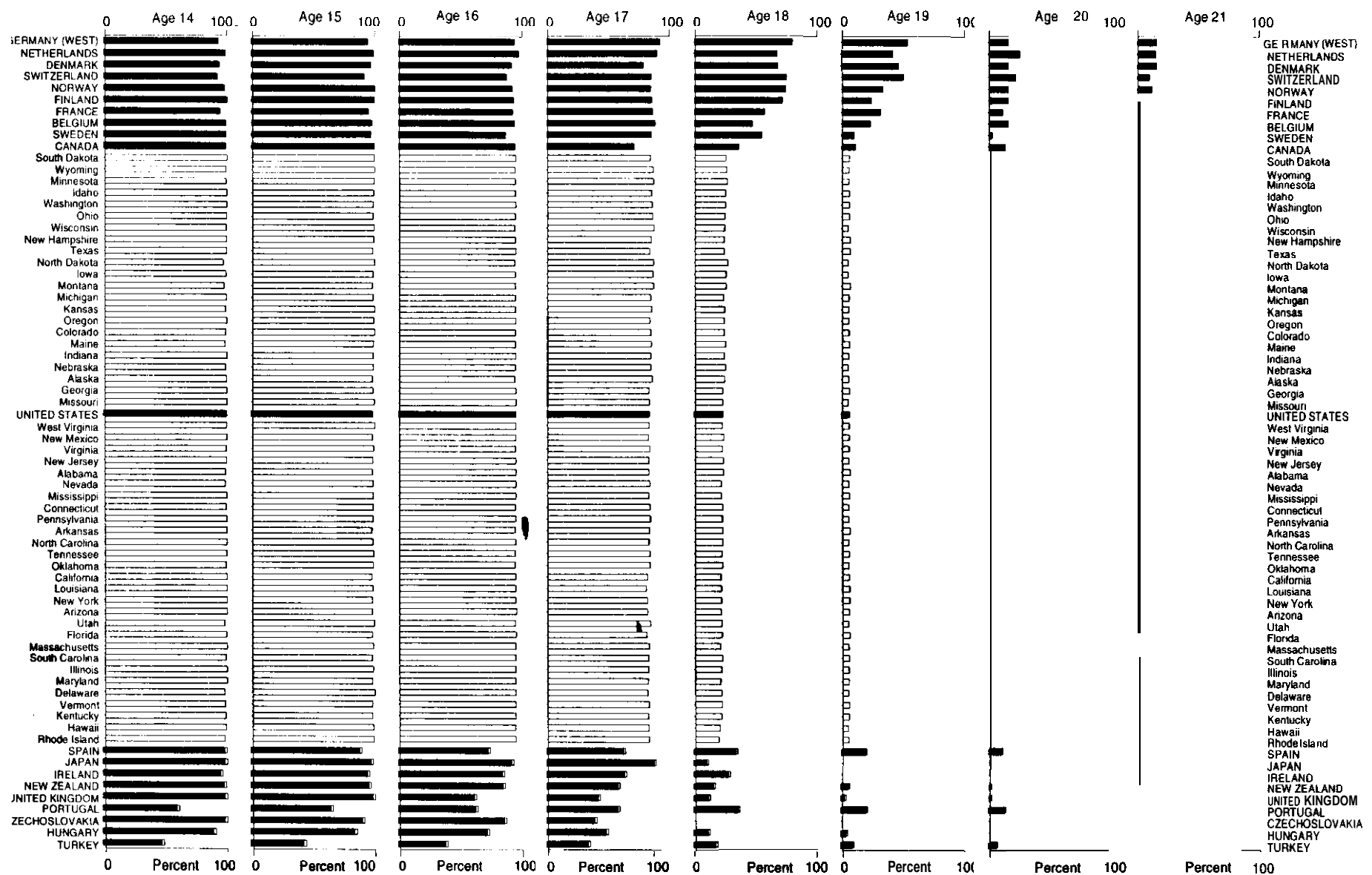
The secondary education enrollment rate measures the percentage of persons in a country or state of a certain age who are enrolled in school programs classified as secondary. Secondary education encompasses the end stage of compulsory education in most countries. Because the end year of the compulsory age range typically arrives for most teens before their secondary education is complete, persistence in school past the end year reflects the desirability and importance of secondary-level credentials. Countries and states with high secondary education enrollment rates may have economies that require highly skilled labor forces and depend on the education system to provide necessary training. Countries and states with relatively high rates also may have a large number of students receiving more than one secondary education credential. For example, in Germany, many skilled workers graduate from secondary school with a vocational credential, then return to school later for a higher or different credential.

- ▶ Enrollment in secondary education was above 90 percent at ages 14 and 15 in all states in 1990 and all countries in 1991, except for Hungary (age 15), Portugal, Spain (age 15), and Turkey. Enrollment at age 16 dropped below 90 percent also in Czechoslovakia, Ireland, New Zealand, Sweden, Switzerland, and the United Kingdom. At age 17, enrollment dropped below 90 percent in all states and countries except West Germany and the Netherlands. Enrollments in West Germany and the Netherlands dropped below 90 percent at age 18.
- ▶ In 9 of the 19 other countries, over 20 percent of 19-year-olds attended secondary school; however, of the U.S. states had enrollment rates above 7 percent among 19-year-olds. Likewise among 21-year-olds, 5 of the 19 other countries recorded rates above 10 percent, while none of the U.S. states showed rates even above 3 percent at that age.

Note on interpretation:

Countries differ greatly in how they classify terrain programs as either higher education or upper secondary programs. For example, some programs that are begun subsequent to the completion of general secondary education are classified as non-university higher education in the United States and in parts of Canada, whereas they are defined as upper secondary education in most other countries. (See the supplemental note on levels of education on pages 231–233.)

Figure 10: Enrollment in public and private secondary education, by age, country (1991), and state (1990)



NOTE: States and nations are sorted from high to low according to the sum of the eight ages' enrollment rates.

SOURCE: Organization for Economic Co-operation and Development, Center for Educational Research and Innovation, Education at a Glance, 1993, Table Pl 3(A). U.S. Department of Commerce, Bureau of the Census, 1990 Census of Population and Housing; Current Population Survey, October, 1990.

Participation

Table 10a: Enrollment in public and private secondary education, by age and country: 1991

Country	Age							
	14	15	16	17	18	19	20	21
Belgium	98.7	97.3	93.5	88.3	47.0	23.1	16.9	0.0
Canada	98.7	99.3	93.9	71.1	35.5	11.1	13.0	0.0
Czechoslovakia	99.9	91.4	86.9	39.8	0.0	0.0	0.0	0.0
Denmark	93.5	96.7	91.1	78.8	67.9	46.2	25.7	15.7
Finland	99.8	99.6	92.9	85.7	71.6	24.1	14.9	14.0
France	93.9	94.7	92.0	86.4	57.2	31.6	10.6	2.6
Germany (West)	92.9	94.5	93.6	92.4	79.6	53.5	29.0	15.4
Hungary	90.6	85.0	73.0	49.3	11.9	4.6	0.0	0.0
Ireland	95.9	95.1	85.1	64.7	28.8	0.0	0.0	0.0
Japan	100.0	98.4	92.8	88.8	1.8	—	—	—
Netherlands	98.9	99.2	97.2	90.0	67.4	41.5	24.5	14.1
New Zealand	99.1	96.4	85.7	58.9	16.1	6.0	1.4	0.9
Norway	97.9	100.0	91.7	84.7	74.2	33.5	16.9	11.1
Portugal	60.3	65.3	63.4	58.9	36.5	20.7	12.6	4.9
Spain	99.5	89.0	73.5	63.9	34.6	19.6	10.2	8.5
Sweden	99.2	96.9	86.0	85.3	54.7	10.0	2.5	1.7
Switzerland	92.2	91.4	86.9	85.1	75.2	50.2	21.5	8.9
Turkey	47.9	43.3	38.7	34.4	18.3	9.5	6.0	0.0
United Kingdom	100.0	100.0	62.4	43.1	12.3	13.4	1.4	0.9
United States*	99.6	98.4	94.6	83.7	22.8	5.7	1.0	1.1

— Not available.

*1990 data.

NOTE: See supplemental note to Indicator 10 on pp. 258–261 for details on data provided by Canada, Czechoslovakia, Finland, France, Ireland, the Netherlands, Spain, Sweden, Switzerland, and the United Kingdom, and on the calculation of full-time equivalent enrollments. United States figures are estimated by using the April, 1990 U.S. Census totals for secondary enrollment and allocating them to age levels according to the pattern found in the October, 1990 Current Population Survey. See technical note on pp. 259–261 for a more detailed explanation. See supplemental note on pp. 231–233 for a discussion of levels of education.

SOURCE: Organization for Economic Co-operation and Development, Center for Education Research and Innovation, *Education at a Glance, 1993*, Table PI 3(A). U.S. Department of Commerce, Bureau of the Census, *1990 Census of Population and Housing; Current Population Survey*, October, 1990.

Table 10b: Enrollment in public and private secondary education, by age and state: 1990

State	Age							
	14	15	16	17	18	19	20	21
Alabama	98.8	97.9	94.7	83.4	23.6	6.3	0.8	0.6
Alaska	99.5	97.7	93.8	86.2	24.3	5.1	0.7	0.4
Arizona	99.9	97.9	95.3	82.1	21.4	5.7	1.2	1.3
Arkansas	99.7	97.5	94.4	83.8	23.0	6.3	0.6	0.5
California	99.9	97.6	94.8	82.1	21.3	5.6	1.5	2.4
Colorado	98.7	99.8	94.3	84.8	23.9	5.8	0.8	0.5
Connecticut	99.1	98.5	94.3	84.2	23.0	5.3	0.8	0.6
Delaware	97.8	99.9	94.7	82.2	21.7	5.0	1.0	1.3
District of Columbia	100.0	98.5	95.4	79.9	20.1	6.6	0.8	3.0
Florida	99.5	97.9	95.0	81.5	21.9	6.2	1.1	1.5
Georgia	100.0	98.2	94.8	83.3	22.8	6.1	1.1	0.9
Hawaii	99.1	98.8	94.2	82.9	19.9	4.3	0.3	0.5
Idaho	100.0	99.2	94.3	85.8	25.2	5.9	0.4	1.5
Illinois	99.7	98.5	94.6	82.7	21.5	5.2	1.0	0.9
Indiana	100.0	98.5	94.7	84.9	24.0	5.1	0.6	0.5
Iowa	99.1	98.7	94.1	86.8	25.6	4.9	0.7	0.0
Kansas	98.7	99.9	94.3	85.6	24.5	5.3	0.5	0.3
Kentucky	98.7	98.0	94.7	82.6	21.7	5.4	0.7	0.4
Louisiana	100.0	98.4	94.7	81.1	21.6	6.2	1.3	1.7
Maine	98.2	98.5	94.2	85.1	25.2	5.9	0.8	0.5
Maryland	100.0	97.9	94.6	82.5	21.0	5.4	0.9	1.3
Massachusetts	99.8	98.8	94.5	83.4	20.8	5.3	0.9	1.0
Michigan	99.6	98.5	94.4	84.9	23.5	5.8	1.1	1.3
Minnesota	99.1	99.5	94.1	87.2	26.6	5.6	0.8	0.4
Mississippi	100.0	98.6	94.5	83.4	21.6	5.9	1.0	0.9
Missouri	100.0	99.5	94.9	83.8	22.9	5.0	0.8	0.0
Montana	97.7	97.7	94.4	87.1	25.5	6.8	0.4	0.1
Nebraska	98.8	98.7	94.3	84.9	25.3	5.0	0.6	0.3
Nevada	98.5	98.7	94.7	84.0	21.8	5.4	1.1	1.9
New Hampshire	99.3	99.2	94.3	85.3	23.9	6.3	1.2	1.0
New Jersey	99.6	98.1	94.5	83.3	23.2	5.4	1.0	1.2
New Mexico	100.0	97.7	94.5	82.8	23.7	5.8	1.2	0.7
New York	99.8	97.8	94.8	82.2	21.5	6.1	1.2	1.5
North Carolina	99.8	98.2	94.7	83.2	22.8	5.3	0.7	1.0
North Dakota	96.9	100.0	93.9	87.0	27.3	4.8	0.3	0.0
Ohio	99.3	98.8	94.1	86.3	24.7	6.2	0.7	0.7
Oklahoma	99.2	98.5	94.2	83.9	22.9	5.1	0.8	0.5
Oregon	100.0	98.9	94.7	84.0	23.8	5.4	0.7	0.6
Pennsylvania	99.7	98.3	94.6	84.5	22.6	5.2	0.7	0.5
Rhode Island	98.1	99.2	94.8	83.3	19.4	4.7	0.5	0.0
South Carolina	99.2	97.7	94.6	82.9	22.3	5.5	1.0	0.9
South Dakota	100.0	99.4	94.6	84.6	25.5	5.9	1.1	1.5
Tennessee	99.6	98.9	94.4	84.0	22.1	5.6	0.6	0.4
Texas	99.5	98.4	94.6	84.1	24.1	6.8	1.4	1.6
Utah	98.0	99.5	94.1	84.5	22.2	4.7	1.0	0.6
Vermont	98.3	97.9	94.6	83.4	22.1	5.7	0.4	0.9
Virginia	99.2	99.0	94.3	84.1	22.6	5.6	0.8	0.7
Washington	99.9	98.5	94.6	86.2	25.1	6.0	1.1	0.5
West Virginia	99.6	100.0	94.6	83.4	22.4	5.5	0.9	0.3
Wisconsin	99.2	99.3	94.0	87.6	24.5	5.0	0.8	0.4
Wyoming	99.1	100.0	94.0	86.9	25.9	5.8	0.8	1.1

NOTE: See supplemental note to Indicator 10 on pp. 258–261 for a detailed explanation of the contrast between Census- and Current Population Survey-derived estimates of secondary education enrollment rates and a note on the calculation of full-time equivalent enrollments. Figures are estimated by using the April, 1990 U.S. Census totals for secondary enrollment and allocating them to age levels according to the pattern found in the October, 1990 Current Population Survey. See technical note on pp. 259–261 for a more detailed explanation.

SOURCE: U.S. Department of Commerce, Bureau of the Census, 1990 Census of Population and Housing: Current Population Survey, October, 1990.

Indicator 11: Entry ratio to higher education

This indicator measures the number of new **full-time** entrants into institutions of higher education per 100 persons at the entry reference age within a state or **nation**. The entry reference age is generally one year older than the graduation reference age for secondary **education**. This ratio represents the proportion of a country or state's population **that** attempts **coursework** in higher education. Included in this indicator are data for U.S. states for **first-time** entrants by location of school and by location of students' original state of **residence**.

- ▶ **In 1991, the United States had 45.8 first-time entrants into full-time public and private higher education per 100 persons at the entry reference age (18 years of age in the United States). Japan was the G-7 country with the highest ratio (53.1). The other G-7 countries included here — Germany, France, and the United Kingdom — had ratios below that of the United States.**
- ▶ **For the most part, the U.S. states in 1990 had higher ratios of first-time entrants into full-time public and private higher education than the nations for which data were available. Counting first-time entrants by location of school, 21 states, but only 3 countries, had ratios of 50 or greater. Likewise, more than half of the 19 countries included had ratios below 40, whereas only 10 states did.**
- ▶ **In 12 of 19 countries for which data were available and in 45 of 50 U.S. states the female first-time entry ratio exceeded the male ratio.**
- ▶ **The U.S. states recording first-time entry ratios above 50 varied, depending on where migrating new entrants were counted — at their original state of residence or at the location of their school. Six states — Wyoming, North Dakota, Iowa, New York, Washington, and Nebraska — had ratios above 55 on both measures. Sending states with ratios above 55 included Georgia and New Jersey. Receiving states with ratios above 55 included Rhode Island, Vermont, New Hampshire, Utah, Massachusetts, Idaho, and Delaware.**

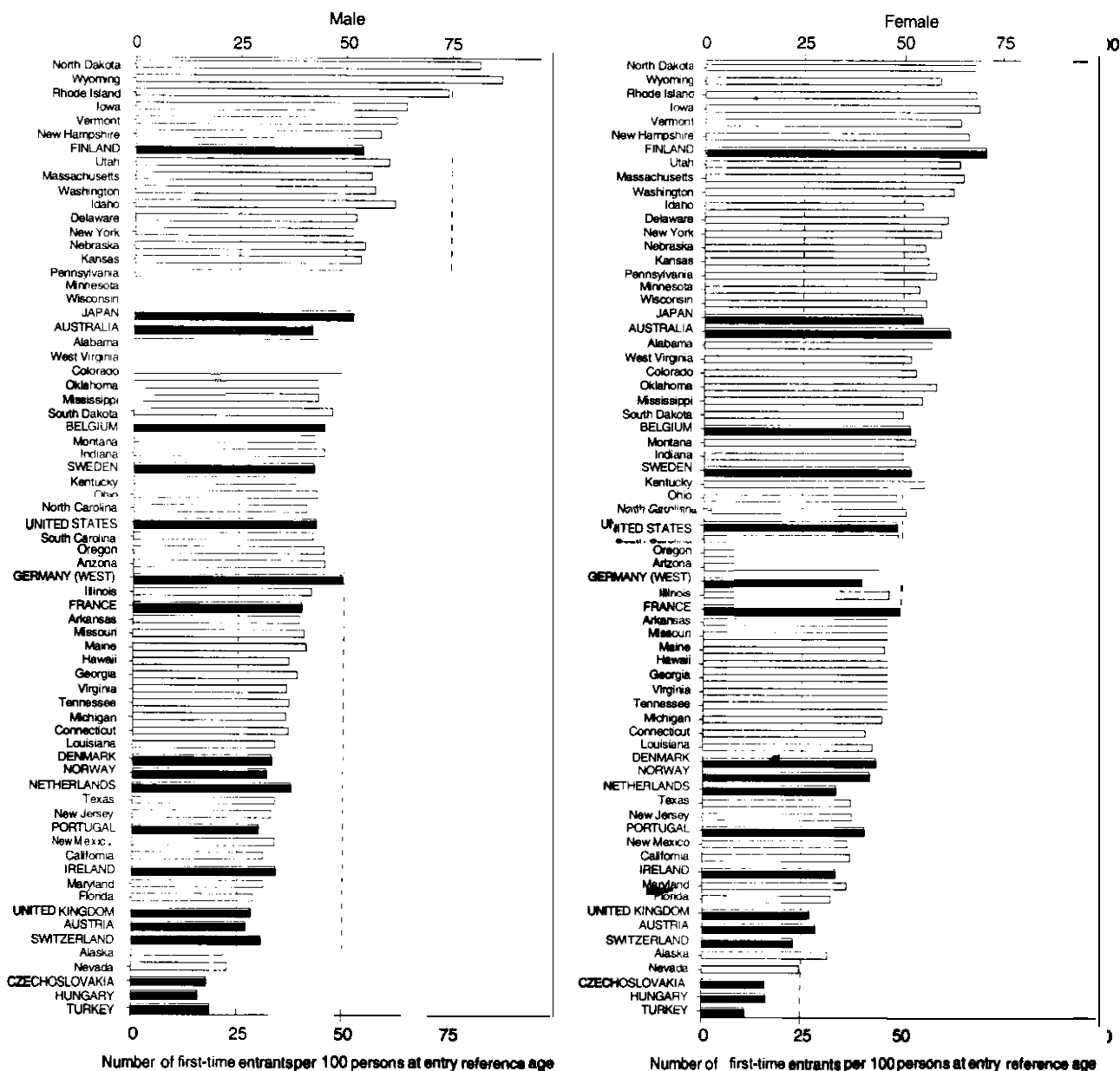
Notes on interpretation:

Enrollment ratios should *not* be interpreted as enrollment *rates*. Enrollment ratios allow comparisons across states and nations by standardizing enrollment in a particular education level to the size of the population in an age group typical for enrollment in that level. It is not, however, an estimate of the percentage of that age group who are enrolled in education at that level.

in the United States, students often enroll in a school located in a state other than the one in which they reside. Evaluating two sets of figures based on location of school or location of students' original state of residence illustrates patterns of student migration across states. If many students migrate into a state for schooling and few migrate out of it, that state's first-time entry ratio will be higher when counted at location of school than at students' original state of residence. This is because the denominator for both ratios (reference-age population of the state) stays the same, but the numerator increases when the net migration of students to the state is positive.

Only students attending higher education institutions in their home country are counted as new entrants. Thus, there is no distinction at the country-level between counting a new entrant at the location of the institution or the student's home. Both locations lie in the same country.

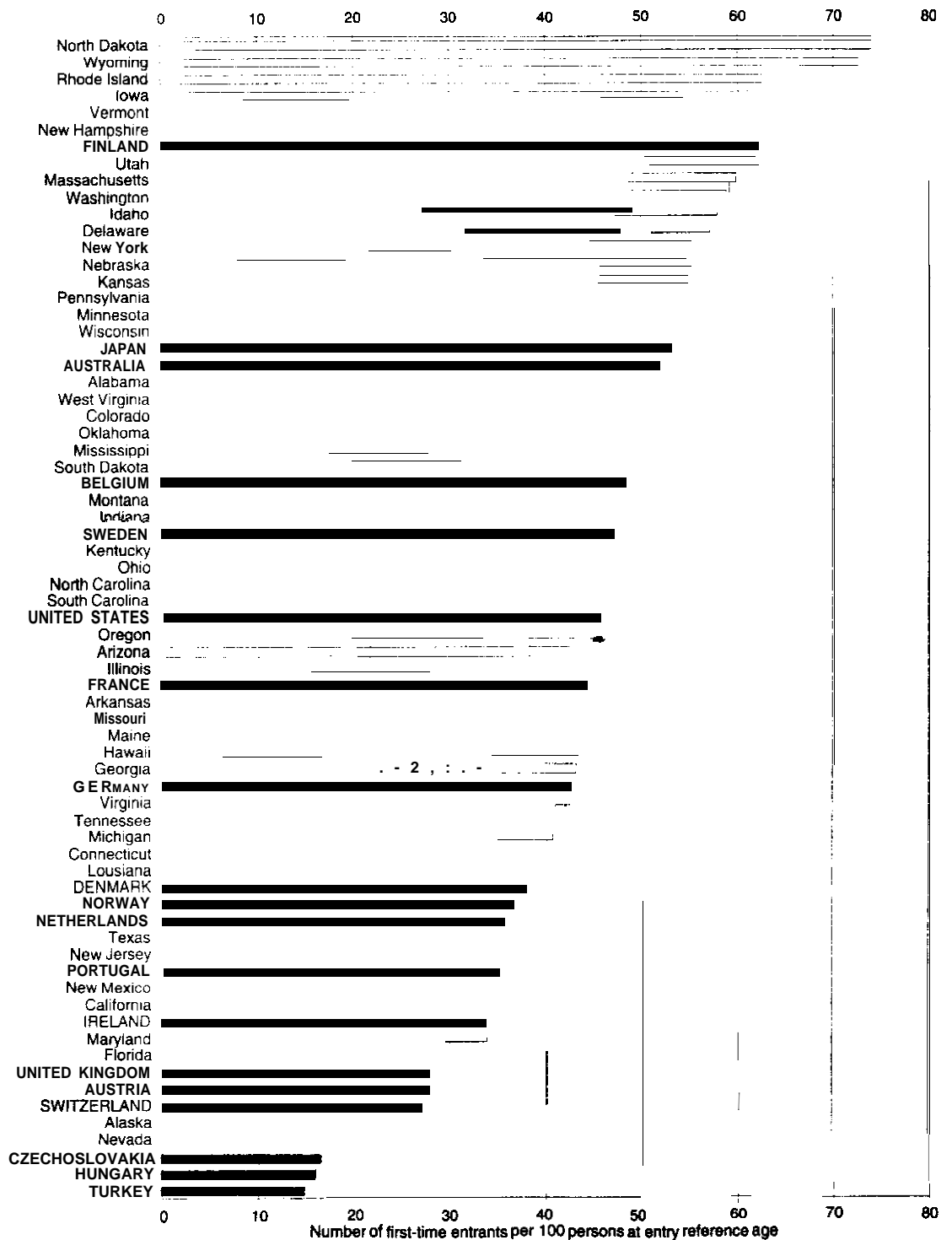
Figure 11a: Number of first-time entrants into full-time public and private higher education per 100 persons at entry reference age, counted at location of institution, by sex, country (1991), and state (1990)



NOTE States and nations are sorted from high to low based on the sum of the numbers from the two figures.

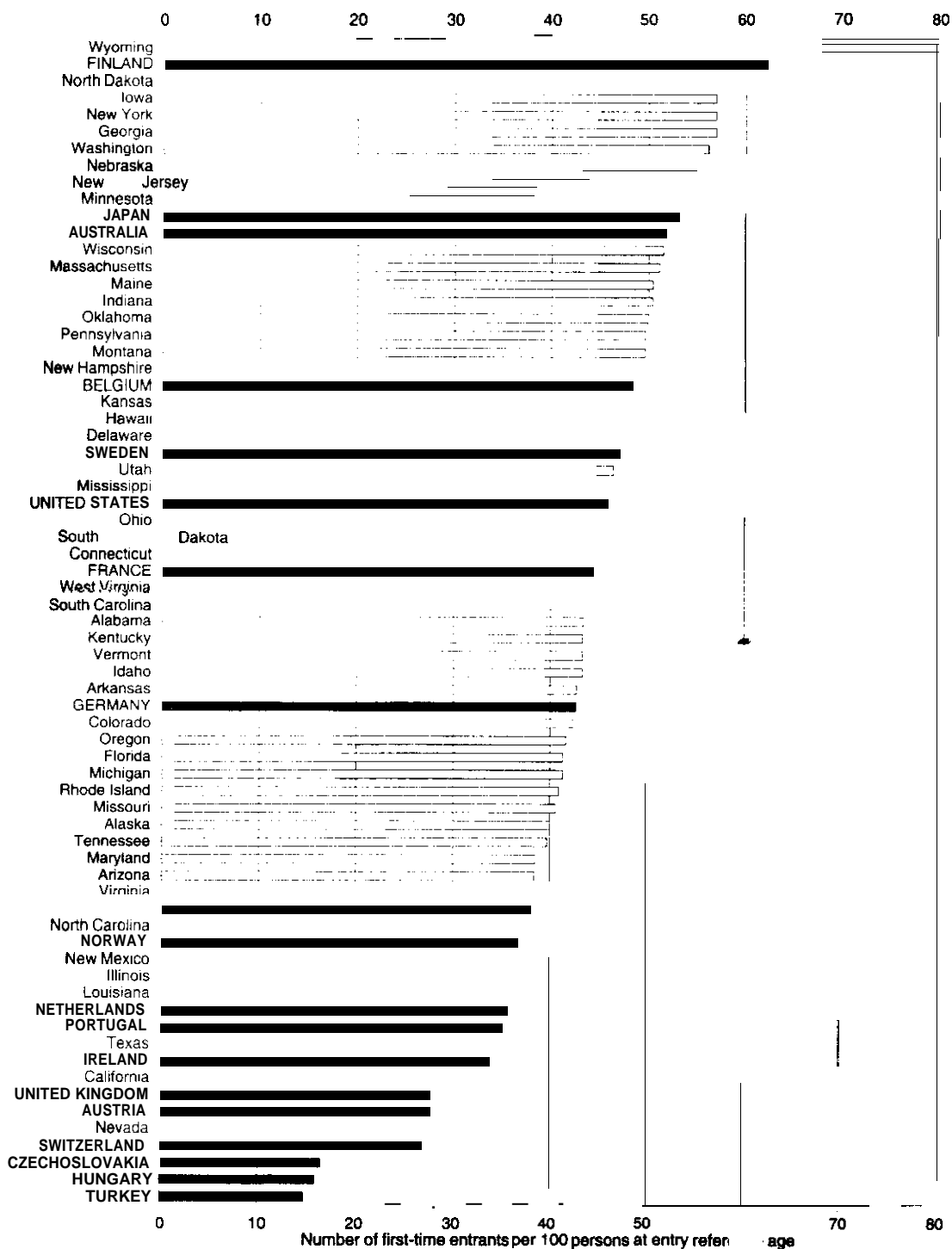
SOURCE: Organization for Economic Co-operation and Development, Center for Educational Research and Innovation, *Education at a Glance, 1993*, Table P1.5; U.S. Department of Commerce, Bureau of the Census, 1990 Census of Population and Housing; U.S. Department of Education, National Center for Education Statistics, Digest of Education Statistics, 1993, Table 177; Digest of Education Statistics, 1994, Table 199.

Figure 11b: Number of first-time entrants into full-time public and private higher education per 100 persons at entry reference age, counted at location of institution, by country (1991) and state (1990)



SOURCE: Organization for Economic Co-operation and Development, Center for Educational Research and Innovation, *Education at a Glance, 1993*, Table PI 5. U.S. Department of Commerce, Bureau of the Census, *1990 Census of Population and Housing*. U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1993*, Table 177; *Digest of Education Statistics, 1994*, Table 199.

Figure 11c: Number of first-time entrants into full-time public and private higher education per 100 persons at entry reference age, counted at location of student's original state of residence, by country (1991) and state (1990)



SOURCE: Organization for Economic Co-operation and Development, Center for Educational Research and Innovation, *Education at a Glance, 1993*, Table P1.5. U.S. Department of Commerce, Bureau of the Census, *1990 Census of Population and Housing*. U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1993*, Table 177; *Digest of Education Statistics, 1994*, Table 199.

Table 11a: Number of first-time entrants into full-time public and private higher education per 100 persons at the entry reference age, by sex and country: 1991

Country	Entry reference age	All students	Sex	
			Male	Female
Australia	18	51.8	42.2	61.6
Austria	19	27.7	27.0	28.5
Belgium	18	48.4	45.2	51.7
Czechoslovakia	18	16.5	17.8	15.7
Denmark	19	38.0	32.9	43.5
Finland	19	62.2	53.8	70.8
France	18	44.4	39.9	49.0
Germany ¹	18/19	42.6	49.3	39.4
Hungary	19	15.9	15.8	16.1
Ireland	18	33.8	34.2	33.4
Japan	18	53.1	51.8	54.5
Italy	19	—	—	—
Netherlands	19	35.7	37.6	33.6
New Zealand	18	—	—	—
Norway	19	36.7	31.7	42.0
Portugal	18	35.2	30.0	40.8
Spain	18	—	—	—
Sweden	19	47.1	42.7	51.9
Switzerland	20	26.9	30.7	22.9
Turkey	18	14.8	18.6	10.7
United Kingdom	18	27.7	28.3	27.0
United States ²	18	45.8	43.2	48.5

— Not available.

¹Male and female figures apply to the West Germany only. The "all students" figure applies to Germany as a whole.

²1990 data.

NOTE: Only students attending higher education institutions in their home country are counted among the new entrants. Thus, there is no distinction in the country-level data (as there is in the state-level data) between counting a new entrant at the location of the institution or the student's home. Both locations lie in the same country. See supplemental note to Indicator 11 on pp. 262–264 for details on data provided by Denmark, Finland, France, Hungary, Ireland, the Netherlands, Spain, the United Kingdom, and the United States, for a discussion of the non-inclusion of proprietary schools, for a discussion of the calculation of full-time equivalent enrollments, and for a discussion comparing U.S. entry-ratio data from the Integrated Postsecondary Education Data System (IPEDS) and the OECD's INES Project; on pp. 231–233 for a discussion of levels of education and on pp. 233–236 for a discussion of enrollment reference groups and entry reference ages.

SOURCE: Organization for Economic Co-operation and Development, Center for Educational Research and Innovation, *Education at a Glance, 1993*, Table P15. U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1993*, Table 177. U.S. Department of Commerce, Bureau of the Census, 1990 Census of Population and Housing.

Table 11b: Number of first-time entrants into full-time public and private higher education per 100 persons age 18, by location, sex, and state: 1990

State	Counted at location of student's , higher education institution			Counted at location of student's original state of residence
	All students	Male	Female	
Alabama	51.5	46.0	57.2	43.4
Alaska	26.4	22.1	31.6	40.0
Arizona	44.7	45.5	43.8	38.4
Arkansas	44.4	39.6	49.2	42.7
California	33.9	31.1	37.2	33.4
Colorado	51.0	48.9	53.3	42.3
Connecticut	39.0	37.1	40.9	44.7
Delaware	57.1	52.5	61.2	47.9
District of Columbia	65.2	57.3	72.7	49.4
Florida	30.5	28.8	32.3	41.3
Georgia	43.1	39.0	47.3	56.9
Hawaii	43.3	37.0	50.8	48.0
Idaho	57.9	61.7	54.7	43.3
Illinois	44.5	42.4	46.7	35.8
Indiana	47.6	45.2	50.0	50.4
Iowa	66.7	64.5	68.9	56.9
Kansas	54.8	53.7	56.2	48.0
Kentucky	46.5	38.5	55.6	43.3
Louisiana	38.3	33.8	42.7	35.8
Maine	43.4	41.2	45.7	50.4
Maryland	33.8	31.2	36.4	38.5
Massachusetts	60.7	56.1	65.1	51.1
Michigan	40.6	36.4	45.1	41.3
Minnesota	53.2	52.4	54.0	54.3
Mississippi	49.4	44.1	54.8	45.9
Missouri	43.9	40.6	47.3	40.6
Montana	47.8	43.0	53.2	49.7
Nebraska	55.1	54.7	55.4	55.2
Nevada	23.7	23.0	24.5	27.7
New Hampshire	62.4	58.2	66.3	49.7
New Jersey	35.3	33.1	37.7	55.1
New Mexico	35.1	33.8	36.5	36.5
New York	55.6	51.7	59.5	56.9
North Carolina	46.0	41.2	50.9	37.1
North Dakota	74.3	81.6	67.8	57.6
Ohio	46.2	43.7	48.6	45.1
Oklahoma	50.8	43.9	58.5	50.0
Oregon	45.3	45.2	45.4	41.6
Pennsylvania	53.5	49.2	58.2	49.7
Rhode Island	71.1	74.2	68.2	40.9
South Carolina	45.9	42.6	49.1	43.9
South Dakota	48.8	47.3	50.1	45.0
Tennessee	41.9	37.2	47.1	39.7
Texas	35.5	33.8	37.3	35.1
Utah	62.2	60.2	64.1	46.4
Vermont	63.0	61.9	64.2	43.3
Virginia	42.4	36.5	49.0	38.2
Washington	59.7	56.9	62.5	56.1
West Virginia	51.0	50.1	52.0	44.3
Wisconsin	53.1	50.4	55.8	51.5
Wyoming	72.7	87.0	59.2	79.8

SOURCE: U.S. Department of Commerce, Bureau of the Census, 1990 Census of Population and Housing. U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1993*, Table 177; *Digest of Education Statistics, 1994*, Table 199.

Indicator 12: Non-university higher education enrollment

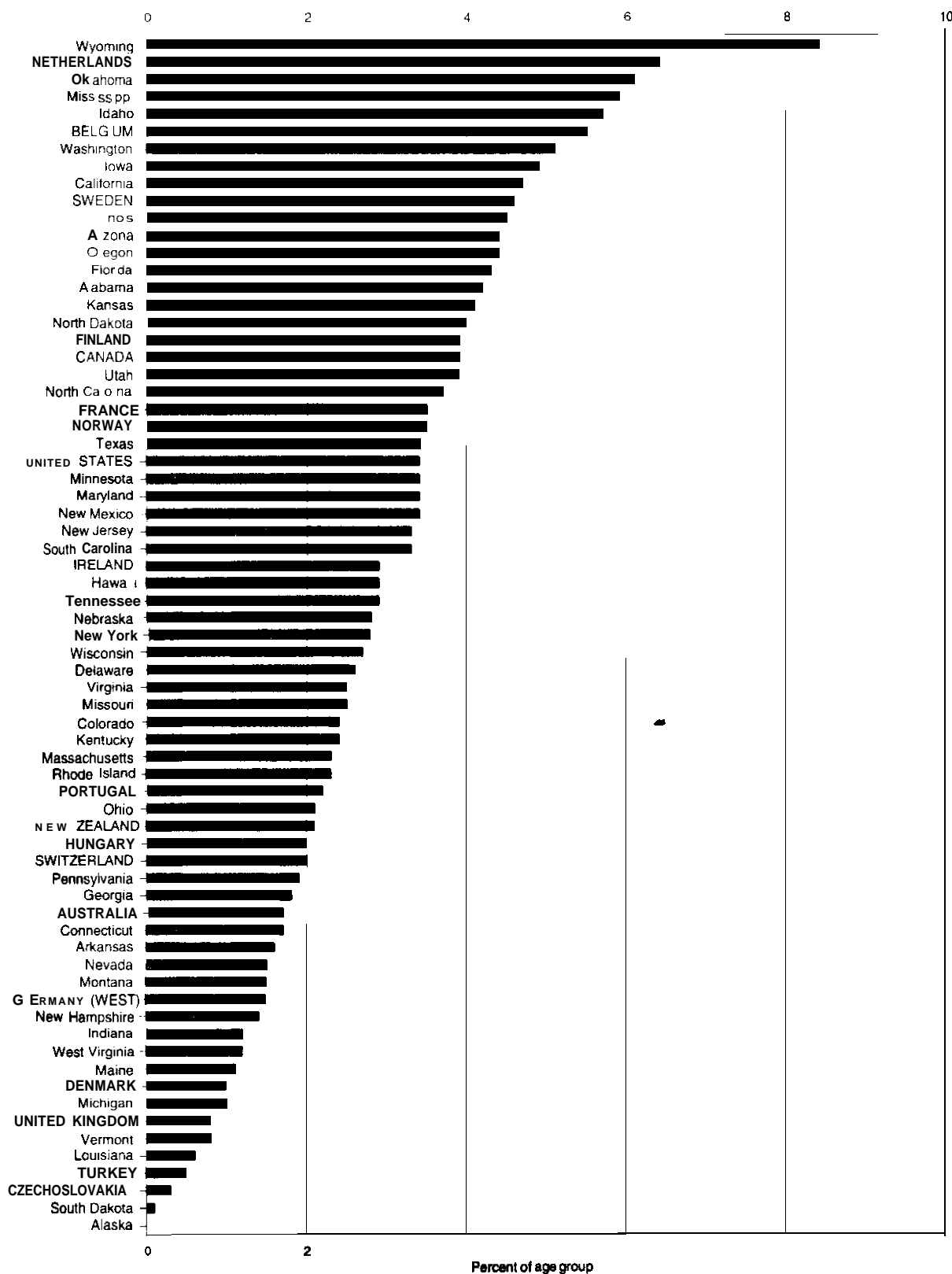
Non-university higher education institutions typically provide occupationally-oriented programs that may or may not prepare students to proceed to university degree programs. The percentage of individuals in different age groups who are enrolled in non-university higher education reflects (1) the role of non-university higher education in the training process, (2) the duration of non-university higher education programs, and (3) the classification of programs as upper secondary, non-university, or university higher education. In countries with high non-university higher education enrollment rates, non-university higher education may serve as the place to receive training and certification for a large number of occupations, whereas in countries with low rates, similar training may occur at other levels in the system. This indicator displays the percentage of persons from certain age groups who are enrolled in public and private non-university higher education (defined as community or junior colleges in the United States). Rates are provided for three age groups (18–21 years, 22–29 years, and 18–29 years) and are broken down by enrollment status (full-time and part-time).

- ▶ **Full-time non-university higher education enrollment rates for 18- to 21-year-olds in the G-7 countries fell into two groups in 1991: those with relatively high enrollment rates and those with relatively low enrollment rates. The United States recorded a relatively high enrollment rate (7.5 percent), as did Canada and France, both with 8.1 percent. West Germany and the United Kingdom both reported a comparatively low enrollment rate of 1.9 percent. In Belgium and the Netherlands, non-university full-time enrollment among 18- to 21-year-olds exceeded 10 percent.**
- ▶ **Part-time non-university education for 18- to 21-year-olds was rare in most countries. Exceptions to this pattern were the United States, the United Kingdom, and Australia. Indeed, in the United Kingdom and Australia, more part-time than full-time students attended non-university programs.**
- ▶ **Full-time enrollment in non-university higher education declined, sometimes dramatically, as students progressed into their twenties in every country reporting data except Denmark and Switzerland. However, part-time enrollment rates, among countries where part-time enrollments were counted, decreased in as many countries as they increased, as students moved into the older age cohort.**

Note on interpretation:

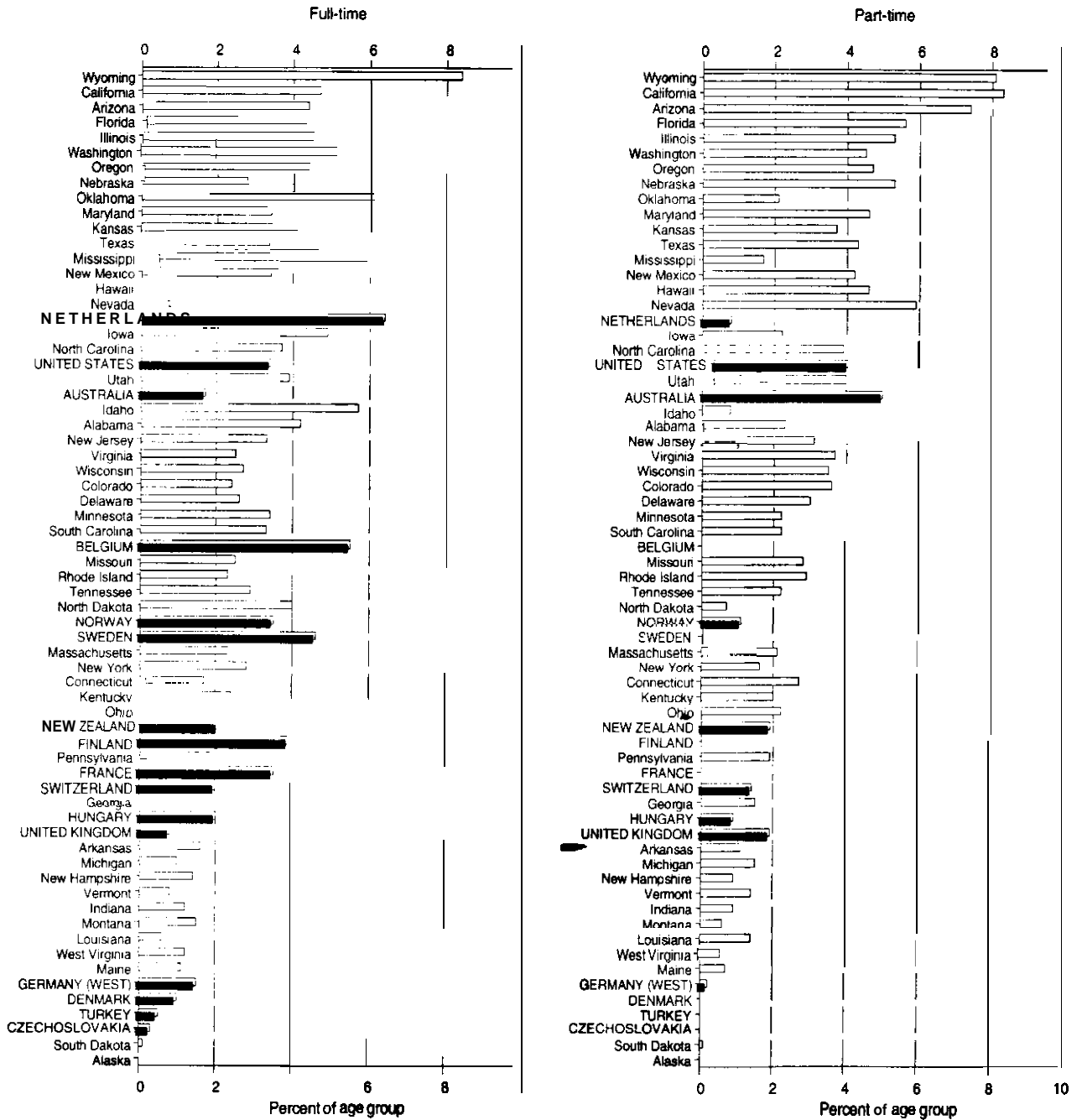
Countries differ greatly in how they classify certain programs as either higher education or upper secondary programs. For example, some programs that are begun subsequent to the completion of general secondary education are classified as non-university higher education in the United States and in parts of Canada, whereas they are defined as upper secondary education in most other countries. (See the supplemental note on levels of education on pages 231–233.)

Figure 12a: Full-time enrollment in public and private non-university higher education among 18- to 29-year-olds, by country and state:1991



SOURCE: Organization for Economic Co-operation and Development, Center for Educational Research and Innovation, *Education at a Glance, 1993*, Table P16. U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Fall Enrollment Survey, 1991. U.S. Department of Commerce, Bureau of the Census, 1990 Census of Population and Housing.

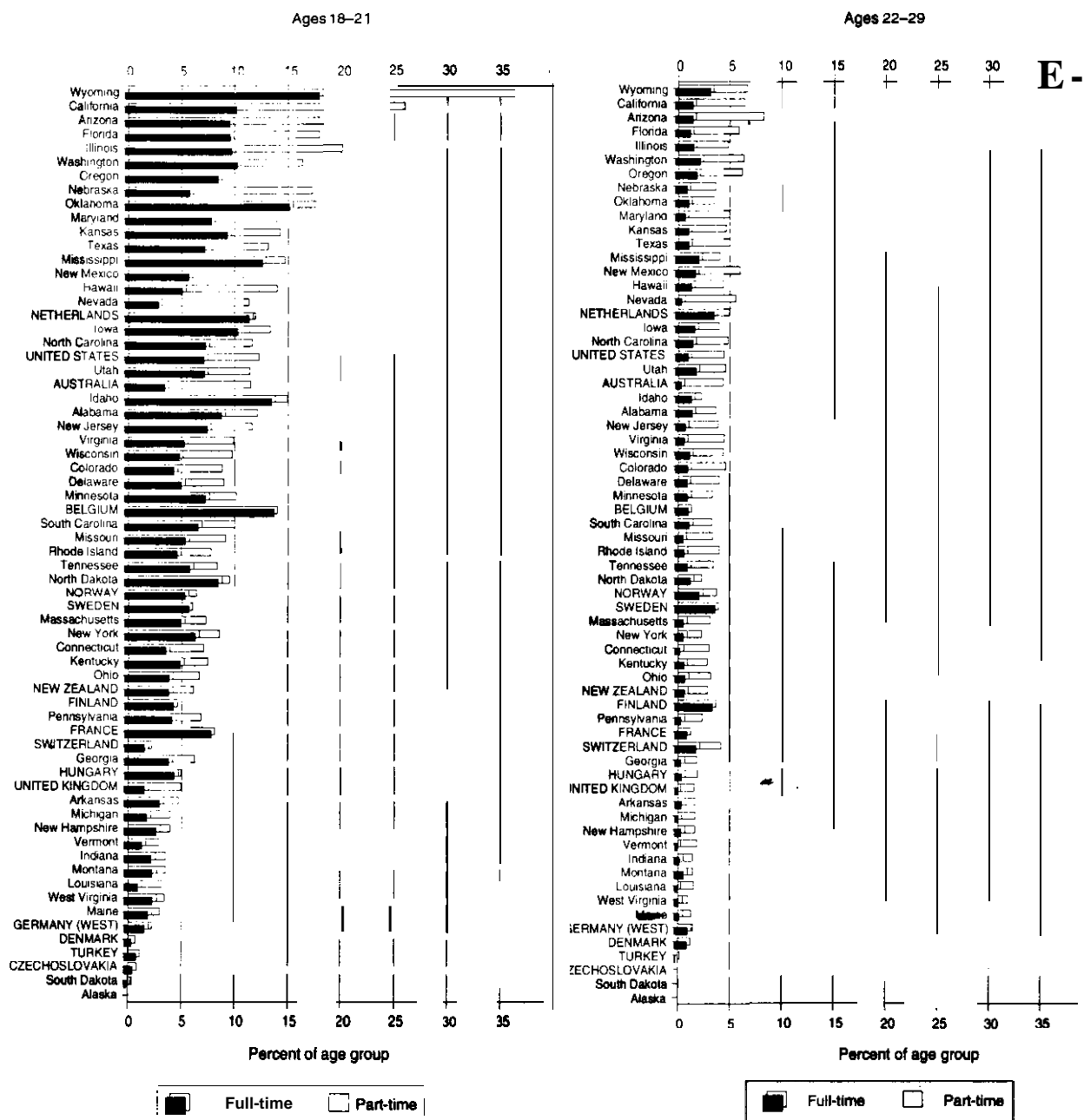
Figure 12b: Enrollment in public and private non-university higher education among 18- to 29-year-olds, by enrollment status, country, and state: 1991



NOTE: States and nations are sorted from high to low based on the sum of the numbers from the two figures.

SOURCE: Organization for Economic Co-operation and Development, Center for Educational Research and Innovation, *Education at a Glance*, 1993, Table P16. U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Fall Enrollment, 1991.

Figure 12c: Enrollment in public and private non-university higher education, by age group, enrollment status, country, and state: 1991



NOTE States and nations are sorted from high to low based on the weighted average of the numbers from the two figures

SOURCE: Organization for Economic Co-operation and Development, Center for Educational Research and Innovation, *Education at a Glance*, 1993, table P16. U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Fall Enrollment, 1991.

Table 12a: Enrollment in public and private non-university higher education, by age group, enrollment status, and country: 1991

Country	Ages 18–21		Ages 22–29 ¹		Total ages 18–29 ²	
	Full-time	Part-time	Full-time	Part-time	Full-time	Part-time
Australia	3.8	7.7	0.6	3.7	1.7	5.0
Belgium	14.0	0.0	1.3	0.0	5.5	0.0
Czechoslovakia	0.8	0.0	0.0	0.0	0.3	0.0
Canada	8.1	—	1.8	—	3.9	—
Denmark	0.7	0.0	1.2	0.0	1.0	0.0
Finland	4.6	0.0	3.6	0.0	3.9	0.0
France	8.1	0.0	1.2	0.0	3.5	0.0
Germany (West)	1.9	0.3	1.3	0.2	1.5	0.2
Hungary	4.7	0.2	0.7	1.2	2.0	0.9
Ireland	7.6	—	0.5	—	2.9	—
Netherlands	11.7	0.2	3.8	1.1	6.4	0.8
New Zealand	4.2	1.9	1.0	1.9	2.1	1.9
Norway	5.7	0.7	2.4	1.3	3.5	1.1
Portugal	3.7	—	1.4	—	2.2	—
Sweden	6.0	0.0	3.9	0.0	4.6	0.0
Switzerland	1.9	0.3	2.1	2.0	2.0	1.4
Turkey	1.1	0.0	0.2	0.0	0.5	0.0
United Kingdom	1.9	3.0	0.3	1.3	0.8	1.9
United States	7.5	4.8	1.3	3.1	3.4	3.7

— Not available.

¹Figures are averages of separate figures provided for the age groups 22–25 and 26–29.

²Weighted average of the age groups 18–21 and 22–29.

NOTE: See supplemental note to Indicator 12 on pp. 262–264 for details on data provided by Denmark, France, Hungary, the Netherlands, and the United States, for a discussion of the non-inclusion of proprietary schools, for a discussion of the calculation of full-time equivalent enrollments, and for a discussion of enrollment reference groups and entry reference ages; and on pp. 231–233 for a discussion of levels of education.

SOURCE: Organization for Economic Co-operation and Development, Center for Educational Research and Innovation, *Education at a Glance*, 1993, Table P16.

Table 12b: Enrollment in public and private non-university higher education, by age group, enrollment status, and state: 1991

State	Ages 18-21		Ages 22-29		Total ages 18-29*	
	Full-time	Part-time	Full-time	Part-time	Full-time	Part-time
Alabama	9.2	2.9	1.7	2.0	4.2	2.3
Alaska	0.0	0.0	0.0	0.0	0.0	0.0
Arizona	9.9	9.1	1.7	6.5	4.4	7.4
Arkansas	3.4	1.3	0.8	0.9	1.6	1.1
California	10.5	15.5	1.7	4.7	4.7	8.3
Colorado	4.7	4.2	1.2	3.3	2.4	3.6
Connecticut	3.8	3.2	0.6	2.4	1.7	2.7
Delaware	5.4	3.6	1.2	2.7	2.6	3.0
District of Columbia	0.0	0.0	0.0	0.0	0.0	0.0
Florida	9.9	8.0	1.5	4.3	4.3	5.6
Georgia	4.2	2.0	0.7	1.2	1.8	1.5
Hawaii	5.4	8.6	1.6	2.7	2.9	4.6
Idaho	13.8	1.2	1.6	0.6	5.7	0.8
Illinois	10.1	10.0	1.8	3.0	4.5	5.3
Indiana	2.5	0.9	0.6	0.9	1.2	0.9
Iowa	10.7	2.7	2.0	2.0	4.9	2.2
Kansas	9.7	4.5	1.3	3.3	4.1	3.7
Kentucky	5.2	2.2	0.9	1.9	2.4	2.0
Louisiana	1.3	1.9	0.3	1.2	0.6	1.4
Maine	2.3	0.6	0.5	0.7	1.1	0.7
Maryland	8.2	5.8	1.0	4.0	3.4	4.6
Massachusetts	5.3	2.0	0.9	2.2	2.3	2.1
Michigan	2.1	1.8	0.4	1.3	1.0	1.5
Minnesota	7.6	2.5	1.3	2.0	3.4	2.2
Mississippi	12.9	1.8	2.3	1.7	5.9	1.7
Missouri	5.8	3.4	0.8	2.5	2.5	2.8
Montana	2.6	0.8	0.9	0.5	1.5	0.6
Nebraska	6.1	11.1	1.2	2.4	2.8	5.3
Nevada	3.2	8.1	0.7	4.8	1.5	5.9
New Hampshire	3.0	0.9	0.7	1.0	1.4	0.9
New Jersey	7.8	3.9	1.0	2.8	3.3	3.1
New Mexico	6.0	4.9	2.0	3.9	3.4	4.2
New York	6.6	1.9	0.9	1.4	2.8	1.6
North Carolina	7.6	4.0	1.7	3.0	3.7	3.4
North Dakota	8.9	0.7	1.5	0.7	4.0	0.7
Ohio	4.2	2.5	1.1	2.0	2.1	2.2
Oklahoma	15.5	2.1	1.4	2.1	6.1	2.1
Oregon	8.8	6.0	2.1	4.0	4.4	4.7
Pennsylvania	4.5	2.3	0.7	1.6	1.9	1.9
Rhode Island	5.0	2.8	1.0	3.0	2.3	2.9
South Carolina	6.9	3.1	1.5	1.8	3.3	2.2
South Dakota	0.3	0.1	0.0	0.1	0.1	0.1
Tennessee	6.1	2.2	1.2	2.2	2.9	2.2
Texas	7.5	5.6	1.3	3.6	3.4	4.3
Utah	7.5	3.9	2.1	2.5	3.9	2.9
Vermont	1.7	1.2	0.3	1.6	0.8	1.4
Virginia	5.6	4.3	1.0	3.5	2.5	3.7
Washington	10.6	5.8	2.4	3.9	5.1	4.5
West Virginia	2.7	0.7	0.4	0.6	1.2	0.6
Wisconsin	5.2	4.6	1.5	2.9	2.7	3.5
Wyoming	18.3	18.0	3.4	3.2	8.4	8.1

*Weighted average of the age groups 18-21 and 22-29.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Fall Enrollment, 1991. U.S. Department of Commerce, Bureau of the Census, 1990 Census of Population and Housing.

Indicator 13: University enrollment

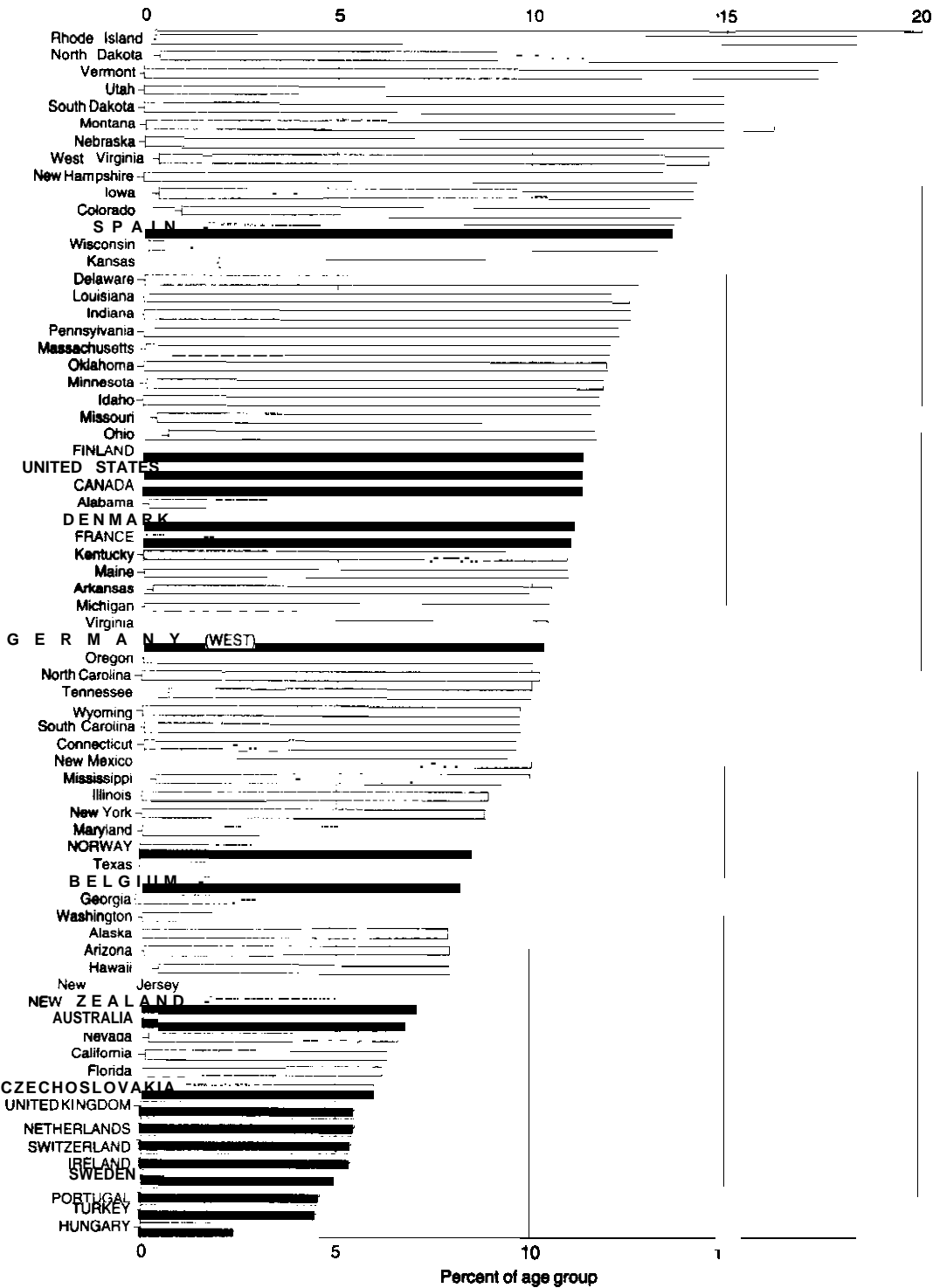
The size of university **enrollment** reflects the accessibility of university education and the extent to which individuals believe that education provides necessary training for different **occupations**. A high rate of **university** enrollment in a country suggests that university education is highly valued and widely **available**. In other **countries**, enrollment rates may be low if admission to universities is restricted or if university education is not **vital** to employment and success in a large number of **occupations**. This indicator shows the percentage of persons from certain age cohorts (**18–21 years, 22–29 years, and 18–29 years**) who are students enrolled full-time or **part-time** at public or private universities. The **students** may be enrolled in any type of **university** or four-year college (**including** undergraduate and graduate education).

- ▶ **Among the twenty countries for which data were available in 1991, the United States and Canada recorded the highest full-time enrollment rates for 18- to 21-year-olds (22.8 and 21.6 percent, respectively). Only one other nation (Spain) reported a full-time enrollment rate higher than 20 percent.**

- ▶ **In 1991, the U.S. states generally showed higher full-time enrollment rates among 18- to 21-year-olds than did the other countries. Full-time enrollment rates exceeded 20 percent in 36 states, but exceeded this percentage in only 2 other countries.**

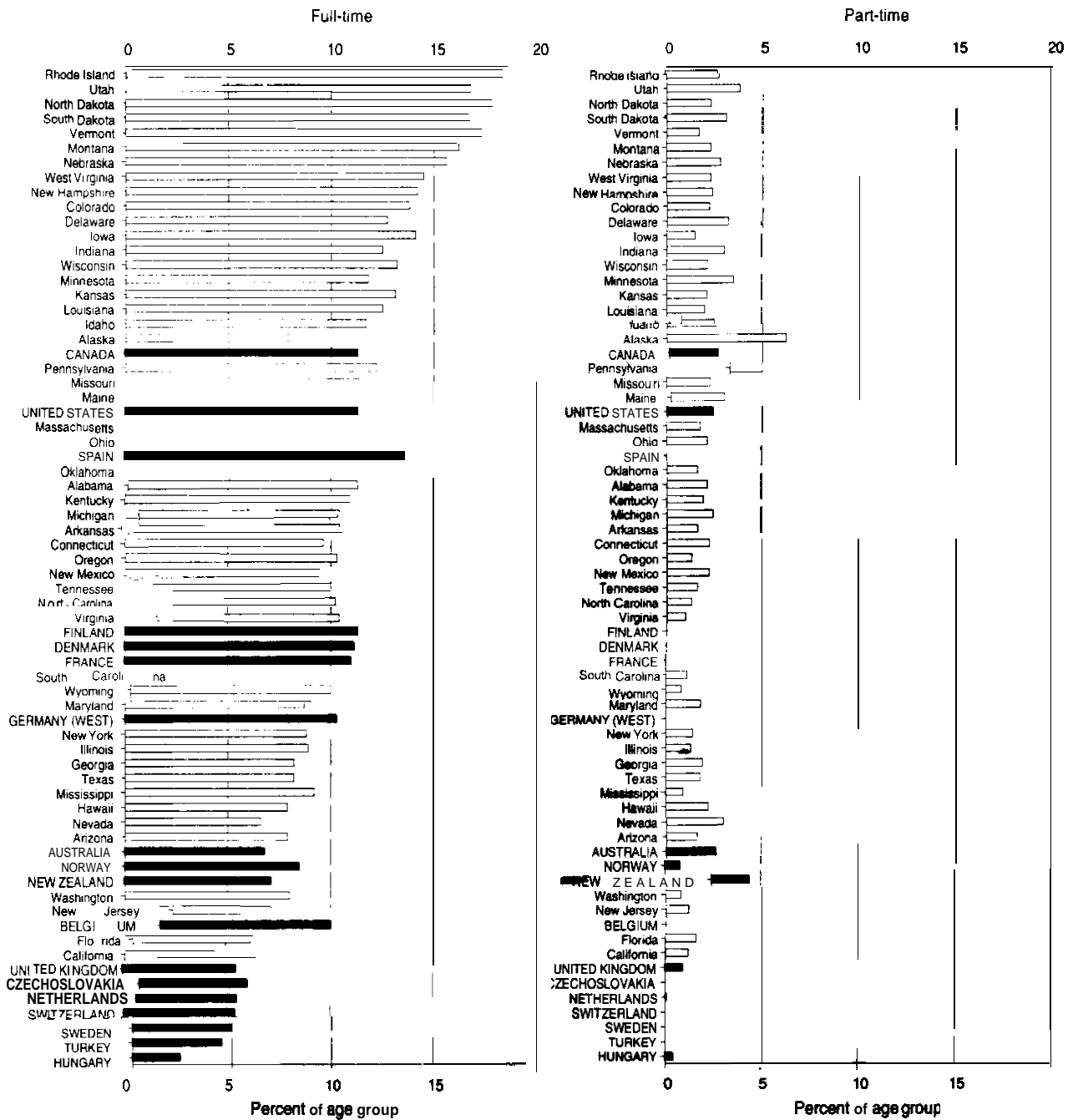
- ▶ **Out of all the states and countries included, only Delaware, Alaska, and Australia reported a greater number of students in the 22- to 29-year age group enrolled part-time than full-time. Unlike some of the nations included, every state showed dramatic decline in full-time university enrollment rates as students progressed into the older age group.**

Figure 13a: Full-time enrollment in public and private university education among 18- to 29-year-olds, by country and state: 1991



SOURCE: Organization for Economic Co-operation and Development, Center for Educational Research and Innovation, *Education at a Glance, 1993*, Table PI 7. U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Fall Enrollment Survey, 1991, U.S. Department of Commerce, Bureau of the Census, 1990 Census of Population and Housing.

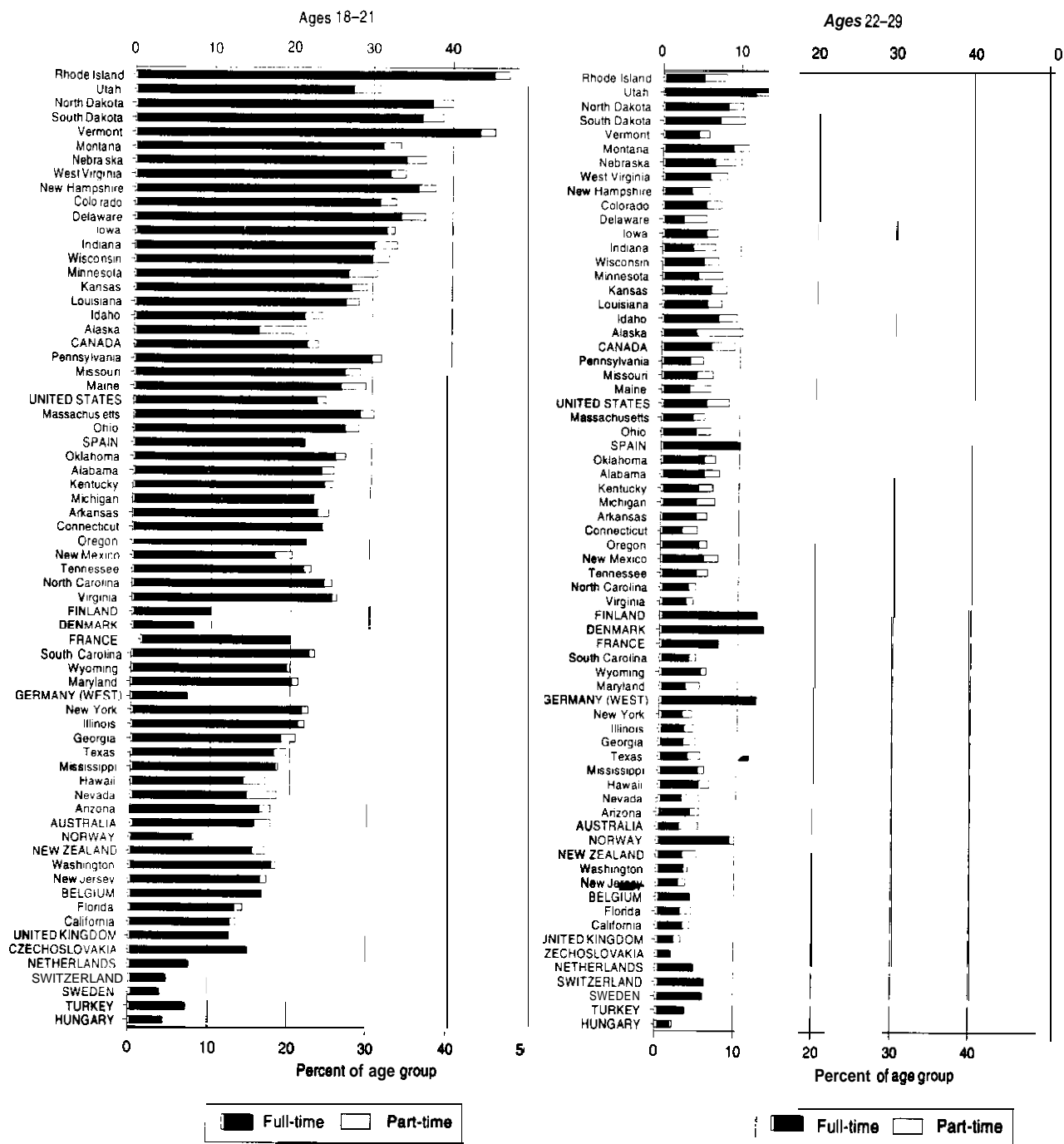
Figure 13b: Enrollment in public and private university education among 18- to 29-year-olds, by enrollment status, country, and state: 1991



NOTE: States and nations are sorted from high to low based on the sum of the numbers from the two columns.

SOURCE: Organization for Economic Co-operation and Development, Center for Educational Research and Innovation, Education at a Glance, 1993, Table P1. U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Fall Enrollment, 1991.

Figure 13c: Enrollment in public and private university education, by age group, enrollment status, country, and state: 1991



NOTE: States and nations are sorted from high to low based on the weighted average of the numbers from the two figures.

SOURCE: Organization for Economic Co-operation and Development, Center for Educational Research and Innovation, Education at a Glance, 1993, Table P17. U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Fall Enrollment, 1991

Table 13a: Enrollment in public and private university education, by age group, enrollment status, and country: 1991

Country	Ages 18–21		Ages 22–29 ¹		Total ages 18–29 ²	
	Full-time	Part-time	Full-time	Part-time	Full-time	Part-time
Australia	15.2	2.3	2.6	2.7	6.8	2.6
Belgium	16.4	0.0	4.1	0.0	8.2	0.0
Czechoslovakia	14.7	0.0	1.7	0.0	6.0	0.0
Canada	21.6	1.6	6.1	3.2	11.3	2.7
Denmark	7.5	0.0	12.9	0.0	11.1	0.0
Finland	9.7	0.0	12.1	0.0	11.3	0.0
France	18.5	0.0	7.2	0.0	11.0	0.0
Germany (West)	6.8	0.0	12.0	0.0	10.3	0.0
Hungary	4.1	0.1	1.6	0.6	2.4	0.4
Ireland	12.7	—	1.8	—	5.4	—
Netherlands	7.3	0.0	4.6	0.2	5.5	0.1
New Zealand	15.2	1.9	3.1	2.1	7.1	2.0
Norway	7.6	0.5	9.0	1.0	8.5	0.8
Portugal	7.7	—	3.0	—	4.6	—
Spain	21.3	0.0	9.8	0.0	13.6	0.0
Sweden	3.6	0.0	5.7	0.0	5.0	0.0
Switzerland	4.4	0.0	5.9	0.0	5.4	0.0
Turkey	6.8	0.0	3.4	0.0	4.5	0.0
United Kingdom	12.4	0.3	2.0	1.2	5.5	0.9
United States	22.8	1.4	5.5	3.1	11.3	2.5

— Not available.

¹Figures are averages of separate figures provided for the age groups 22–25 and 26–29.

²Weighted average of the age groups 18–21 and 22–29.

NOTE: See supplemental note to Indicator 13 on pp. 262–264 for details on data provided by Denmark, France, Hungary, the Netherlands, and the United States, for a discussion of the non-inclusion of proprietary schools, for a discussion of the calculation of full-time equivalent enrollments, and for a discussion of enrollment reference groups and entry reference ages; and on pp. 231–233 for a discussion of levels of education.

SOURCE: Organization for Economic Co-operation and Development, Center for Educational Research and Innovation, *Education at a Glance*, 1993, Table P17.

Table 13b: Enrollment in public and private university education, by age group, enrollment status, and state: 1991

State	Ages 18-21		Ages 22-29		Total ages 18-29*	
	Full-time	Part-time	Full-time	Part-time	Full-time	Part-time
Alabama	23.4	1.9	5.2	2.2	11.3	2.1
Alaska	15.5	6.2	4.2	6.2	7.9	6.2
Arizona	15.7	1.8	4.0	1.5	7.9	1.6
Arkansas	23.0	1.7	4.3	1.6	10.5	1.6
California	12.5	1.0	3.1	1.3	6.3	1.2
Colorado	30.6	2.2	5.3	2.2	13.8	2.2
Connecticut	23.7	2.3	2.5	2.2	9.6	2.2
Delaware	33.3	3.3	2.5	3.2	12.7	3.2
District of Columbia	44.8	3.9	7.5	3.6	19.9	3.7
Florida	13.0	1.3	2.8	1.8	6.2	1.6
Georgia	18.6	2.1	2.9	1.9	8.2	1.9
Hawaii	13.9	3.0	4.9	1.7	7.9	2.2
Idaho	21.2	2.5	7.0	2.6	11.7	2.6
Illinois	20.7	1.1	3.0	1.4	8.9	1.3
Indiana	30.0	3.1	3.7	3.0	12.5	3.0
Iowa	31.5	1.2	5.4	1.6	14.1	1.5
Kansas	27.2	2.1	6.0	2.1	13.1	2.1
Kentucky	23.8	1.4	4.5	2.1	10.9	1.9
Louisiana	26.4	1.8	5.6	2.0	12.5	2.0
Maine	25.9	3.3	3.4	2.9	10.9	3.0
Maryland	19.9	1.1	3.1	2.1	8.7	1.8
Massachusetts	28.3	1.9	3.8	1.7	12.0	1.8
Michigan	22.6	1.9	4.3	2.6	10.4	2.4
Minnesota	26.8	3.8	4.4	3.4	11.8	3.5
Mississippi	17.9	0.6	4.8	1.0	9.2	0.9
Missouri	26.4	2.1	4.2	2.3	11.6	2.3
Montana	31.1	2.4	8.7	2.2	16.2	2.3
Nebraska	33.9	2.7	6.4	2.8	15.6	2.8
Nevada	14.2	4.0	2.8	2.5	6.6	3.0
New Hampshire	35.4	2.3	3.5	2.5	14.2	2.4
New Jersey	16.2	1.0	2.5	1.2	7.1	1.2
New Mexico	17.7	2.4	5.3	2.1	9.4	2.2
New York	21.1	1.1	2.7	1.5	8.8	1.4
North Carolina	23.9	1.3	3.3	1.3	10.2	1.3
North Dakota	37.2	2.8	8.1	2.0	17.8	2.3
Ohio	26.4	1.9	4.2	2.2	11.6	2.1
Oklahoma	25.2	1.4	5.3	1.6	11.9	1.6
Oregon	21.6	1.4	4.6	1.3	10.3	1.3
Pennsylvania	29.8	1.4	3.4	1.9	12.2	1.7
Rhode Island	44.9	2.1	5.0	3.0	18.3	2.7
South Carolina	22.0	1.0	3.5	1.2	9.7	1.1
South Dakota	36.0	2.8	7.1	3.3	16.7	3.1
Tennessee	21.3	1.2	4.3	1.8	10.0	1.6
Texas	17.7	1.8	3.5	1.9	8.2	1.8
Utah	27.3	3.6	11.5	3.9	16.8	3.8
Vermont	43.2	2.1	4.4	1.4	17.3	1.7
Virginia	25.0	0.8	3.1	1.2	10.4	1.0
Washington	17.6	0.8	3.2	0.8	8.0	0.8
West Virginia	32.0	2.1	5.8	2.4	14.5	2.3
Wisconsin	29.7	2.4	5.0	2.2	13.2	2.2
Wyoming	19.2	0.7	5.0	0.9	9.7	0.8

*Weighted average of the age groups 18-21 and 22-29.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, *Fall Enrollment, 1991*. U.S. Department of Commerce, Bureau of the Census, 1990 Census of Population and Housing.

**PROCESSES AND
INSTITUTIONS
INDICATORS**

Indicator 14: Staff employed in education

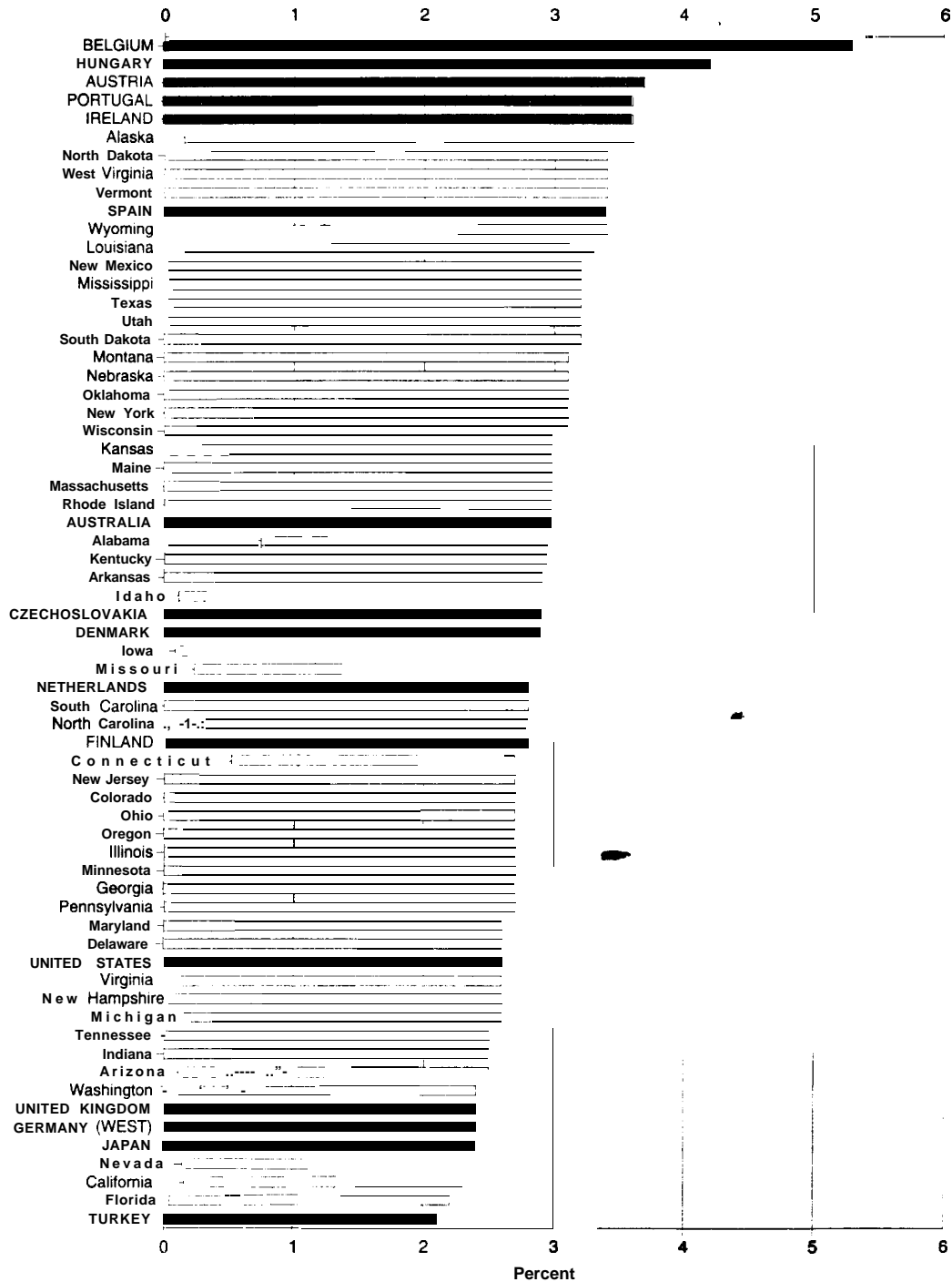
The most important resource used in education is **personnel**. This indicator presents the proportion of a **country's** or **state's** total labor force that is comprised of "education workers" — teachers and non-teaching staff. It provides a measure of the size of the education system as an **employer**, relative to the entire labor force. Teachers generally account for about half or more of all staff employed in **education**. Their role as **instructors** and evaluators is the most essential in the education **enterprise**. Teachers are **supported**, to varying degrees across countries and **states**, **however**, by non-teaching **personnel**, such as school administrators and those employed in ancillary services. Countries vary in the degree to which they include ancillary services and the associated salaries as part of their education **budgets**. In the United **States**, for **example**, school districts **commonly** provide school-based health **services**, school **cafeterias**, pupil transportation, **vocational** and psychological **counseling**, building construction and **maintenance**, and **administrative** management of the **schools**; higher education institutions **commonly** provide **dormitories**, health **clinics**, and intercollegiate sports activities. In other **countries**, few or none of these services are provided by the education authorities **but, rather**, by non-education public authorities or from private funds. In these other **countries**, the staff providing these ancillary services would not be counted as non-teaching education staff. **Thus**, the teaching to non-teaching education staff ratio is likely to be higher in these **countries**, all else being equal.

- ▶ **The five G-7 countries for which data were available recorded similar percentages of teaching staff as a percentage of the total labor force in 1991. In Germany, Japan, and the United Kingdom, teaching staff comprised 2.4 percent of the total labor force, whereas in the United States, teaching staff comprised 2.6 percent of the total labor force.**
- ▶ **The range across countries of the percentage of the total labor force employed in teaching was 3.2 percentage points: from about 2.1 percent in Turkey to 5.3 percent in Belgium. This exceeded the range across states of 1.4 percentage points: from 2.2 percent in Florida to 3.6 percent in Alaska.**
- ▶ **For the six countries other than the United States reporting complete data, teaching staff outnumbered non-teaching education staff, giving a ratio of teaching to non-teaching staff of greater than one. For the U.S. states, however, the ratio of teaching to non-teaching staff was greater than one for only 18 of the 49 U.S. states reporting complete data.**

Note on **interpretation**:

Another major difference across countries in classification procedures lies in the definition of teaching **personnel**. The United States includes only classroom teachers in this **category**. Many other **OECD countries**, including **Australia, Austria, Germany, France**, and the United **Kingdom**, **however**, also include personnel involved in the administration of **schools**. In cases of assistant principals or other administrative **personnel** who have some teaching **responsibilities**, this practice yields results somewhat comparable with the **U.S. data**. In the case of other administrative staff with no teaching **responsibilities**, **however**, accurate comparison cannot be **made**. It is **still** unclear exactly which non-teaching administrative personnel are classified as teaching staff in each of the **OECD countries**, but some include principals and headmasters and some may even include **counselors, psychologists**, and persons certified as teachers who work in central **offices**. A study is **currently** underway to deal with these issues of comparability across countries. Though the comparability problem is less **dramatic**, there also exists some variation in how states **classify personnel and, thus**, in how they report these **data**.

Figure 14: Teaching staff employed in public and private education as a percentage of the total labor force, by country and state:1991



SOURCE: Organization for Economic Co-operation and Development, Center for Educational Research and Innovation, International Indicators Project, 1993. U.S. Department of Commerce, Bureau of the Census, 1990 Census of Population. U.S. Department of Education, National Center for Education Statistics, *Private Schools in the United States*, Table 4.5; Integrated Postsecondary Education Data System, Fall Staff survey, 1991; *Digest of Education Statistics, 1993*, Table 82; and *Digest of Education Statistics, 1994*, Table 63.

Table 14a: Teaching and non-teaching staff employed in public and private educational a percentage of the total labor force, by type of staff, level of education, and country: 1991

Country	Teaching staff				Non-teaching staff	All education staff
	Primary-secondary	Higher education	Unclassified	All levels		
Australia	2.3	0.6	0.1	3.0	1.2	4.2
Austria	3.0	0.4	0.3	3.7	—	—
Belgium	4.6	0.5	0.2	5.3	1.2	6.5
Czechoslovakia	1.9	0.3	0.7	2.9	—	—
Denmark	2.6	0.2	0.1	2.9	—	—
Finland	—	—	—	2.8	2.4	5.2
France	2.4	—	—	—	—	5.9
Germany (West)	1.6	0.5	0.3	2.4	—	—
Hungary	3.0	0.4	0.8	4.2	2.6	6.7
Ireland	2.8	0.4	0.4	3.6	—	—
Japan	1.7	0.4	0.3	2.4	0.7	3.1
Netherlands	2.1	0.5	0.2	2.8	0.7	3.5
Norway	3.4	—	—	—	—	—
Portugal	3.1	0.3	0.2	3.6	—	—
Spain	2.7	0.4	0.3	3.4	—	—
Sweden	2.5	—	—	—	—	—
Turkey	1.9	0.2	0.0	2.1	—	—
United Kingdom	2.0	0.3	0.1	2.4	—	—
United States	2.1	0.5	0.0	2.6	2.9	5.6

— Not available.

NOTE: Because of rounding, details may not add to totals. See supplemental note to Indicator 14 on pp.264 for details on data provided by Australia, Denmark, Finland, West Germany and the United States.

SOURCE: Organization for Economic Co-operation and Development, Center for Educational Research and Innovation, *Education at a Glance, 1993*, Table P9.

Table 14b: Teaching and non-teaching staff employed in public and private education as a percentage of the total labor force, by type of staff, level of education, and state: 1991

State	Teaching staff			Non-teaching staff	All education staff
	Primary–secondary	Higher education	* All levels		
Alabama	2.4	0.6	3.0	3.9	6.9
Alaska	3.0	0.6	3.6	3.3	6.9
Arizona	2.2	0.3	2.5	2.6	5.1
Arkansas	2.4	0.5	2.9	3.1	6.0
California	1.8	0.4	2.3	2.5	4.8
Colorado	2.1	0.6	2.7	2.7	5.4
Connecticut	2.2	0.5	2.7	2.4	5.1
Delaware	2.1	0.4	2.6	2.7	5.3
District of Columbia	2.8	2.4	5.2	9.5	14.7
Florida	1.9	0.4	2.2	2.2	4.4
Georgia	2.3	0.4	2.7	3.0	5.7
Hawaii	2.2	—	—	1.4	—
Idaho	2.4	0.5	2.9	2.0	4.1
Illinois	2.1	0.6	2.7	2.8	5.5
Indiana	2.2	0.4	2.5	2.5	5.1
Iowa	2.3	0.6	2.9	3.5	6.4
Kansas	2.4	0.6	3.0	3.0	6.0
Kentucky	2.4	0.5	3.0	3.3	6.3
Louisiana	2.8	0.5	3.3	3.5	6.8
Maine	2.6	0.4	3.0	2.5	5.5
Maryland	2.1	0.6	2.6	2.7	5.3
Massachusetts	2.1	0.9	3.0	3.2	6.2
Michigan	2.1	0.5	2.6	3.2	5.7
Minnesota	2.1	0.6	2.7	3.0	5.7
Mississippi	2.7	0.5	3.2	3.4	6.6
Missouri	2.2	0.6	2.8	3.1	5.9
Montana	2.6	0.5	3.1	1.5	4.6
Nebraska	2.5	0.6	3.1	3.2	6.3
Nevada	1.8	0.4	2.3	0.9	3.1
New Hampshire	2.1	0.5	2.6	2.4	5.0
New Jersey	2.4	0.3	2.7	2.6	5.4
New Mexico	2.7	0.5	3.2	4.5	7.7
New York	2.4	0.7	3.1	3.5	6.6
North Carolina	2.1	0.7	2.8	2.9	5.7
North Dakota	2.6	0.8	3.4	3.1	6.5
Ohio	2.2	0.5	2.7	2.8	5.6
Oklahoma	2.6	0.5	3.1	2.9	6.0
Oregon	1.9	0.7	2.7	2.6	5.2
Pennsylvania	2.1	0.6	2.6	3.0	5.7
Rhode Island	2.3	0.7	3.0	2.9	5.9
South Carolina	2.3	0.5	2.8	2.6	5.4
South Dakota	2.7	0.5	3.2	2.4	5.6
Tennessee	2.0	0.5	2.5	3.1	5.6
Texas	2.7	0.5	3.2	2.2	5.5
Utah	2.4	0.7	3.2	3.3	6.5
Vermont	2.6	0.8	3.4	3.4	6.8
Virginia	2.2	0.4	2.6	3.0	5.6
Washington	1.9	0.5	2.4	2.4	4.7
West Virginia	2.8	0.6	3.4	3.0	6.4
Wisconsin	2.4	0.7	3.1	2.7	5.8
Wyoming	2.8	0.6	3.4	3.3	6.7

— Not available.

NOTE: Because of rounding, details may not add to totals. Data for public primary -secondary school staffing include imputations for Montana and Nevada. The number of other staff in private primary and secondary schools are imputed from national ratio of teaching to other staff in private schools. See supplemental note to Indicator 14 on p.264 for details on the characteristics of the state-level data.

SOURCE: U.S. Department of Commerce, Bureau of the Census, 1990 Census of Population. U.S. Department of Education, National Center for Education Statistics, *Private Schools in the United States*, Table 4.5; Integrated Postsecondary Education Data System, Fall Staff survey, 1991; *Digest of Education Statistics, 1993*, Table 82; and *Digest of Education Statistics, 1994*, Table 63.

Indicator 15: Number of schools and school size

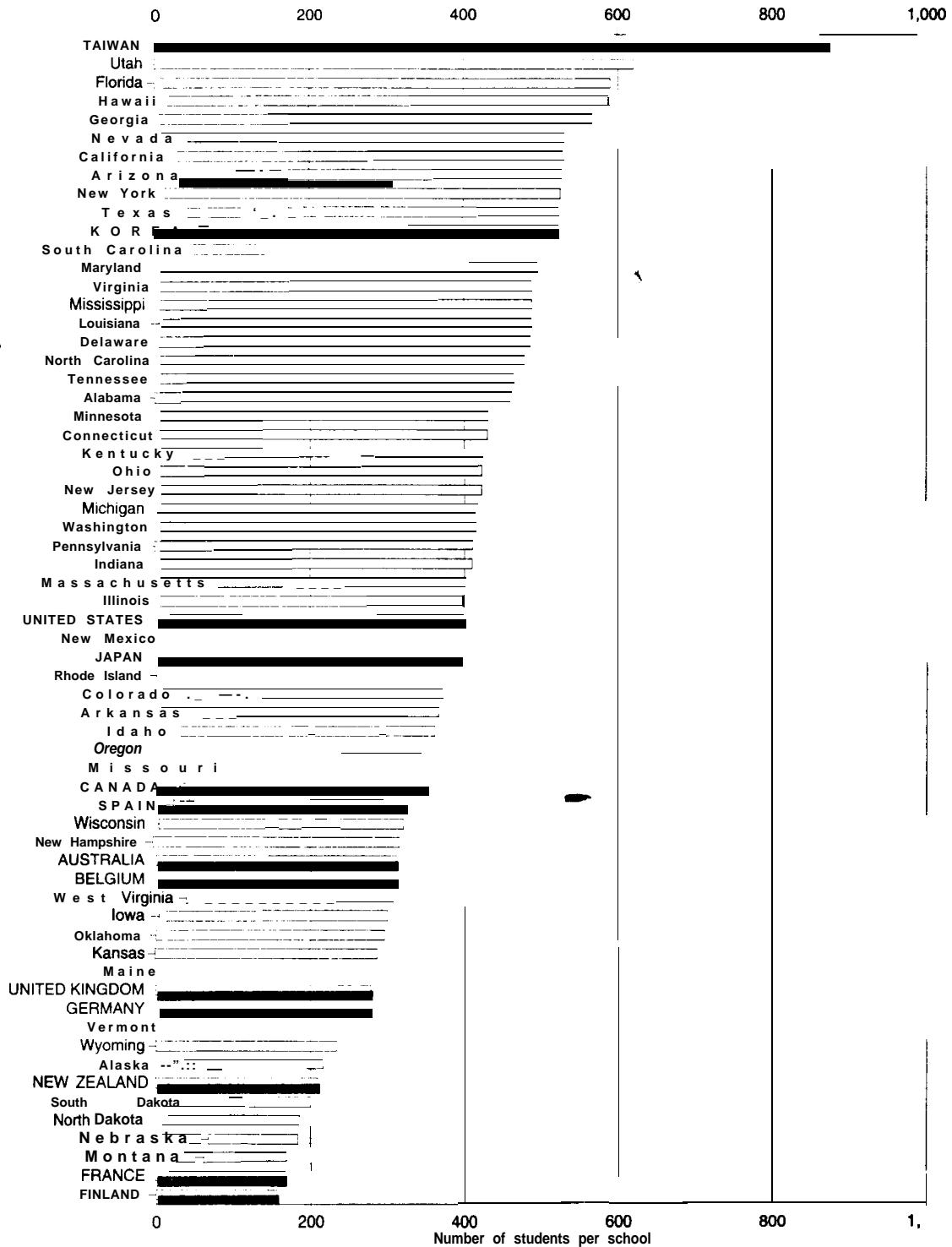
A nation or state may have a large number of schools and a small average school size because of a dispersed population, or because of some other, deliberate policy. Schooling could be compartmentalized by level (e. g., **preprimary, primary, lower secondary, upper secondary**) or by curricular theme (e. g., **academic, vocational**). These levels and themes may be separated by school or combined. The more they are kept separate, the greater the number of individual schools and the smaller the average school size. Some educators believe there is a negative association between large school size and student achievement and, therefore, encourage a reduction in the number of students per school. On the other hand, though smaller schools may have a stronger sense of community, larger schools often can provide broader curricular offerings.

- ▶ **Of the G-7 countries for which data are available for various years between 1989 and 1993, the United States and Japan had the largest average number of students per school at the preprimary through secondary level (398 and 395, respectively). The average for France (166), the G-7 country with the smallest number of students per school, was less than half that of the United States.**
- ▶ **The average number of students per preprimary through secondary school in Taiwan (873), the country with the largest number of students per school, was over five times greater than that of Finland (156), the country with the smallest average school size at the same level.**
- ▶ **For the most part, the schools in the U.S. states at the preprimary through secondary level were larger than those in other countries. Schools in 28 states, but only 2 of 13 countries, averaged above 400 students.**
- ▶ **Of the five G-7 countries included in various years between 1987 and 1993, the average number of students per higher education institution in the United States (3,988) was second only to Germany (5,660) and greater than those of Japan (2,327), France (2,636), and Canada (3,769). Germany, Korea, and Taiwan were the only countries, among the eleven for whom data were available, with averages above 5,000. Korea's average (5,779) was almost eight times that of Belgium (728), the country with the smallest number of students per institution.**
- ▶ **The U.S. states generally had higher average numbers of students per higher education institution than did the other countries. Five states, but none of the countries, had averages above 6,000 students per institution; whereas half of the other countries, but only 14 of the states, had averages below 3,000 students per institution.**

Note on interpretation:

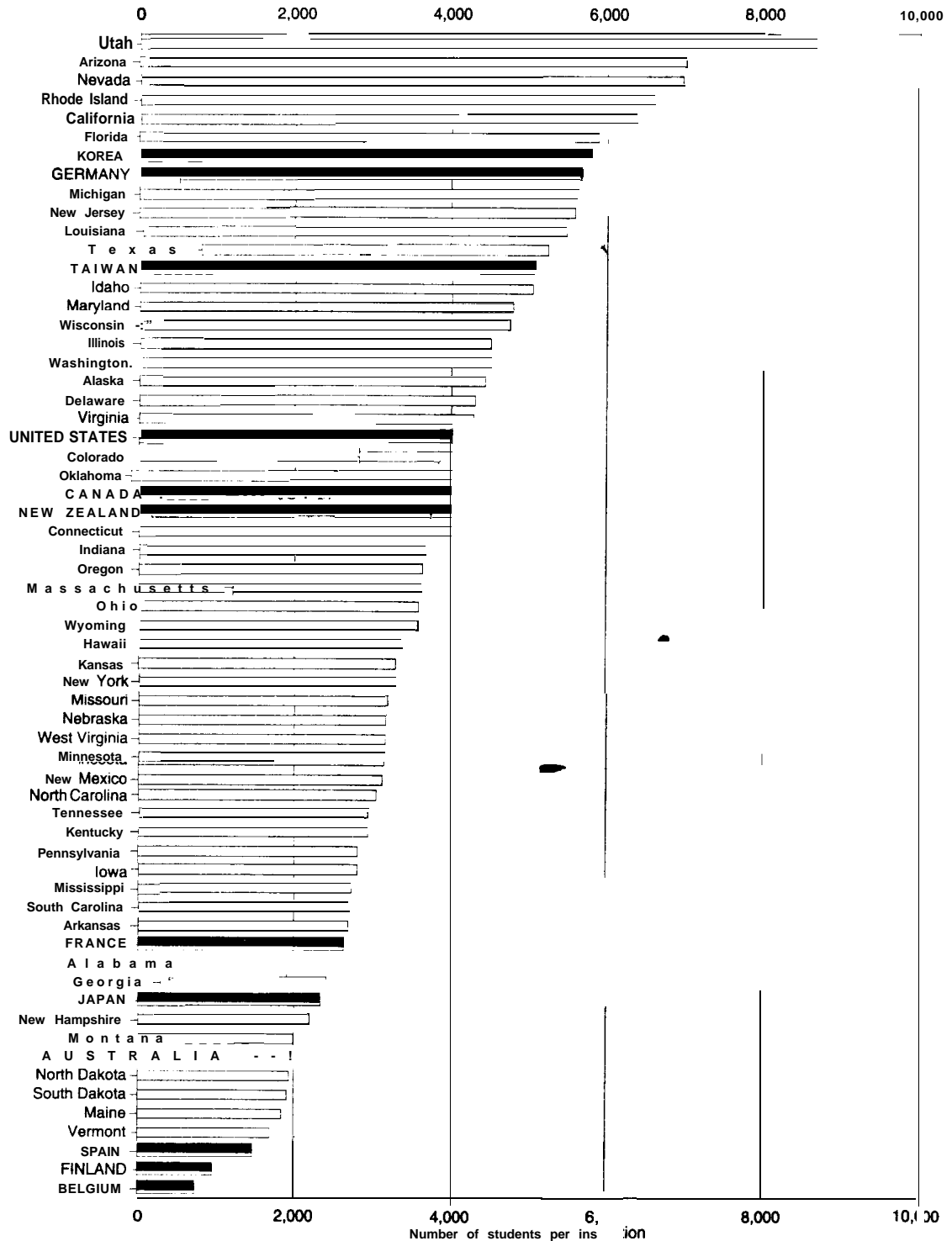
There are marked differences among countries with respect to whether certain programs are classified as belonging to the university, non-university, or upper secondary sector. For example, in some countries, programs leading to qualifications in teaching and nursing are considered to be university programs; in others, they are non-university programs. Furthermore, some vocational and technical programs are classified as non-university higher education in parts of Canada and the United States, whereas they are defined as upper secondary education in most other countries.

Figure 15a: Average number of students per school in preprimary to secondary schools, by country and state: Various years



SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1993*, Tables 44 and 95; *Digest of Education Statistics, 1994*, Table 63; *Detailed Characteristics of Private Schools and Staff, 1987-88*, Table 3.1. Asia Pacific Economic Cooperation, *Education Profiles*. United Nations' Educational, Scientific, and Cultural Organization, *Statistical Yearbook, 1992*. Various country data.

Figure 15b: Average number of students enrolled per institution of higher education, by country and state: Various years



SOURCE: U. S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1993*, Table 192; *Digest of Education Statistics, 1992*, Table 227; Asia Pacific Economic Cooperation, *Education Profiles*. Various country sources.

Table 15a: Number of public and private schools, number of students, and average number of students per school in preprimary through secondary schools, by level and country: Various years

Country	Year	Number of schools			Preprimary - secondary students (in Total thousands)	Average number of students per school	
		Preprimary -primary	Secondary	Combined preprimary -secondary			
Australia	1992	7,086	1,617	1,254	9,957	3,099	311
Belgium*	1990-91	1,878	692	—	2,570	799	311
Canada	1989	—	—	—	14,300	5,020	351
Finland	1993	—	820	4,610	5,430	849	156
France	1991-92	62,119	11,306	—	73,425	12,219	166
Germany	1991	19,877	16,172	580	36,629	10,119	276
Japan	1989	39,903	16,781	—	56,684	22,376	395
Korea	1990	14,689	4,198	—	18,887	9,867	522
New Zealand	1990	2,917	253	146	3,316	692	209
Spain	1990-91	20,517	5,370	—	25,887	8,369	323
Taiwan	1991-92	4,432	975	—	5,396	4,711	873
United Kingdom	1991-92	25,338	4,731	2,488	32,557	9,049	278
United States	1991-92	78,078	26,510	3,269	107,857	42,964	398

— Not available.

*French Community only.

NOTE: Private school data included in U.S. figures for the number of schools by level are adjusted using national percentages of public school distribution by level. See supplemental note to Indicator 15 on pp. 264-272 for details on data, including their sources, for all countries, Australia, Belgium (French Community), Canada, Finland, France, Germany, Japan, Korea, New Zealand, Spain, Taiwan, the United Kingdom, and the United States, and on pp. 231-233 for a discussion of levels of education.

SOURCE: Asia Pacific Economic Cooperation, *Education Profiles*. U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1993*, Tables 44 and 95; *Digest of Education Statistics, 1994*, Table 63. United Nations' Educational, Scientific, and Cultural Organization, *Statistical Yearbook, 1992*. Various country sources — see supplemental note to Indicator 15 on pp. 264-272 for a listing.

Table 15b: Number of public and private schools, number of students, and average number of students per school in preprimary through secondary schools, by level and state: 1991

State	Number of schools			Total	Preprimary–secondary students (in thousands)	Average number of students per school
	Preprimary–primary	Secondary	Combined preprimary–secondary			
Alabama	1,102	370	210	1,682	775	461
Alaska	228	103	242	572	123	215
Arizona	972	320	17	1,309	689	526
Arkansas	758	482	9	1,250	458	366
California	7,860	2,643	219	10,722	5,668	529
Colorado	1,232	447	18	1,696	629	371
Connecticut	981	283	21	1,286	553	430
Delaware	170	60	25	255	124	486
District of Columbia	182	67	6	255	104	408
Florida	2,602	605	437	3,643	2,151	590
Georgia	1,744	424	62	2,230	1,262	566
Hawaii	277	68	14	359	211	588
Idaho	417	220	13	650	236	363
Illinois	4,144	1,230	32	5,406	2,156	399
Indiana	1,893	605	54	2,552	1,047	410
Iowa	1,261	554	27	1,842	552	300
Kansas	1,182	492	1	1,675	480	287
Kentucky	1,264	417	0	1,681	715	425
Louisiana	1,288	418	145	1,851	902	487
Maine	658	161	13	831	233	280
Maryland	1,402	305	26	1,732	856	494
Massachusetts	1,908	467	36	2,411	971	403
Michigan	3,204	987	86	4,277	1,781	416
Minnesota	1,342	659	17	2,018	870	431
Mississippi	743	295	110	1,148	559	487
Missouri	1,861	735	66	2,662	951	357
Montana	602	403	1	1,006	170	169
Nebraska	1,254	431	28	1,713	316	184
Nevada	311	98	10	419	222	530
New Hampshire	492	132	6	630	199	316
New Jersey	2,543	596	4	3,144	1,328	422
New Mexico	644	212	8	863	342	396
New York	4,347	1,386	247	5,980	3,141	525
North Carolina	1,814	534	47	2,396	1,146	478
North Dakota	412	259	4	676	125	185
Ohio	3,465	1,246	128	4,839	2,047	423
Oklahoma	1,347	706	0	2,053	608	296
Oregon	1,093	330	49	1,473	532	361
Pennsylvania	3,778	1,172	53	5,003	2,054	411
Rhode Island	337	81	4	422	165	391
South Carolina	1,019	328	13	1,360	684	503
South Dakota	439	328	0	767	148	193
Tennessee	1,433	445	73	1,951	907	465
Texas	4,927	1,632	444	7,003	3,664	523
Utah	509	226	12	747	463	620
Vermont	361	65	17	443	105	237
Virginia	1,726	465	28	2,219	1,083	488
Washington	1,518	613	121	2,252	934	415
West Virginia	787	262	30	1,079	331	307
Wisconsin	2,164	787	24	2,974	953	320
Wyoming	309	134	2	445	104	234

NOTE: Private school data for number of schools by level included in state figures are adjusted using national percentages of public school distribution by level. See supplemental note to Indicator 15 on pp. 264–272 for further details.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics*, 1993, Tables 44 and 95; *Digest of Education Statistics*, 1994, Table 63.

Table 15c: Number of public and private higher education institutions, number of students enrolled, and average number of students per institution, by level and country: Various years

Country	Year	Number of higher education institutions			Students enrolled in higher education (in thousands)	Average number of students per institution of higher education
		Non-university	University	Total		
Belgium*	1990-91	142	9	151	110	728
Canada	1987	102	127	229	863	3,769
Finland	1993	175	21	196	188	959
France	1990-91	407	77	484	1,276	2,636
Germany	1991	217	98	315	1,783	5,660
Japan	1988	63	490	1,123	2,613	2,327
Korea	1990	151	107	258	1,491	5,779
New Zealand	1990	31	7	38	142	3,737
Spain	1989-90	—	—	743	1,093	1,471
Taiwan	1991-92	75	46	121	612	5,058
United States	1991-92	1,444	2,157	3,601	14,360	3,988

— Not available.

*French Community only.

NOTE: See Glossary for definitions of university and non-university institutions. See supplemental note to Indicator 15 on pp.264-272 for details on data, including their sources, for all countries, Australia, Belgium (French Community), Finland, France, Germany, Japan, Korea, Spain, Taiwan, and the United Kingdom; and on pp. 231-233 for a discussion of levels of education.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1992*, Table 227; *Digest of Education Statistics, 1993*, Table 192. Asia Pacific Economic Cooperation, *Education Profiles*. Various country sources — see supplemental note to Indicator 15 on pp.264-272 for a listing.

Table 15d: Number of public and private higher education institutions, number of students enrolled, and average number of students per institution, by level and state: 1991-1992

State	Number of higher education institutions *			Students enrolled in higher education in thousands)	Average number of students per institution of higher education
	Non- university	University	Total		
Alabama	50	36	86	224	2,609
Alaska	1	6	7	31	4,429
Arizona	21	18	39	273	7,000
Arkansas	15	20	35	94	2,686
California	140	178	318	2,024	6,365
Colorado	25	34	59	235	3,985
Connecticut	19	26	45	166	3,689
Delaware	3	7	10	43	4,299
District of Columbia	0	17	17	78	4,588
Florida	45	59	104	612	5,885
Georgia	61	50	111	277	2,495
Hawaii	7	10	17	57	3,371
Idaho	4	7	11	55	5,036
Illinois	65	102	167	753	4,509
Indiana	25	54	79	290	3,671
Iowa	23	38	61	171	2,804
Kansas	22	29	51	168	3,294
Kentucky	30	34	64	188	2,938
Louisiana	10	26	36	197	5,472
Maine	11	20	31	57	1,844
Maryland	22	34	56	268	4,784
Massachusetts	30	86	116	419	3,612
Michigan	37	64	101	568	5,624
Minnesota	37	44	81	255	3,148
Mississippi	25	21	46	125	2,725
Missouri	26	67	93	297	3,194
Montana	10	9	19	38	1,991
Nebraska	14	22	36	114	3,167
Nevada	6	3	9	63	6,963
New Hampshire	11	18	29	64	2,197
New Jersey	24	36	60	335	5,583
New Mexico	18	12	30	94	3,133
New York	95	226	321	1,056	3,290
North Carolina	69	53	122	372	3,049
North Dakota	10	10	20	39	1,937
Ohio	67	92	159	569	3,579
Oklahoma	21	26	47	184	3,915
Oregon	14	32	46	167	3,630
Pennsylvania	76	145	221	620	2,805
Rhode Island	1	11	12	79	6,593
South Carolina	27	34	61	165	2,705
South Dakota	2	17	19	36	1,912
Tennessee	29	52	81	238	2,938
Texas	78	97	175	917	5,240
Utah	8	7	15	130	8,667
Vermont	4	18	22	37	1,702
Virginia	35	48	83	356	4,289
Washington	33	28	61	275	4,508
West Virginia	6	22	28	89	3,164
Wisconsin	23	42	65	309	4,754
Wyoming	8	1	9	32	3,569

NOTE: See Glossary for definitions of university and non-university institutions.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics 1993*, Table 192; *Digest of Education Statistics, 1992*, Table 227; Integrated Postsecondary Education Data System, *Institutional Characteristics*, 1992-93.

Indicator 16: Class size

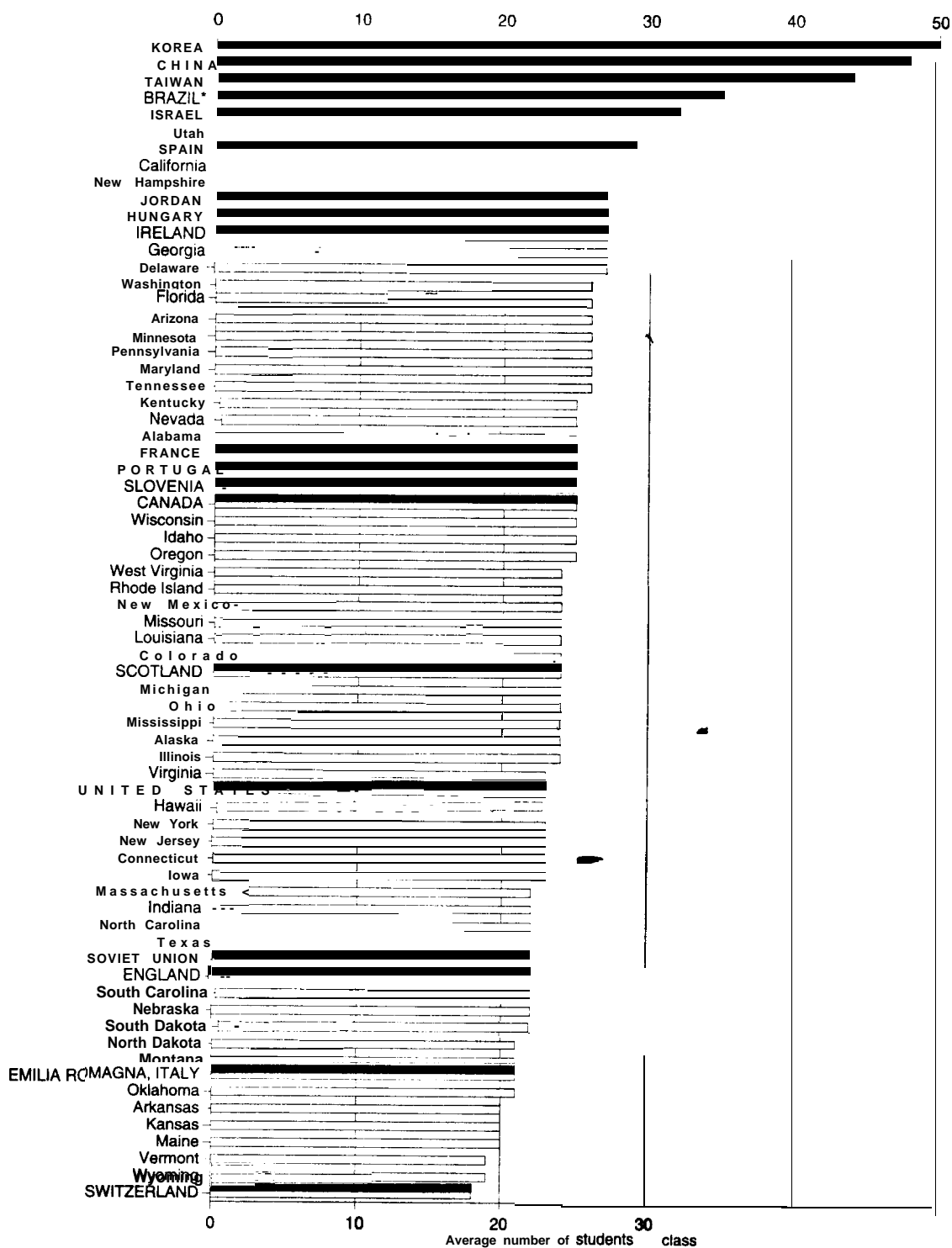
The number of students a teacher faces during a period of instruction — measured as class size — is an indicator of the typical teacher’s pupil load during a class period. Smaller class sizes are **sometimes** valued because they may allow students to receive more **personalized** attention from their teachers and may reduce the **teachers’ burden** of managing large numbers of pupils and their **work**. **However**, maintaining smaller class sizes can be more **expensive**. **Furthermore**, large classes do not necessarily hinder **instruction**. Depending on teaching **style**, student **behavior**, and other factors such as the opportunity for students to meet with teachers outside of **class**, large classes may function just as efficiently as small **ones**. Because this indicator measures *average* class **size**, it does not reveal whether schools choose to have different-sized classes for different subjects or different levels of **education**.

- ▶ **In 1991, average lower secondary class sizes in the G-7 countries included here all fell within the range of 20 to 25 students per class. The United States had an average class size of 23 students per class.**
- ▶ **Other countries reported a wide range of average class sizes, from 18 in Switzerland to 49 in Korea. While no state had an average class size larger than 30, 5 of the other 18 countries did.**

Note on **interpretation**:

State data are based on the size of classes reported by **8th-grade** public school teachers. Data for **countries**, including the U.S. **average**, were obtained as follows: Administrators from schools with **13-year-old** students who participated in **the** International Assessment of Educational Progress estimated the modal size for a class at the grade level to which most **13-year-olds** would be **assigned**.

Figure 16: Average lower secondary class size, by country and state:



*Figure represents the unweighted average of two cities, São Paulo and Fortaleza.

NOTE: State data are based on the size of classes reported by 8th-grade public school teachers. Data for countries, including the U.S. average, were obtained as follows: Administrators from schools with 13-year-old students who participated in the International Assessment of Educational Progress estimated the modal size for a class at the grade level to which most 13-year-olds would be assigned.

SOURCE: Educational Testing Service, International Assessment of Educational Progress *Learning Mathematics*, Figure 5.2.U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey, 1990-91.

Table 16a: Average class size at grade level to which most 13-year-old students preassigned, according to school administrators, by country: 1991

Country	Average class size
São Paulo and Fortaleza, Brazil	35
Canada	25
China	48
England	22
France	25
Hungary	27
Ireland	27
Israel	32
Emilia Romagna, Italy	21
Jordan	27
Korea	49
Portugal	25
Scotland	24
Slovenia	25
Soviet Union	22
Spain	29
Switzerland	18
Taiwan	44
United States	23

NOTE: See supplemental note to Indicator 16 on pp. 272-278 for details on data and sample sizes from Canada, Emilia Romagna (Italy), England, Israel, Portugal, Scotland, the Soviet Union, Spain, Switzerland, and the United States; and for discussions of the calculation of class size and of the international Assessment of Educational Progress (IAEP).

SOURCE: Educational Testing Service, international Assessment of Educational Progress, *Learning Mathematics*, Figure 5.2.

Table 16b: Average class size according to 8th grade public schoolteachers, by state: 1990–1991

State	Average class size
Alabama	25
Alaska	24
Arizona	26
Arkansas	20
California	29
Colorado	24
Connecticut	23
Delaware	27
District of Columbia	22
Florida	26
Georgia	27
Hawaii	23
Idaho	25
Illinois	24
Indiana	22
Iowa	23
Kansas	20
Kentucky	25
Louisiana	24
Maine	20
Maryland	26
Massachusetts	22
Michigan	24
Minnesota	26
Mississippi	24
Missouri	24
Montana	21
Nebraska	22
Nevada	25
New Hampshire	27
New Jersey	23
New Mexico	24
New York	23
North Carolina	22
North Dakota	21
Ohio	24
Oklahoma	21
Oregon	25
Pennsylvania	26
Rhode Island	24
South Carolina	22
South Dakota	22
Tennessee	26
Texas	22
Utah	30
Vermont	19
Virginia	23
Washington	26
West Virginia	24
Wisconsin	25
Wyoming	19

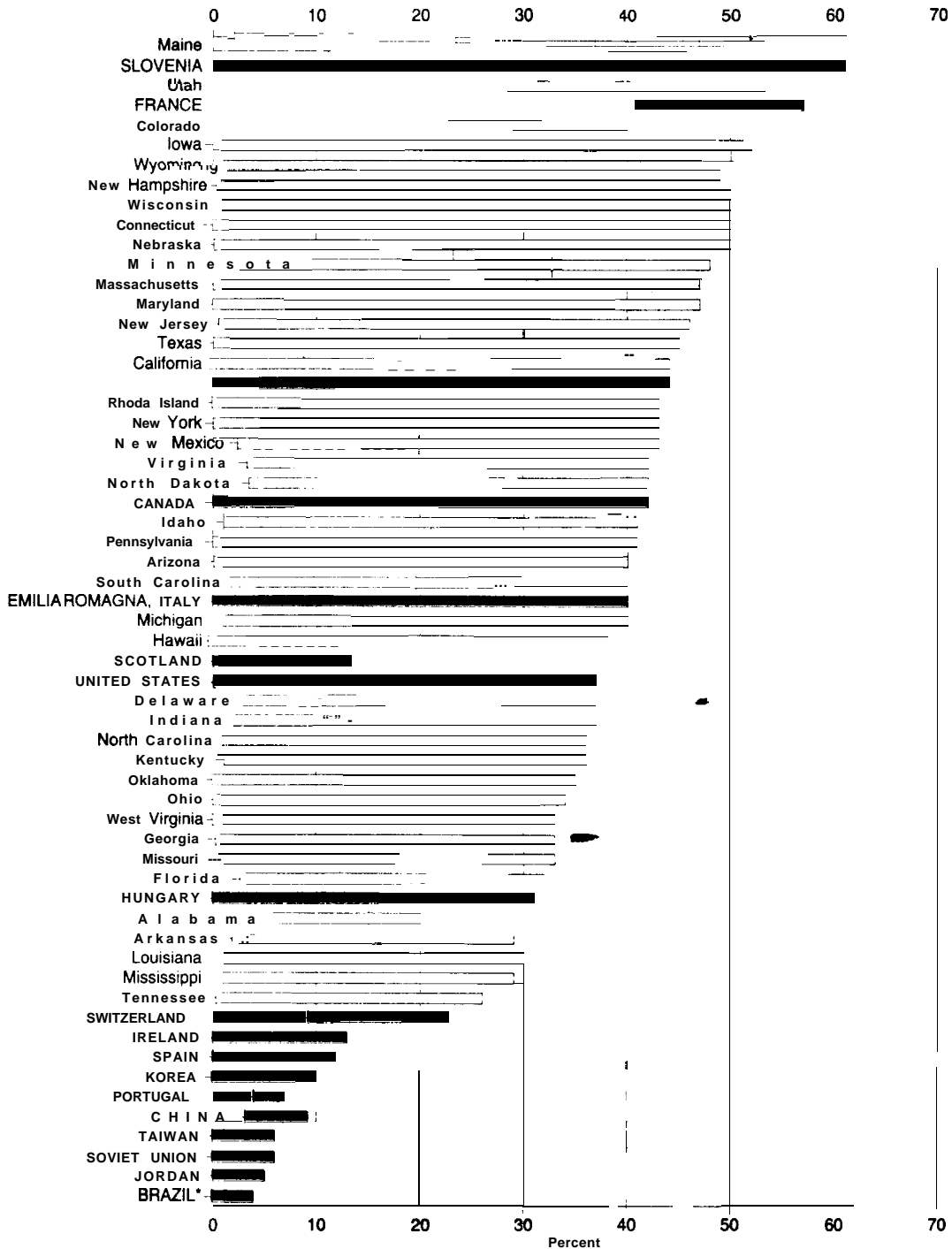
SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey, 1990–91.

Indicator 17: Student use of technology

The forms of technology utilized in schools can affect both the types of skills taught in the classroom and the potential for academically sophisticated assignments and exercises. For example, in math courses in which calculators are used, students can spend more time solving complex and challenging problems and less on doing routine computations by hand. Likewise, students with access to computers can generate and edit work more efficiently and, thus, potentially free time to master higher levels of writing skill. Needless to say, student use of technology is affected by its availability. Therefore, varying levels of resources among countries and nations factor significantly into this measure.

- ▶ **In 1991, 54 percent of students in the United States reported using calculators in school, a proportion that fell mid-range among all the countries included here. Ninety percentage points separated the country with the highest rate of calculator usage (France) and the countries with the lowest rate (Korea and Brazil). Half of all the nations providing data reported percentages of less than 50 percent.**
- ▶ **When students in the U.S. states were asked about calculator use, they also reported considerable variation. The range extended from 47 percent in Mississippi, the state with the lowest use of calculators in school, to 88 percent in Maine, the state with the highest use.**
- ▶ **The United States was also in the middle of the range of countries in the proportion of students using computers for school work or homework (37 percent). Slovenia and France had the highest percentages, 61 and 57 percent, while several countries had about 5 percent. Slovenia's rate was 24 percentage points higher than that of the United States. The difference between Slovenia's rate and that of São Paulo and Fortaleza, Brazil, with the lowest percentage, was 57 percentage points.**
- ▶ **Even the U.S. state with the lowest rate had a higher percentage of students using computers for school work or homework than did half of the countries included here. No state had a rate of less than 25 percent, whereas nine nations did. Students in Maine matched those of Slovenia in the highest rate of computer usage among all the nations and states (61 percent).**

Figure 17: Percentage of 13-year-old students (in countries) and public school 8th-graders (in states) who report they sometimes use computers for school work or homework, by country (1991) and state (1992)



*Figure represents the unweighted average of two cities, São Paulo and Fortaleza.

NOTE: Data for the states of Alaska, Illinois, Kansas, Montana, Nevada, Oregon, South Dakota, Vermont, and Washington are not available because they did not participate in the survey.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Data Compendium for the NAEP 1992 Mathematics Assessment of the Nation and the States*, Table 10.23. Educational Testing Service, International Assessment of Educational Progress, *Learning Mathematics*, Figure 3.4.

Table 17a: Percentage of 13-year-old students who report they sometimes use calculators in school or computers for school work or homework, by country: 1991

Country	Percent who use calculators	Percent who use computers
São Paulo and Fortaleza, Brazil	4	4
Canada	75	42
China	7	6
England	90	44
France	94	57
Hungary	71	31
Ireland	25	13
Emilia Romagna, Italy	64	40
Jordan	5	5
Korea	4	10
Portugal	19	7
Scotland	82	38
Slovenia	46	61
Soviet Union	19	6
Spain	45	12
Switzerland	51	25
Taiwan	62	6
United States	54	37

NOTE: Differences exist in the wording of the question regarding calculator use and in the samples of students questioned that may account for a difference in results between the United States' averages on the two questionnaire administrations, the IAEP and the NAEP. See supplemental note to Indicator 17 on pp. 272–278 for details on data and sample sizes from Canada, Emilia Romagna (Italy), England, Israel, Portugal, Scotland, the Soviet Union, Spain, Switzerland, and the United States; and for discussions of students' use of computers and calculators, the International Assessment of Educational Progress (IAEP), the National Assessment of Educational Progress (NAEP), and comparing questionnaire results of the IAEP and the NAEP.

SOURCE: Educational Testing Service, International Assessment of Educational Progress, *Learning Mathematics*, Figure 3.4.

Table 17b: Percentage of 8th-grade public school students who report they sometimes use calculators in math class or computers for school work or homework, by state: 1992

State	Percent who use calculators	Percent who use computers
Alabama	66	29
Arizona	67	40
Arkansas	59	29
California	73	44
Colorado	83	52
Connecticut	74	50
Delaware	74	37
District of Columbia	75	46
Florida	62	32
Georgia	67	33
Hawaii	66	38
Idaho	82	41
Indiana	62	37
Iowa	82	52
Kentucky	84	36
Louisiana	60	29
Maine	88	61
Maryland	72	47
Massachusetts	52	47
Michigan	82	40
Minnesota	87	48
Mississippi	47	29
Missouri	85	33
Nebraska	82	49
New Hampshire	81	51
New Jersey	68	46
New Mexico	66	43
New York	51	43
North Carolina	66	36
North Dakota	81	42
Ohio	71	34
Oklahoma	52	35
Pennsylvania	62	41
Rhode Island	66	43
South Carolina	66	40
Tennessee	60	26
Texas	78	45
Utah	79	57
Virginia	63	42
West Virginia	64	33
Wisconsin	85	50
Wyoming	82	51

NOTE: The states of Alaska, Illinois, Kansas, Montana, Nevada, Oregon, South Dakota, Vermont, and Washington did not participate in the 1992 NAEP Trial State Assessment, the source for these data. Differences exist in the wording of the question regarding calculator use and in the samples of students questioned that may account for difference in results between the United States' averages on the two questionnaire administrations, the IAEP and the NAEP. See technical note for Indicator 17 on pp. 272-278 for an explanation of the difficulties inherent in comparing results between the two administrations.

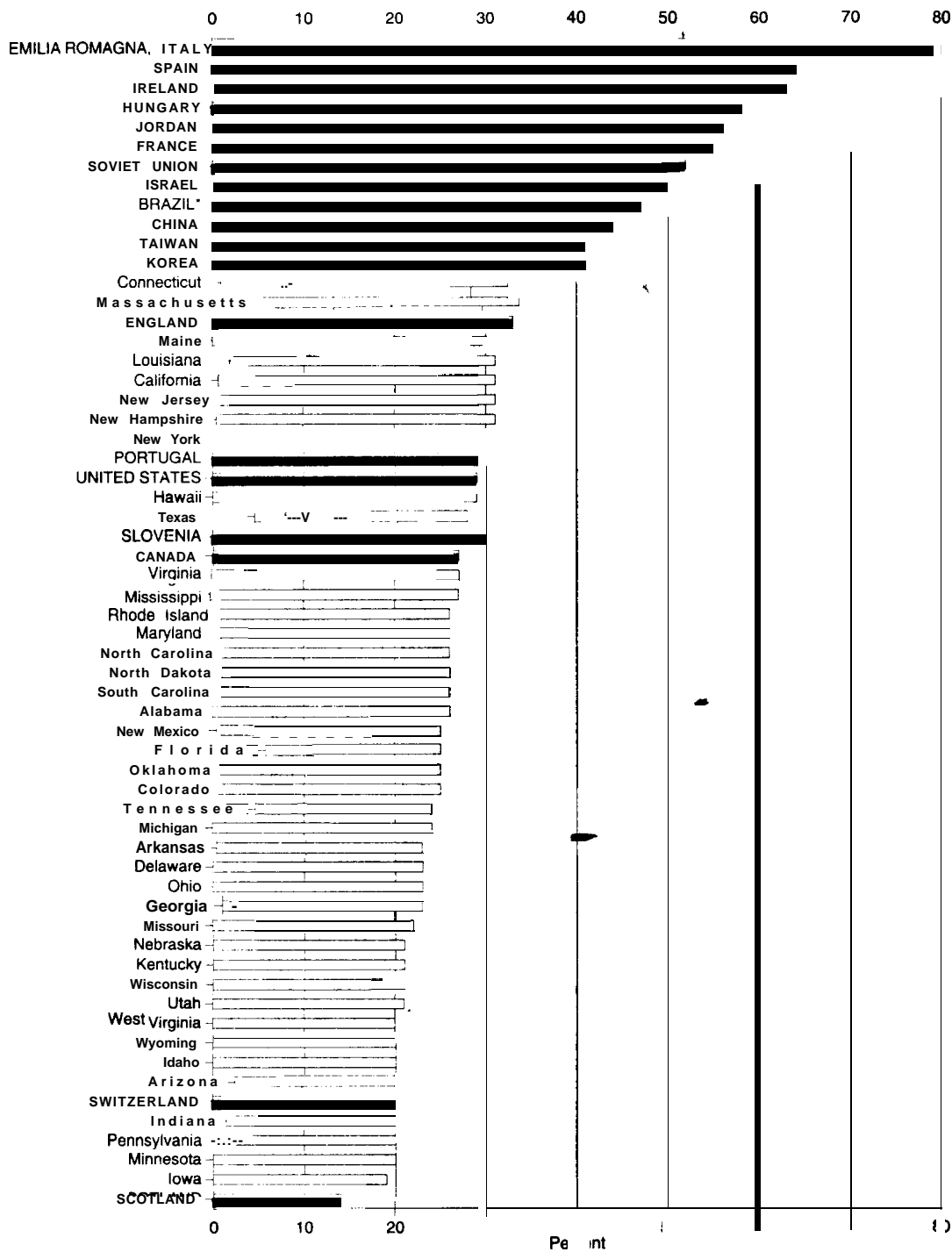
SOURCE: U.S. Department of Education, National Center for Education Statistics, *Data Compendium for the NAEP 1992 Mathematics Assessment of the Nation and the States*, Tables 10.15 and 10.23.

Indicator 18: Student time spent doing homework and watching television

How students occupy their time outside of school can affect their academic performance. Since homework is a form of practice or self-directed **study**, most educators feel that it improves student achievement. Empirical studies conducted on the **subject**, moreover, suggest that the amount of time spent on homework is positively related to academic achievement. **However**, statistics concerning the average number of hours spent on homework **tell** us little about the quality of the homework assigned or the effort and care students take in completing it. For many students, homework must compete with television for their **attention**. If students spend a lot of time watching television, little time is left to focus on academic **studies**. This indicator documents how students spend their time at home through **two** measures — the percentage of students who **claim** to do 2 hours or more of homework **daily**, and the percentage of students who report watching television one hour or less **daily**. Data for these two measures are based on the responses of 13-year-old students in the countries and 8th-grade public school students in the states.

- ▶ **In 1991, 13-year-old students in the United States did less homework each day than their counterparts in most of the other countries for which we have data. Only Scotland and Switzerland, of the 18 other countries represented here, reported a lower percentage of students doing 2 hours or more of homework a day than did the United States.**
- ▶ **In 1992, the percentage of students indicating they do 2 or more hours of homework daily was generally lower in the U.S. states than in the other countries for which data were available. In twelve of 18 other countries, more than 4 out of 10 13-year-olds reported doing that much homework; whereas none of the 41 states had that many. The range across the states was much more narrow than that across the countries, with a difference of only 15 percentage points separating Connecticut and Massachusetts (34 percent) and Iowa (19 percent). The range across countries extended 65 percentage points between Emilia Romagna, Italy (79 percent) and Scotland (14 percent).**
- ▶ **Of 18 other countries reporting data, only Scotland had a higher proportion of students report watching 2 hours or more of TV daily than did the United States. The percentage for China (35 percent), the country with the lowest percentage of students who watched television 2 hours or more daily, was 49 percentage points lower than that of the United States (84 percent).**
- ▶ **On the whole, a higher proportion of students in the U.S. states watched television for 2 hours or more daily than did students in other countries reporting data. Twelve countries, but only three states, had percentages lower than 80. The range across the countries was much wider than that across the states. The countries reported a range of 55 percentage points, while the states showed a difference of only 18 percentage points between the states with the lowest (Utah) and highest (Alabama, Mississippi, Louisiana, and Arkansas) percentages.**

Figure 18a: Percentage of 13-year-old students (in countries) and public school 8th-graders (in states) who report doing 2 hours or more of homework daily, by country (1991) and state (1992)

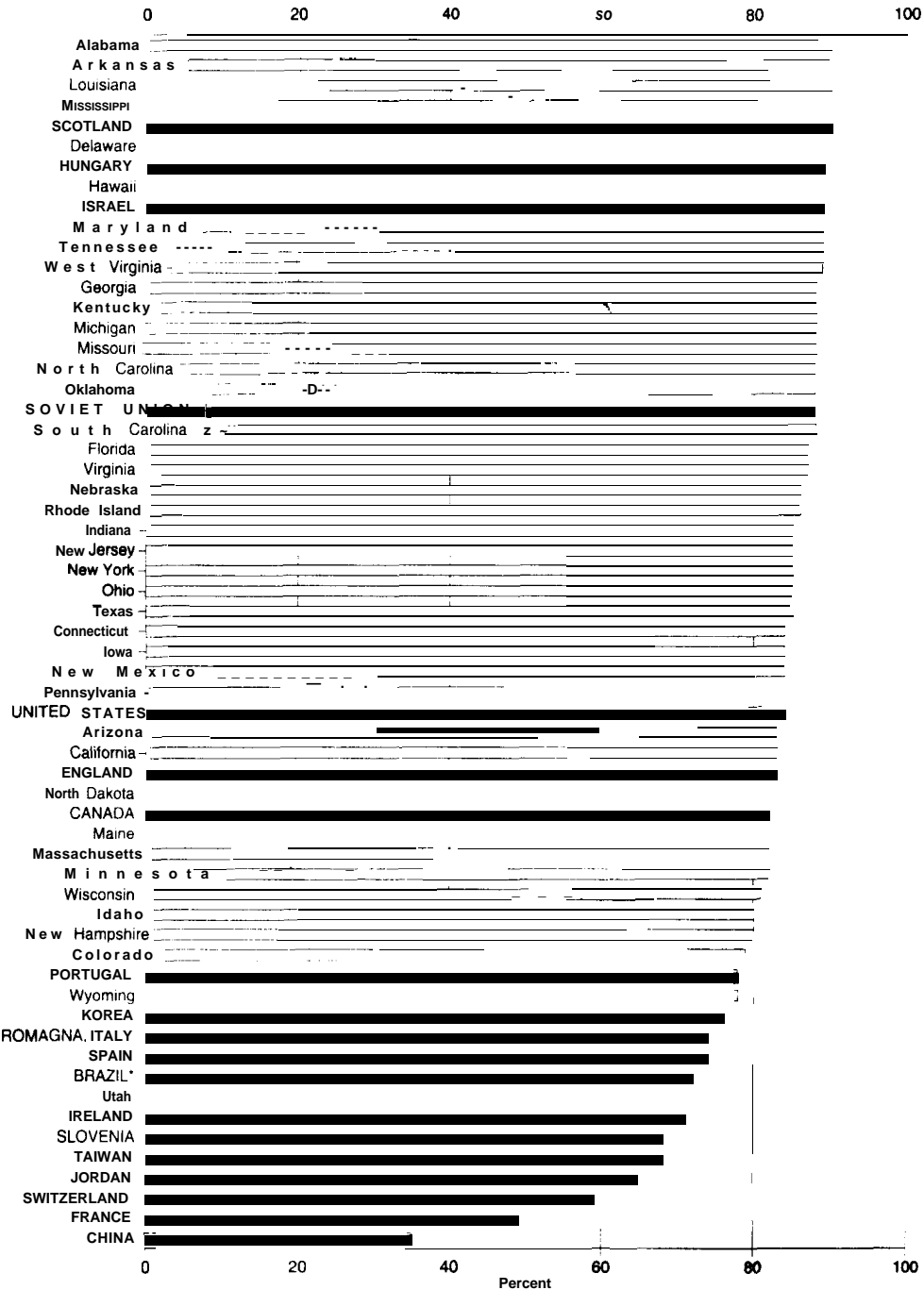


*Figure represents the unweighted average of two cities, São Paulo and Fortaleza.

NOTE: Data for the states of Alaska, Illinois, Kansas, Montana, Nevada, Oregon, South Dakota, Vermont, and Washington are not available because they did not participate in the survey.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Data Compendium for the NAEP 1992 Mathematics Assessment of the Nation and the States*, Table 13.4. Educational Testing Service, International Assessment of Educational Progress, *Learning Mathematics*, Figure 4.3.

Figure 18b: Percentage of 13-year-old students (in countries) and public school 8th-graders (in states) who report watching television 2 hours or more daily, by country (1991) and state (1992)



*Figure represents the unweighted average of two cities, São Paulo and Fortaleza.

NOTE: Data for the states of Alaska, Illinois, Kansas, Montana, Nevada, Oregon, South Dakota, Vermont, and Washington are not available because they did not participate in the survey.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Data Compendium for the NAEP 1992 Mathematics Assessment of the Nation and the States*, Table 13.14. Educational Testing Service, International Assessment of Educational Progress, *Learning Mathematics*, Figure 4.3.

Table 18a: Percentage of 13-year-old students who report spending 2 hours or more on homework daily and watching 2 hours or more of television daily, by country: 1991

Country	Percent of students who do 2 hours or more of homework daily	Percent of students who watch TV 2 hours or more daily
São Paulo and Fortaleza, Brazil	47	72
Canada	27	82
China	44	35
England	33	83
France	55	49
Hungary	58	89
Ireland	63	71
Israel	50	89
Emilia Romagna, Italy	79	74
Jordan	56	65
Korea	41	76
Portugal	30	78
Scotland	14	90
Slovenia	28	68
Soviet Union	52	88
Spain	64	74
Switzerland	20	59
Taiwan	41	68
United States	29	84

NOTE: See supplemental note to Indicator 18 on pp.272-278 for details on data and sample sizes from Canada, Emilia Romagna (Italy), England, Israel, Portugal, Scotland, the Soviet Union, Spain, Switzerland, and the United States; and for discussions of student time spent doing homework and watching television, the International Assessment of Educational Progress (IAEP), the National Assessment of Educational Progress (NAEP), and comparing the IAEP and the NAEP.

SOURCE: Educational Testing Service, International Assessment of Educational Progress, *Learning Mathematics*, Figure 4.3.

Table 18b: Percentage of public school 8th-graders who report spending 2 hours or more on homework daily and watching 2 hours or more of television daily, by state: 1992

State	Percent of students who do 2 hours or more of homework daily	Percent of students who watch TV 2 hours or more daily
Alabama	26	90
Arizona	20	83
Arkansas	23	90
California	31	83
Colorado	25	79
Connecticut	34	84
Delaware	23	89
District of Columbia	32	93
Florida	25	87
Georgia	23	88
Hawaii	29	89
Idaho	20	80
Indiana	20	85
Iowa	19	84
Kentucky	21	88
Louisiana	31	90
Maine	32	82
Maryland	26	89
Massachusetts	34	82
Michigan	24	88
Minnesota	20	82
Mississippi	27	90
Missouri	22	88
Nebraska	21	86
New Hampshire	31	80
New Jersey	31	85
New Mexico	25	84
New York	30	85
North Carolina	26	88
North Dakota	26	83
Ohio	23	85
Oklahoma	25	88
Pennsylvania	20	84
Rhode Island	26	86
South Carolina	26	88
Tennessee	24	89
Texas	28	85
Utah	21	72
Virginia	27	87
West Virginia	20	89
Wisconsin	21	81
	20	78

NOTE: The states of Alaska, Illinois, Kansas, Montana, Nevada, Oregon, South Dakota, Vermont, and Washington did not participate in the 1992 NAEP Trial State Assessment, the source for these data.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Data Compendium for the NAEP 1992 Mathematics Assessment of the Nation and the States*, Tables 13.4 and 13.14.

Indicator 19: Instructional strategies in mathematics courses

In addition to differing beliefs about “what works” best, the instructional practices employed by teachers can be influenced by cultural, social, demographic, and financial circumstances. Here we are able to present three roughly comparable measures — the percentage of school administrators who report assigning students to mathematics classes based on ability, the percentage of students reporting that they work in small groups in math class at least once per week, and the percentage of students reporting that they take a math test or quiz at least weekly. Student data for the second and third measures are based on responses by 13-year-olds in other countries and public school 8th-graders in the United States.

- ▶ **In 1992, the percentage of lower secondary school administrators reporting the use of ability grouping in math classes in the United States was higher than that in two-thirds of the other countries reporting data for 1991. The 56 percent for the United States, however, fell 36 percentage points below the 92 percent for England, the country with the highest percentage for this measure.**
- ▶ **The United States’ proportion of lower secondary students reporting that they solved problems in groups in math class at least weekly (49 percent) was mid-range among the 19 other countries represented here.**
- ▶ **Of all the countries included here, only Taiwan had a higher percentage of lower secondary students than the United States reporting that they took a math test or quiz at least once a week. The rate for Scotland and Hungary, the nations with the smallest percentage, was about one-fourth that of the United States.**
- ▶ **In general, lower secondary students in the U.S. states were more likely to report taking a math test at least once a week than were their counterparts in the other countries included. The percentage was lower in 10 of 18 other countries than in the state with the lowest percentage. Louisiana was the only nation or state where the percentage was greater than 90. —**

Note on interpretation:

To a great extent, assigning students to classes based on ability is only possible in larger schools, and the greater prevalence of ability grouping in the United States may be due, at least in part, to its larger average school sizes. Smaller schools can find it difficult simply to mass enough students to form grade levels, much less ability groups within grade levels. Many other countries, moreover, offer parents and students more choice in the school they can attend, thus giving them the opportunity to “ability group” themselves by school. The differentiation that occurs in many other countries among academic, vocational, and other tracks starting at the lower secondary level might be considered yet another form of ability grouping, again, between schools rather than within schools.

Figure 19: Percentage of 13-year-old students (in other countries) and public school 8th-graders (in the U.S.) reporting that they take a math test at least once per week, by country (1991) and state (1992)

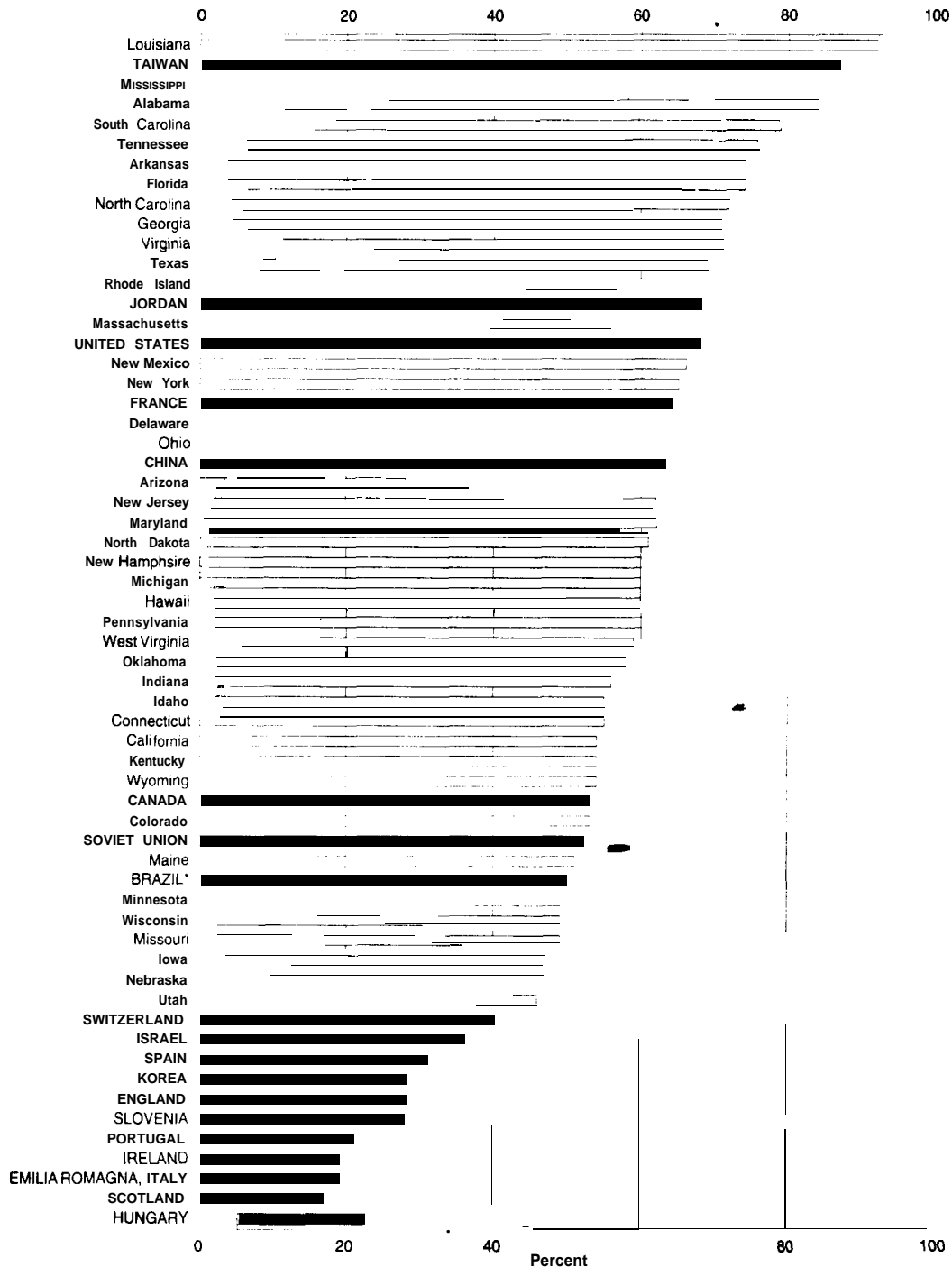


Figure represents the unweighted average of two cities, São Paulo and Fortaleza.

NOTE: Data for the states of Alaska, Illinois, Kansas, Montana, Nevada, Oregon, South Dakota, Vermont, and Washington are not available because they did not participate in the survey.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Data Compendium for the NAEP 1992 Mathematics Assessment of the Nation and the States*, Table 9.33. Educational Testing Service, International Assessment of Educational Progress, *Learning Mathematics*, Figure 3.1.

Table 19a: Percentage of schools where 13-year-old students are assigned to math classes based on ability, percentage of 13-year-old students who do group problem-solving in math class at least once a week, and percentage of 13-year-old students who take a math test or quiz at least once a week, by country: 1991

Country	Percent of schools where math classes are based on ability	Percent of students who do group problem-solving at least once per week	Percent of students who take math test at least once per week
São Paulo and Fortaleza, Brazil	30	65	50
Canada	10	40	53
China	3	68	63
England	92	44	28
France	27	31	64
Hungary	0	55	17
Ireland	67	42	19
Israel	74	48	36
Emilia Romagna, Italy	17	78	19
Jordan	5	83	68
Korea	0	28	28
Portugal	6	51	21
Scotland	16	27	17
Soviet Union	18	54	52
Slovenia	2	43	28
Spain	3	63	31
Switzerland	18	47	40
Taiwan	63	38	87
United States	56	49	68

NOTE: Differences exist in the samples of students questioned that may account for a difference in results between the United States' averages on the two questionnaire administrations, the IAEP and the NAEP. See supplemental note to Indicator 19 on pp.272-278 for details on data and sample sizes from Canada, Emilia Romagna (Italy), England, Israel, Portugal, Scotland, the Soviet Union, Spain, Switzerland, and the United States; for discussions of the frequency of ability grouping, working in small groups, and classroom testing; the International Assessment of Educational Progress (IAEP); the National Assessment of Educational Progress (NAEP); and comparing questionnaire results of the IAEP and the NAEP.

SOURCE: Educational Testing Service, International Assessment of Educational Progress, *Learning Mathematics*, Figures 3.1 and 3.5.

Table 19b: Percentage of public school 8th-graders assigned to math classes based on ability (according to teachers), percentage of public school 8th-graders who report working in small groups on math problems, and percentage of public school 8th-graders who report taking a math test at least once a week, by state: 1992

State	Percent of students in schools where math classes are based on ability	Percent of students who work in small groups at least once per week	Percent of students who take math test at least once per week
Alabama	49	32	84
Arizona	57	37	62
Arkansas	57	32	74
California	61	43	54
Colorado	57	41	53
Connecticut	75	32	55
Delaware	84	39	64
District of Columbia	42	53	71
Florida	69	35	74
Georgia	74	35	71
Hawaii	81	40	60
Idaho	67	44	55
Indiana	63	29	56
Iowa	48	32	47
Kentucky	61	38	54
Louisiana	43	35	92
Maine	50	40	51
Maryland	84	37	62
Massachusetts	81	31	68
Michigan	58	40	60
Minnesota	52	40	50
Mississippi	44	27	87
Missouri	56	31	49
Nebraska	51	37	47
New Hampshire	57	39	60
New Jersey	72	36	62
New Mexico	65	37	66
New York	67	29	65
North Carolina	70	38	72
North Dakota	25	32	61
Ohio	55	31	63
Oklahoma	55	27	58
Pennsylvania	69	32	60
Rhode Island	75	33	69
South Carolina	80	37	79
Tennessee	56	31	76
Texas	50	38	70
Utah	81	36	46
Virginia	66	35	71
West Virginia	64	31	59
Wisconsin	44	38	49
Wyoming	61	47	54

NOTES: Data for the states of Alaska, Illinois, Kansas, Montana, Nevada, Oregon, South Dakota, Vermont, and Washington are not available because they did not participate in the survey. Differences exist in the wording of the question regarding group problem solving that may account for difference in results between the United States' averages on the two questionnaire administrations, the IAEP and the NAEP. See technical note for Indicator 19 on p.294 for an explanation of the difficulties inherent in comparing results between the two administrations.

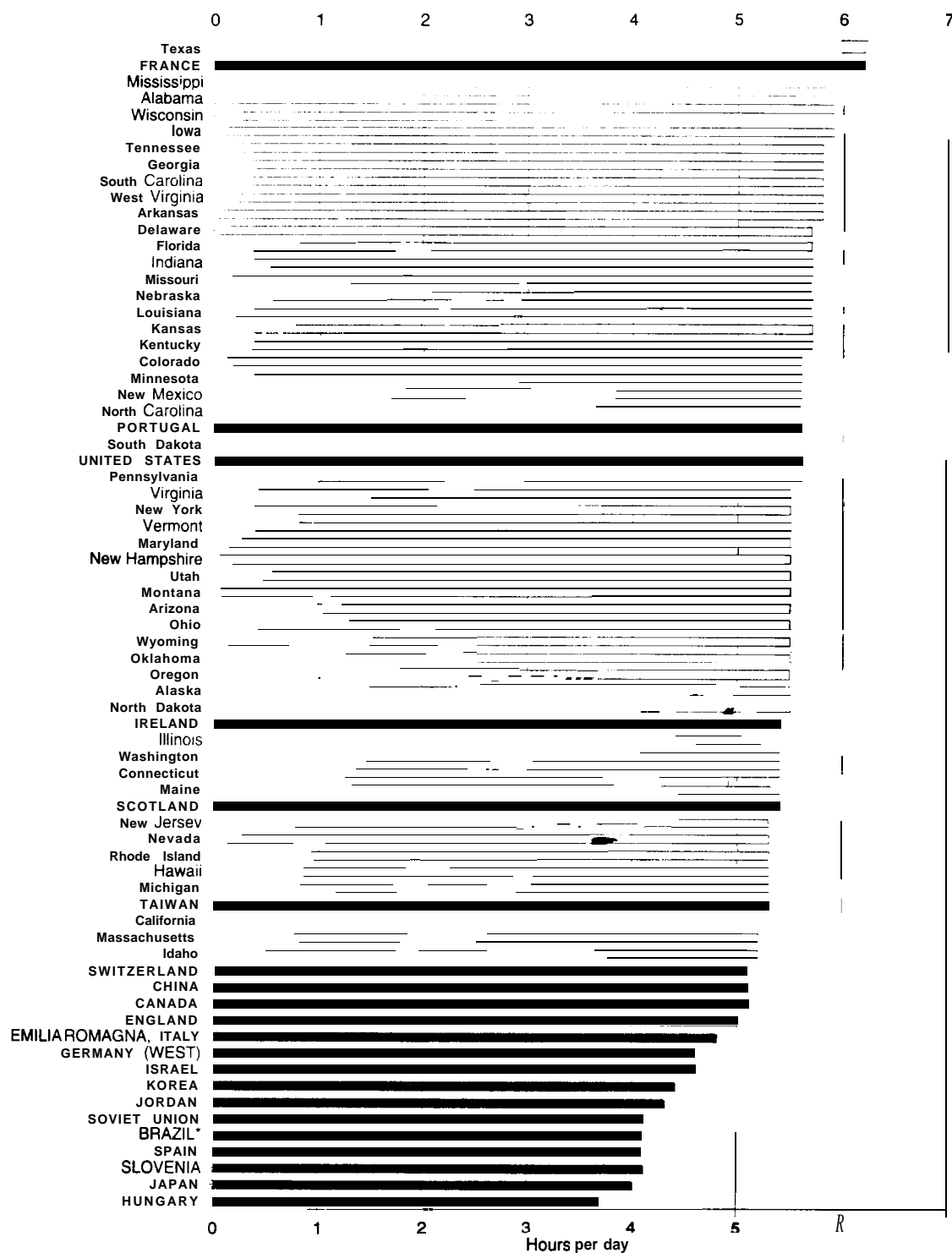
SOURCE: U.S. Department of Education, National Center for Education Statistics, *Data Compendium for the NAEP 1992 Mathematics Assessment of the Nation and the States*, Tables 9.4, 9.16, and 9.33.

Indicator 20: Time in formal instruction

Time spent in instruction can have a major influence on student achievement, since it reflects the access students have to learning opportunities. It is important to keep in mind, however, that the *quality as well as the quantity* of classroom instruction determines the educational worth of the time students spent in formal instruction. Time in formal instruction is measured here by the average hours of instruction per day, the average days of instruction per year, and the average hours of instruction per year at schools with an 8th grade in the United States and at lower secondary schools in other countries. Formal instruction is that interaction that takes place, generally in a classroom, between a teacher and a set group of students on a regularly scheduled basis.

- ▶ **Compared to other countries, U.S. schools had a relatively low number of instructional days (178) but a relatively high number of hours of instruction in each day (5.6). For the combination of both factors — the average hours of instruction per year (1,003) — U.S. schools exceeded most of the other countries represented here.**
 - ▶ **In the average number of hours spent per year on formal instruction, the range across countries extended wider than that across the states. Those ranges were defined by Hungary (658 hours per year) and China (1,276 hours per year) for the countries, and by Idaho and Massachusetts (936 hours per year) and Mississippi (1,092 hours per year).**
 - ▶ **In general, there were more hours of formal instruction per day in the U.S. states than in the other countries included here. More than half the countries had an average of less than 5 hours per day of formal instruction, but all states averaged more. Texas and France had the most hours per day of formal instruction, with an average of 6.2 hours.**
 - ▶ **For the most part, the U.S. states in 1990–1991 had shorter school years than did the other countries for which data are available. Thirteen out of 20 other countries maintained a longer academic year than any of the fifty states. The range across the countries was also much larger than that across the states. The country with the most days of formal schooling per year (China) employed 79 more days of instruction than did the country with the fewest (Portugal), while the difference between the states with the most (New York) and the fewest (Minnesota) days of instruction was only 8 days.**
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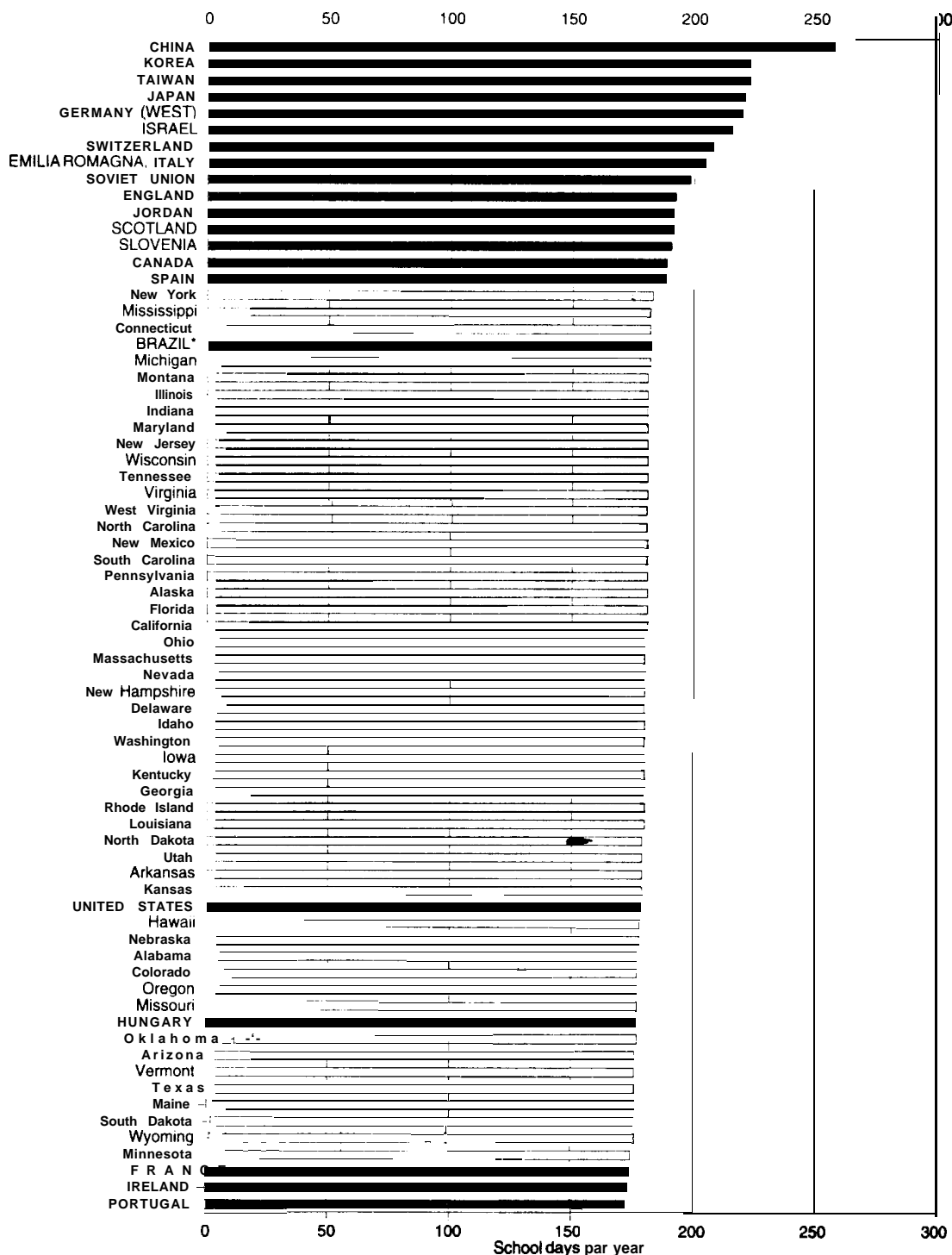
Figure 20a: Average hours per day in formal instruction, by country (1991) and state (1990-91)



*Figure represents the unweighted average of two cities, São Paulo and Fortaleza.

SOURCE: Educational Testing Service, International Assessment of Education Progress, *Learning Mathematics*, Figure 5.2. For West Germany: International Association for the Evaluation of Educational Achievement (IEA) Study of Reading Literacy, 1992. For Japan: Ministry of Education, Science, and Culture, National Institute of Educational Research, Government of Japan, 1992. U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey, 1990-91 (based on Table 49-3 in the *Condition of Education*, 1993).

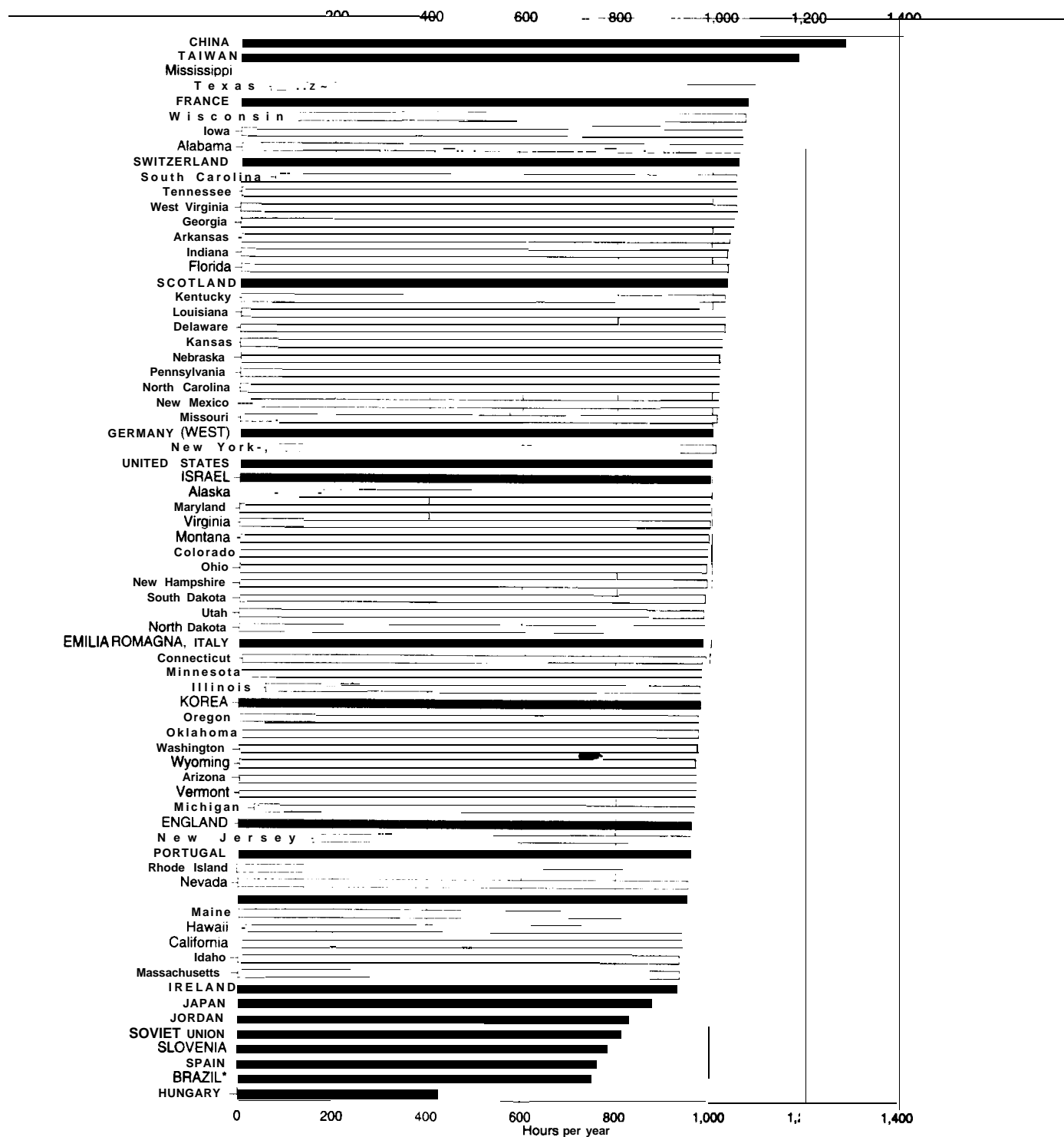
Figure 20b: Number of days per year spent in formal instruction, by country (1991) and state (1990–91)



*Figure represents the unweighted average of two cities, São Paulo and Fortaleza.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey, 1990–91 (based on Table 49-3 in the *Condition of Education, 1993*). Educational Testing Service, International Assessment of Educational Progress, *Learning Mathematics, Figure 5.2*

Figure 20c: Number of hours per year spent in formal instruction, by country (1991) and state (1990-91)



*Figure represents the unweighted average of two cities, São Paulo and Fortaleza.

SOURCE: Educational Testing Service, International Assessment of Education Progress, *Learning Mathematics*, Figure 5.2. For West Germany: International Association for the Evaluation of Educational Achievement (IEA) Study of Reading Literacy, 1992. For Japan: Ministry of Education, Science, and Culture, National Institute of Educational Research, Government of Japan, 1992. U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey, 1990-91 (based on Table 49-3 in the *Condition of Education*, 1993).

Table 20a: Time in formal instruction in lower secondary schools measured per school day and per year, by measure and country: School year 1990–91

Country	Average minutes of instruction per school day	Average hours of instruction per day	Days of instruction per year	Average hours of instruction per year
São Paulo and Fortaleza, Brazil	247	4.1	182	749
Canada	304	5.1	188	953
China	305	5.1	251	1,276
England	300	5.0	192	960
France	370	6.2	174	1,073
Germany (West)	276	4.6	219	1,007
Hungary	223	3.7	177	658
Ireland	323	5.4	173	931
Israel	278	4.6	215	996
Emilia Romagna, Italy	289	4.8	204	983
Japan	240	4.0	220	880
Jordan	260	4.3	191	828
Korea	264	4.4	222	977
Portugal	334	5.6	172	957
Scotland	324	5.4	191	1,031
Slovenia	248	4.1	190	785
Soviet Union	258	4.1	198	812
Spain	243	4.1	188	761
Switzerland	305	5.1	207	1,052
Taiwan	318	5.3	222	1,177
United States	338	5.6	178	1,003

NOTE: See supplemental note to Indicator 20 on pp.272–279 for details on data and sample sizes from Canada, Emilia Romagna (Italy), England, Israel, Portugal, Scotland, the Soviet Union, Spain, Switzerland, and the United States; and for discussions of the calculation of instructional hours per day for the U.S. states and the International Assessment of Educational Progress (IAEP).

SOURCE: Educational Testing Service, International Assessment of Education Progress, *Learning Mathematics*, Figure 5.2. For West Germany: International Association for the Evaluation of Educational Achievement (IEA) Study of Reading Literacy, 1992. For Japan: Ministry of Education, Science, and Culture, National Institute of Educational Research, Government of Japan, 1992.

Table 20b: Time in formal instruction in public schools with 8th grades measured per school day and per year, by state: School year 1990-91

State	Average minutes of instruction per school day	Average hours of instruction per day	Days of instruction per year	Average hours of instruction per year
Alabama	360	6.0	177	,062
Alaska	330	5.5	181	996
Arizona	330	5.5	176	968
Arkansas	348	5.8	179	,038
California	312	5.2	181	941
Colorado	336	5.6	177	991
Connecticut	324	5.4	182	983
Delaware	342	5.7	180	1,026
District of Columbia	312	5.2	182	946
Florida	342	5.7	181	1,032
Georgia	348	5.8	180	1,044
Hawaii	318	5.3	178	943
Idaho	312	5.2	180	936
Illinois	324	5.4	181	977
Indiana	342	5.7	181	1,032
Iowa	354	5.9	180	1,062
Kansas	342	5.7	179	1,020
Kentucky	342	5.7	180	1,026
Louisiana	342	5.7	180	1,026
Maine	324	5.4	176	950
Maryland	330	5.5	181	996
Massachusetts	312	5.2	180	936
Michigan	318	5.3	182	965
Minnesota	336	5.6	175	980
Mississippi	360	6.0	182	1,092
Missouri	342	5.7	177	1,009
Montana	330	5.5	181	996
Nebraska	342	5.7	178	1,015
Nevada	318	5.3	180	954
New Hampshire	330	5.5	180	990
New Jersey	318	5.3	181	959
New Mexico	336	5.6	181	1,014
New York	330	5.5	183	1,007
North Carolina	336	5.6	181	1,014
North Dakota	330	5.5	179	985
Ohio	330	5.5	180	990
Oklahoma	330	5.5	177	974
Oregon	330	5.5	177	974
Pennsylvania	336	5.6	181	1,014
Rhode Island	318	5.3	180	954
South Carolina	348	5.8	181	1,050
South Dakota	336	5.6	176	986
Tennessee	348	5.8	181	1,050
Texas	372	6.2	176	1,091
Utah	330	5.5	179	985
Vermont	330	5.5	176	968
Virginia	330	5.5	181	996
Washington	324	5.4	180	972
West Virginia	348	5.8	181	1,050
Wisconsin	354	5.9	181	1,068
Wyoming	330	5.5	176	968

NOTE: The "average hours per day" measure has been adjusted to remove time for lunch and other non-instructional breaks. See supplemental note to Indicator 20 on pp.272-279 for a discussion of the calculation of instructional hours per day for the U.S.states.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey, 1990-91 (based on Table 49-3 in *The Condition of Education, 1993*).

**ACHIEVEMENT AND
ATTAINMENT
INDICATORS**

Indicator 21: Educational attainment of the population

The percentage of the population completing secondary and higher education in the U.S. states and other industrialized countries provides an indication of the skill level of the U.S. workforce compared to its economic competitors. Completion levels reflect both the availability of education in a country and the extent to which completion of **certain** levels of education is typical. **However**, because many working-age adults completed their education years ago, the indicator is influenced by the development of education systems over time. Countries or states where education systems have undergone major expansions only in recent years will still show a large proportion of adults with lower levels of educational attainment, and one would expect to find those in younger age groups educated to higher levels than those in older age groups.

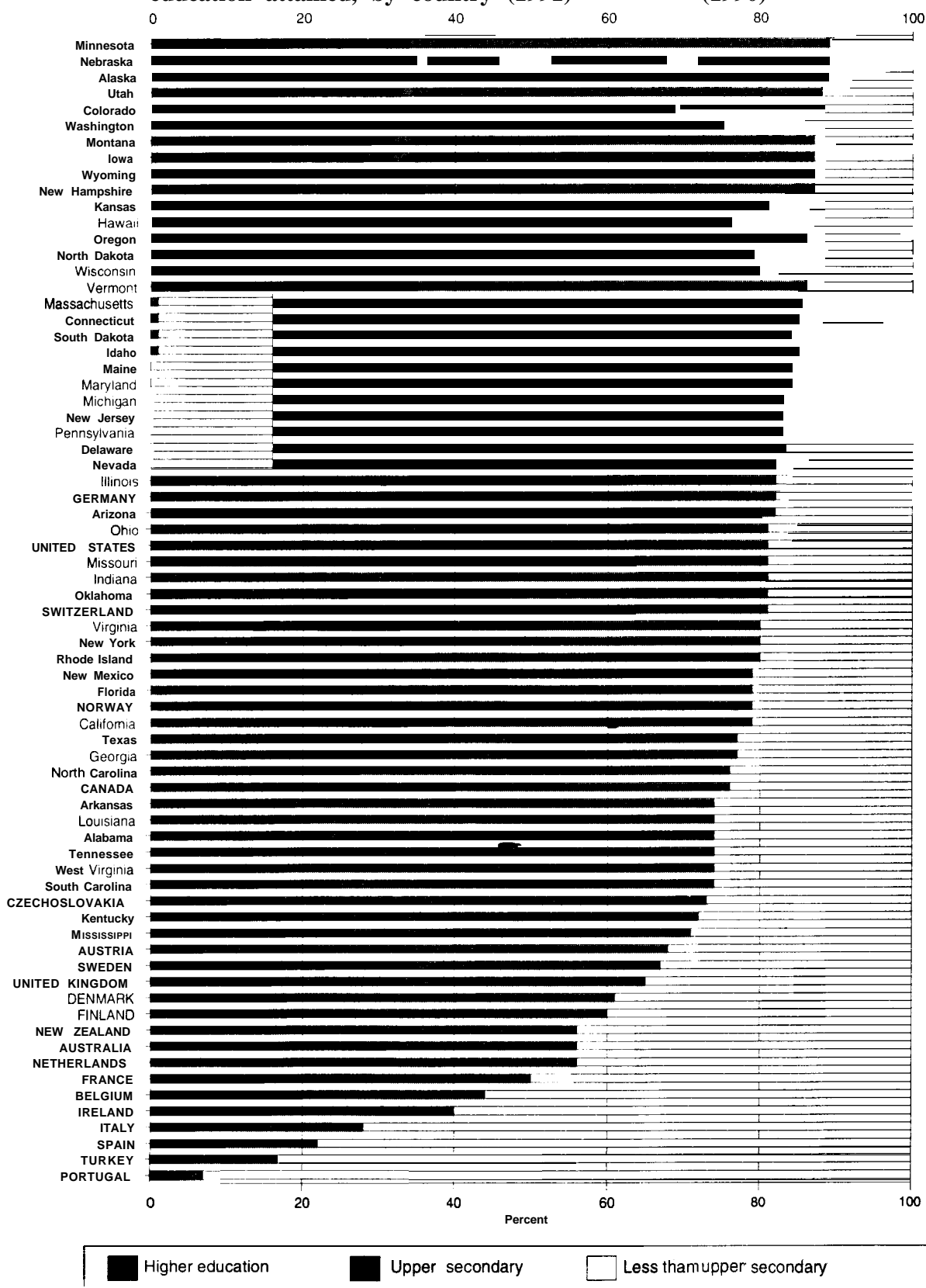
- ▶ **Among countries in 1991, the United States had the second highest percentage of individuals aged 25 to 64 who had completed at least an upper secondary education — 81 percent. Eighty-two percent of Germans between the ages of 25 and 64 completed at least that same level of education. For the other G-7 countries represented here, the proportions ranged from 28 to 76 percent.**
- ▶ **Among the six G-7 countries represented here, Germany, Canada, and the United States had the highest rates of upper secondary attainment among the younger cohort of 25- to 34-year-olds (at 88, 86, and 84 percent, respectively). The percentage for the United Kingdom was somewhat lower (at 79 percent), whereas those for France and Italy were much lower (at 66 and 43 percent, respectively).**
- ▶ **Of the G-7 countries, Canada had the highest percentage of higher education graduates (at both the non-university and university levels) in its 25- to 64-year-old population (40 percent) and the United States the next highest (30 percent). France and Italy had the lowest percentages (15 percent or lower).**
- ▶ **Among the six G-7 countries represented here, the United States had the highest rate of university graduation among 25- to 34-year-olds. The U.S. rate was double or triple the rates of France, Germany, Italy, or the United Kingdom.**
- ▶ **The states with the smallest proportions of their 25- to 64-year-old population having completed high school were Mississippi (70 percent) and Kentucky (72 percent). Those states' proportions, however, were still larger than the proportions of the population completing upper secondary degrees in 15 of the 20 other countries reported here.**

Notes on interpretation:

Although the educational attainment of a population is an indicator of the current skill level of the workforce, it is not necessarily a measure of success in educating a large proportion of the population. Within the 25- to 64-year-old age group, there may be many who have moved out of the country or state where they received their education. Thus, particularly in some U.S. states, large segments of the resident population may have been educated elsewhere.

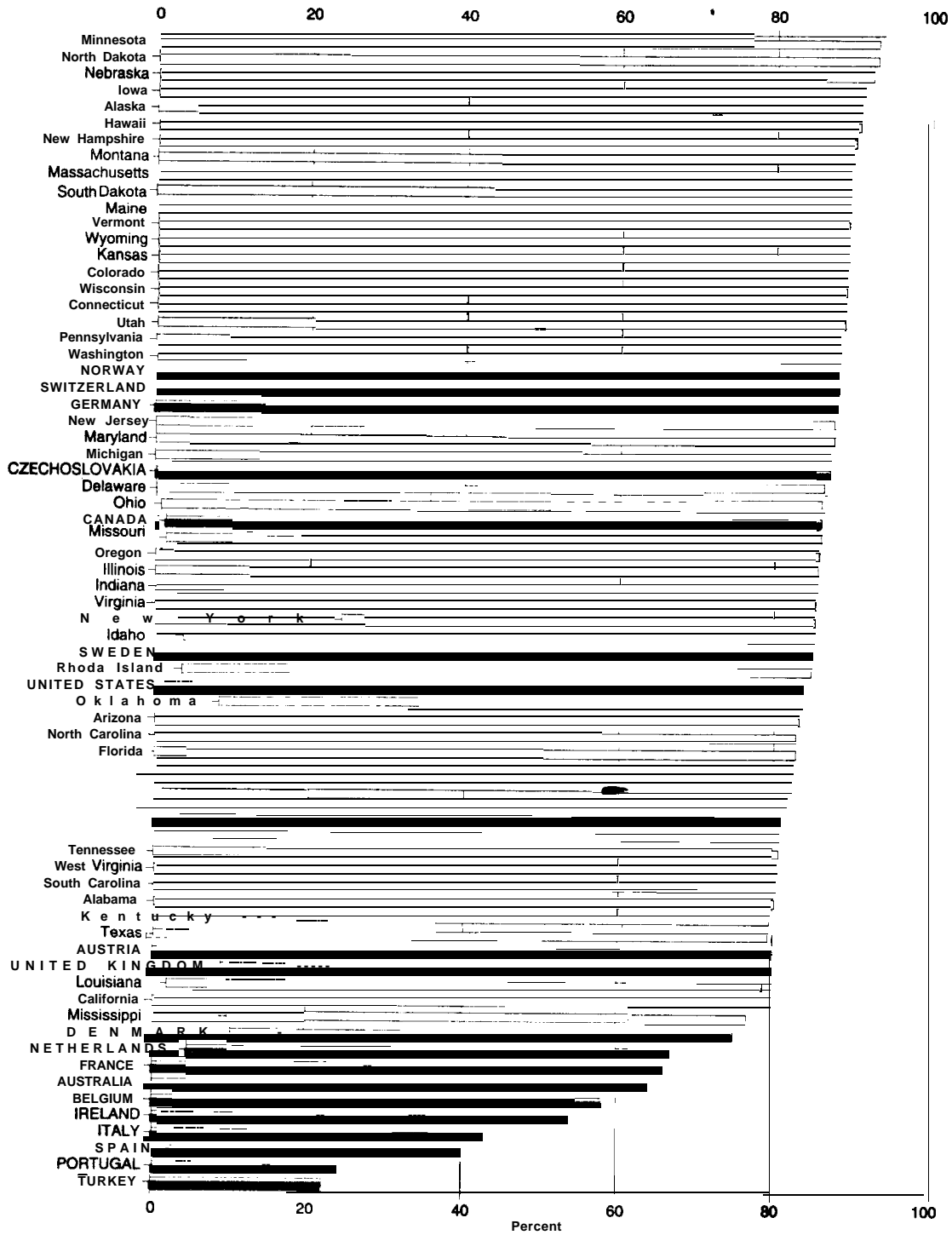
There are marked differences among countries with respect to whether certain programs are classified as belonging to the **university, non-university, or upper secondary sector**. For **example**, some programs that are begun subsequent to the completion of general secondary education are classified as non-university higher education in parts of Canada and the United States, whereas they are defined as upper secondary education in most other countries.

Figure 21a: Percentage of the population aged 25 to 64, by highest level of education attained, by country (1991) and state (1990)



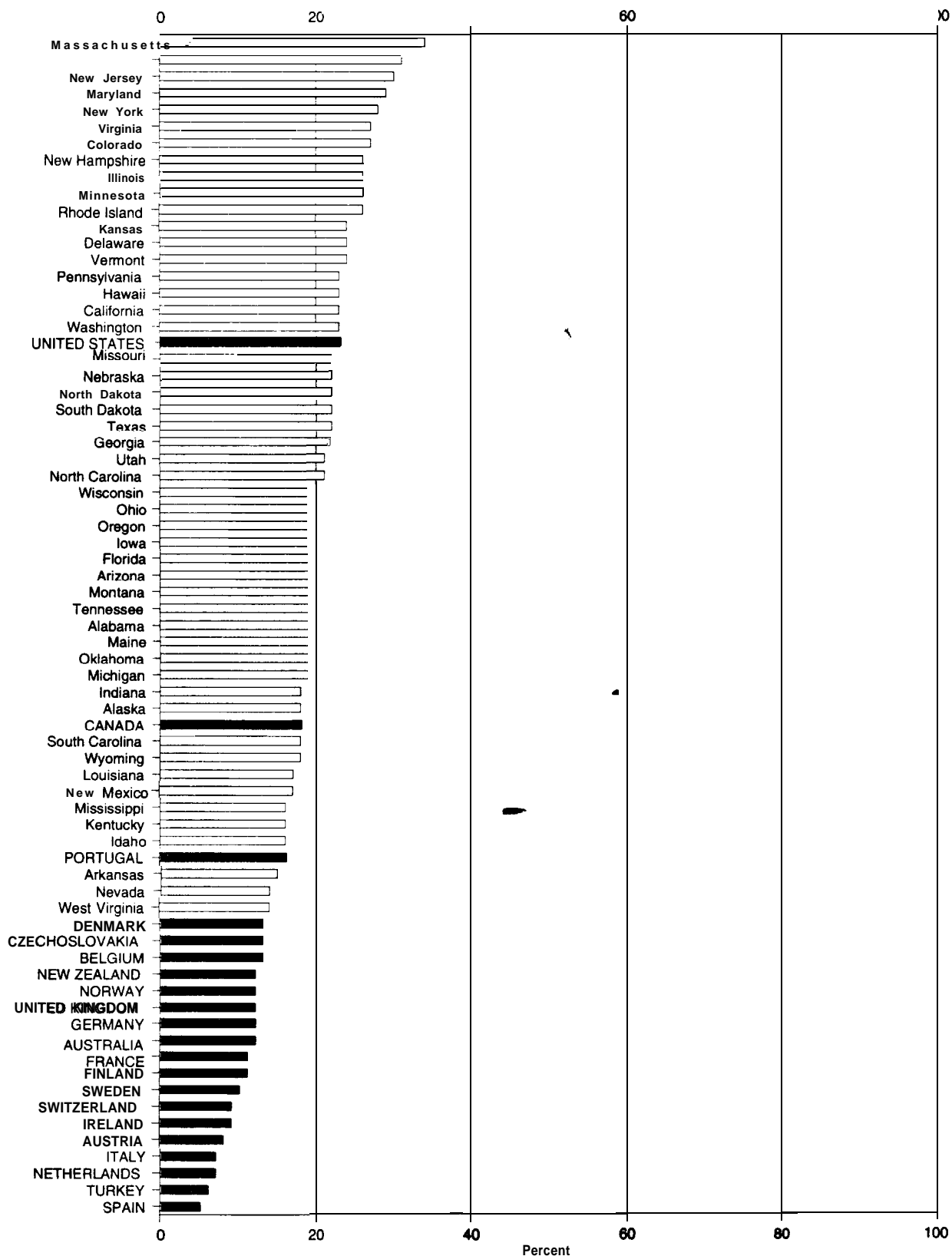
SOURCE: Organization for Economic Co-operation and Development, Center for Educational Research and Innovation, *Education at a Glance*, 1993, Table C1(A). U. S. Department of Commerce, Bureau of the Census, 1990 Census of Population and Housing, *Education in the United States*, Table 1.

Figure 21b: Percentage of the population aged 25 to 34 having attained at least an upper secondary level of education, by country (1991) and state (1990)



SOURCE: Organization for Economic Co-operation and Development, Center for Educational Research and Innovation, *Education at a Glance, 1993*, Table C1 (B). U.S. Department of Commerce, Bureau of the Census, 1990 Census of Population and Housing, *Education in the United States*, Table 1.

Figure 21c: Percentage of the population aged 25 to 34 who are university graduates, by country (1991) and state (1990)



SOURCE: Organization for Economic Co-operation and Development, Center for Educational Research and Innovation, *Education at a Glance, 1993*, Table S5. U.S. Department of Commerce, Bureau of the Census, 1990 Census of Population and Housing, *Education in the United States*, Table 1.

Table 21a: Percentage of the population aged 25 to 64, by highest level of education attained and country:1991

Country	Less than upper secondary	Upper secondary	Higher education (non-university)	Higher education (university)
Australia	44	25	21	10
Austria	33	61	—	7
Belgium	57	24	10	10
Canada	24	36	23	17
Czechoslovakia	27	63	—	10
Denmark	39	43	6	13
Finland	40	42	8	10
France	49	35	5	10
Germany	18	60	11	11
Ireland	60	24	8	8
Italy	72	22	—	6
Netherlands	44	37	13	6
New Zealand	44	33	13	10
Norway	21	54	12	12
Portugal	93	3	1	3
Spain	78	12	—	10
Sweden	33	44	11	12
Switzerland	19	60	13	7
Turkey	82	11	—	6
United Kingdom	35	49	7	10
United States ^a	19	51	7	23

— Persons are included in counts of another level of education.
^a1990 data.

NOTE: Row figures may not sum to 100, due to rounding. See supplemental note to Indicator 21 on pp.231–233 for a discussion of the levels of education; on pp.243–248 for details on data provided by Australia, Austria, Belgium, Canada, Czechoslovakia, Finland, France, Germany, Ireland, the Netherlands, New Zealand, Norway, Portugal, Sweden, Switzerland, Turkey, the United Kingdom, and the United States; and for a discussion comparing educational attainment data for the United States as it is found in the Current Population Survey to the same in the 1990 U.S. Census of Population.

SOURCE: Organization for Economic Co-operation and Development, Center for Educational Research and Innovation, *Education at a Glance, 1993*, Table C1(A). U.S. Department of Commerce, Bureau of the Census, 1990 Census of Population, *Education in the United States*, Table 1.

Table 21b: Percentage of the population aged 25 to 64, by highest level of education attained and state: 1990

State	Less than upper secondary	Upper secondary	Higher education (non-university)	Higher education (university)
Alabama	26	51	5	18
Alaska	11	57	7	24
Arizona	18	52	7	22
Arkansas	26	55	4	15
California	21	45	9	25
Colorado	12	51	8	29
Connecticut	15	46	7	31
Delaware	17	52	8	23
District of Columbia	23	38	2	37
Florida	21	51	8	20
Georgia	23	50	6	21
Hawaii	13	52	10	25
Idaho	15	56	9	19
Illinois	18	51	7	24
Indiana	19	58	6	17
Iowa	13	59	9	20
Kansas	13	56	6	24
Kentucky	28	52	5	15
Louisiana	26	53	4	18
Maine	16	56	7	21
Maryland	16	49	6	29
Massachusetts	15	46	9	31
Michigan	17	56	8	19
Minnesota	11	55	10	25
Mississippi	29	48	6	16
Missouri	19	56	5	20
Montana	13	58	7	22
Nebraska	11	56	8	22
Nevada	18	59	7	16
New Hampshire	13	51	9	27
New Jersey	17	48	5	29
New Mexico	21	52	5	22
New York	20	46	8	26
North Carolina	24	49	8	19
North Dakota	14	53	13	21
Ohio	19	56	6	19
Oklahoma	19	55	6	20
Oregon	14	55	8	23
Pennsylvania	17	55	6	21
Rhode Island	20	47	7	25
South Carolina	26	49	7	18
South Dakota	15	56	8	20
Tennessee	26	51	4	18
Texas	23	49	6	22
Utah	12	55	9	24
Vermont	14	51	8	26
Virginia	20	47	6	27
Washington	12	54	9	25
West Virginia	26	56	4	14
Wisconsin	14	57	8	20
Wyoming	13	59	8	20

NOTE: Row figures may not sum to 100, due to rounding.

SOURCE: U.S. Department of Commerce, Bureau of the Census, 1990 Census of Population, *Education in the United States*, Table 1.

Table 21c: Percentage of the population having attained *at least* a certain level of education, by age group, level of education, and country: 1991

Country	Aged 25 to 34		Aged 25 to 64	
	Upper secondary	Higher education (university)	Upper secondary	Higher education (university)
Australia	64	12	56	10
Austria	79	8	68	7
Belgium	58	13	44	10
Canada	86	18	76	17
Czechoslovakia	87	13	73	10
Denmark	75	13	61	13
Finland	81	11	60	10
France	66	11	50	10
Germany	88	12	82	11
Ireland	54	9	40	8
Italy	43	7	28	6
Netherlands	67	7	57	6
New Zealand	59	12	56	10
Norway	88	12	79	12
Portugal	24	16	7	3
Spain	40	5	22	10
Sweden	85	10	67	12
Switzerland	88	9	80	7
Turkey	22	6	17	6
United Kingdom	79	12	65	10
United States*	84	23	81	23

*1990 data.

NOTE: See supplemental note to Indicator 21 on pp. 231-233 for a discussion of levels of education; on pp. 243-248 for details on data provided by Australia, Austria, Belgium, Canada, Czechoslovakia, Finland, France, Germany, Ireland, the Netherlands, New Zealand, Norway, Portugal, Sweden, Switzerland, Turkey, the United Kingdom, and the United States; and for a discussion comparing educational attainment data for the United States as it is found in the Current Population Survey to the same in the 1990 U.S. Census of Population.

SOURCE: Organization for Economic Co-operation and Development, Center for Educational Research and Innovation, *Education at a Glance, 1993*, Table C1 (B). U.S. Department of Commerce, Bureau of the Census, 1990 Census of Population, *Education in the United States*, Table 1.

Table 21d: Percentage of the population having attained *at least* a certain level of education, by age group, level of education, and state: 1990

State	Aged 25 to 34		Aged 25 to 64	
	Upper secondary	Higher education (university)	Upper secondary	Higher education (university)
Alabama	80	19	74	18
Alaska	91	18	88	24
Arizona	83	20	81	22
Arkansas	81	15	74	15
California	78	23	79	25
Colorado	89	27	88	29
Connecticut	89	31	84	31
Delaware	87	24	83	23
District of Columbia	81	39	77	37
Florida	83	20	79	20
Georgia	83	22	77	21
Hawaii	91	23	87	25
Idaho	85	16	84	19
Illinois	86	26	82	24
Indiana	86	18	81	17
Iowa	91	20	88	20
Kansas	89	24	86	24
Kentucky	80	16	72	15
Louisiana	79	17	75	18
Maine	89	19	84	21
Maryland	88	29	84	29
Massachusetts	90	34	86	31
Michigan	87	19	83	19
Minnesota	93	26	90	25
Mississippi	77	16	70	16
Missouri	86	22	81	20
Montana	90	19	87	22
Nebraska	92	22	86	22
Nevada	83	14	82	16
New Hampshire	90	26	87	27
New Jersey	88	30	82	29
New Mexico	82	17	79	22
New York	85	28	80	26
North Carolina	83	21	76	19
North Dakota	93	22	87	21
Ohio	86	20	81	19
Oklahoma	84	19	81	20
Oregon	86	20	86	23
Pennsylvania	88	23	82	21
Rhode Island	85	26	79	25
South Carolina	80	18	74	18
South Dakota	89	22	84	20
Tennessee	81	19	74	18
Texas	79	22	77	22
Utah	89	21	88	24
Vermont	89	24	85	26
Virginia	85	27	80	27
Washington	88	23	88	25
West Virginia	81	14	74	14
Wisconsin	89	20	85	20
Wyoming	89	18	87	20

SOURCE: U.S. Department of Commerce, Bureau of the Census, 1990 Census of Population and Housing; *Education in the United States*, Table 1.

Indicator 22: Educational equity for women

The degree of educational equity for women in a society can be measured as the proportion of persons in the population aged 25 to 64 who attained each of various levels of education and who were women. A value of 50 percent reflects proportional equality among males and females, while a value above 50 or below 50 percent indicates an over-representation or under-representation, respectively, of females at a given level of educational attainment. Since educational attainment is often a determinant of other social or economic outcomes, such as labor market participation, occupational mobility, quality of life, and a full, efficient use of a country's or state's human resources, gender differences in educational attainment may indicate a broader social inequality between males and females.

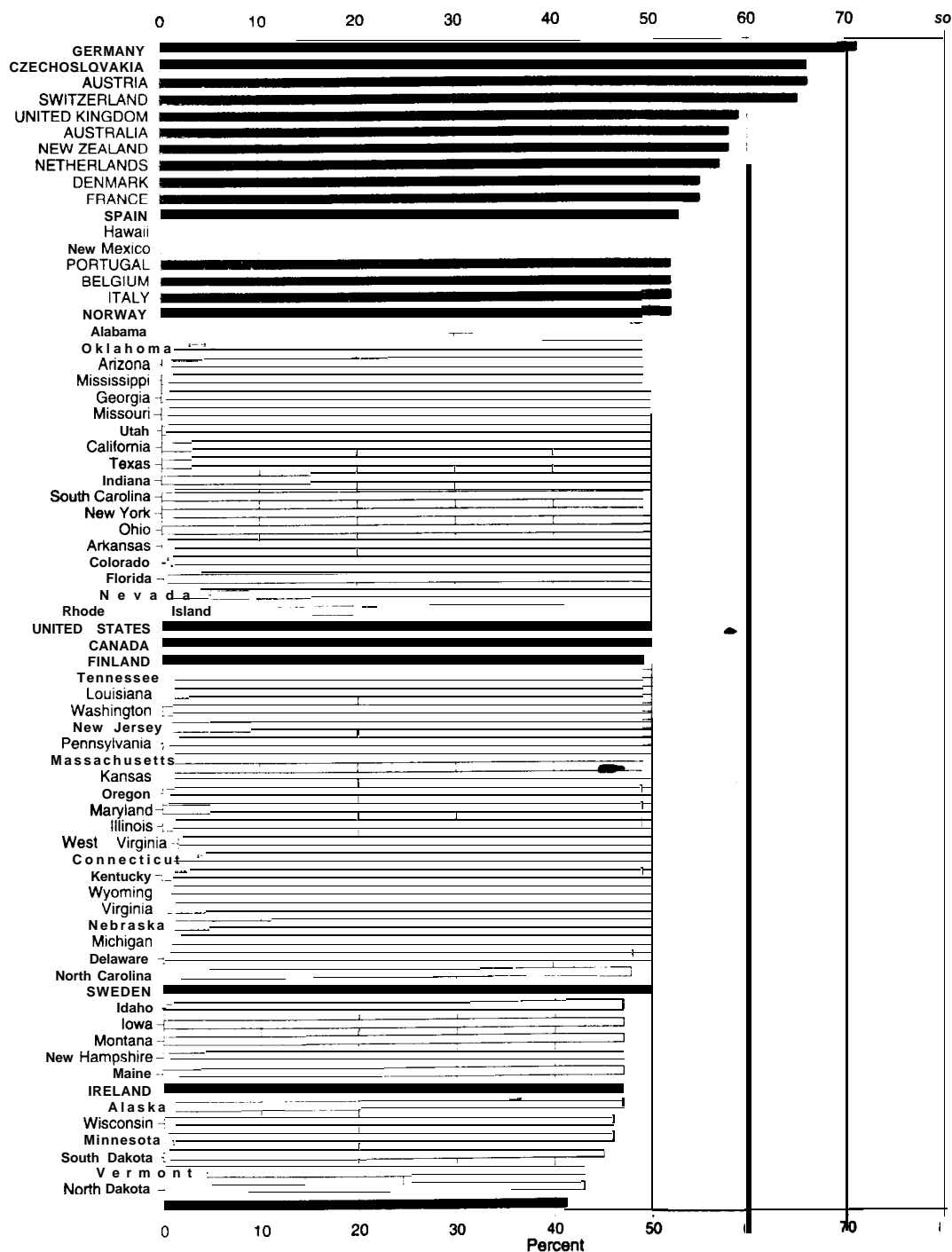
- ▶ **The proportion of women among those with less than an upper secondary degree in 1991 was 55 percent or more in 10 of the 20 other countries reported here. However, no U.S. state had a proportion that large in 1990.**
- ▶ **With the exception of non-university higher education, the United States and Canada had similar proportions of women at every level of educational attainment. When compared to their North American counterparts, the other four G-7 countries represented here had higher female proportions at the less than upper secondary level (by as much as 21 percentage points in Germany), equal or lower proportions at the upper secondary level (by as much as 9 percentage points in the United Kingdom and France), and equal or lower proportions at the university level (by as much as 10 percentage points in Germany).**
- ▶ **The proportion of women among university graduates was less than half in every country or state. In 14 of the 20 other countries represented here the female proportion of university graduates was 43 percent or less; however, only 3 of the U.S. states reported percentages that low.**

Notes on interpretation:

Although the educational attainment of a population is an indicator of the current skill level of the workforce, it is not necessarily a measure of success in educating a large proportion of the population. Within the 25- to 64-year-old age group, there may be many who have moved out of the country or state where they received their education. Thus, particularly in some U.S. states, large segments of the resident population may have been educated elsewhere.

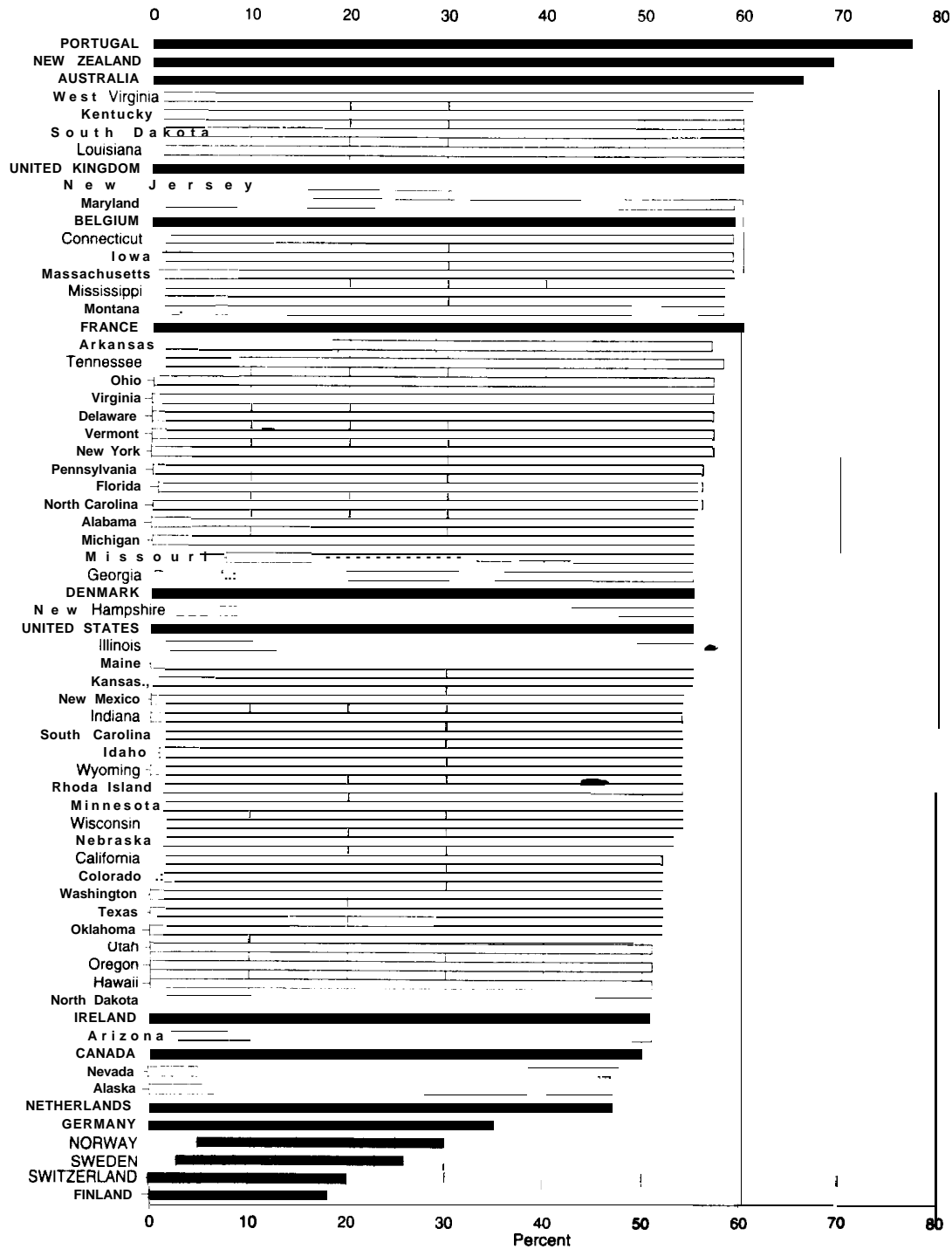
There are marked differences among countries with respect to whether certain programs are classified as belonging to the university, non-university, or upper secondary sector. For example, in some countries, programs leading to qualifications in teaching and nursing are considered to be university programs; in others, they are non-university programs. Furthermore, some programs that are begun subsequent to the completion of general secondary education are classified as non-university higher education in parts of Canada and the United States, whereas they are defined as upper secondary education in most other countries. To the extent that enrollment in any of these programs tends to be dominated by one gender, that can distort comparisons across countries using this indicator. For example, if most nursing students are female in each of two countries, but one country classifies nursing education as a university program while the other classifies it as non-university higher education, the first country may have a higher female proportion at the university level and a lower female proportion at the non-university higher education level.

Figure 22a: Percentage of women among those aged 25 to 64 whose highest level of educational attainment is less than upper secondary, by country (1991) and state (1990)



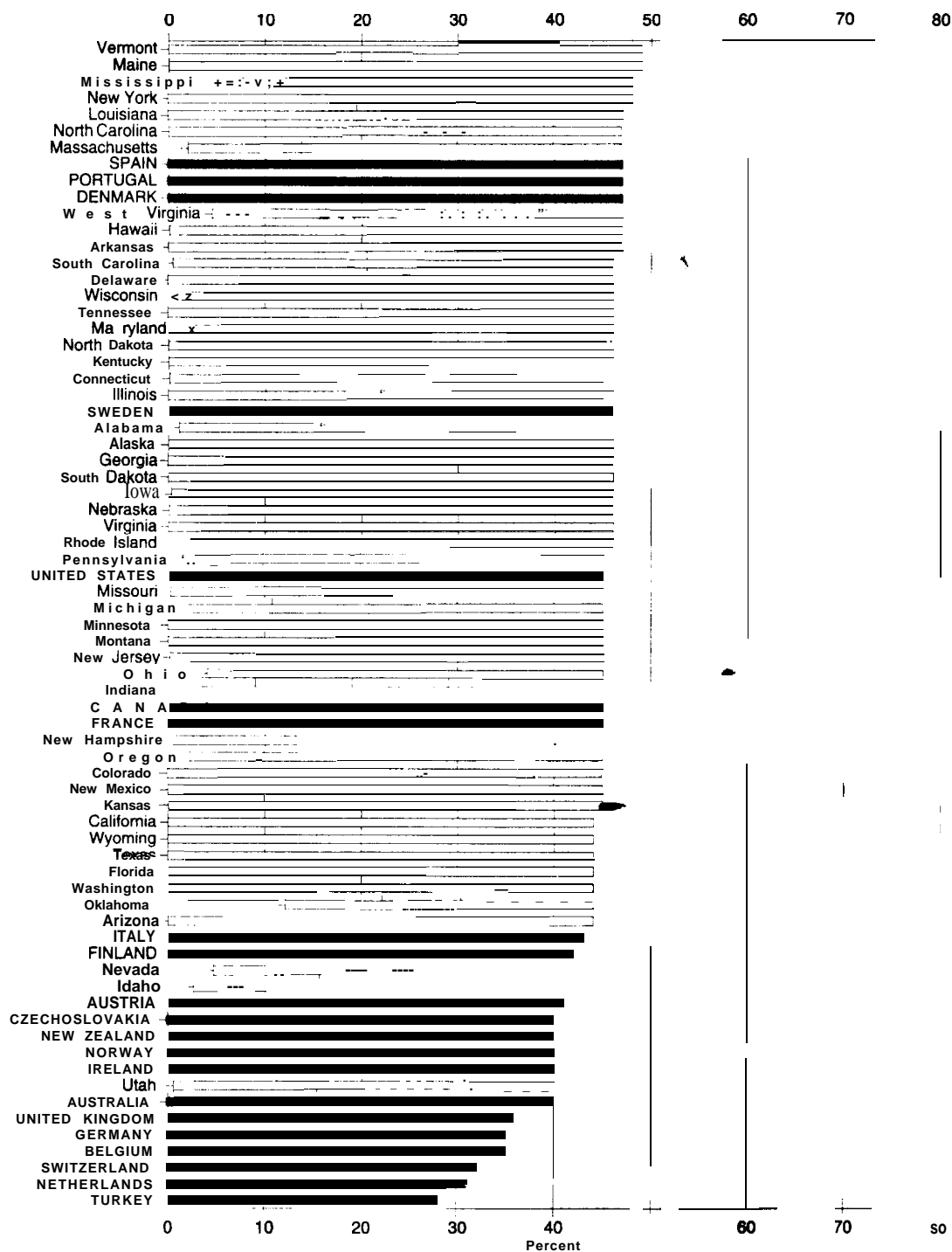
SOURCE: Organization for Economic Co-operation and Development, Center for Educational Research and Innovation, *Education at a Glance, 1993*, Table C2(A). U.S. Department of Commerce, Bureau of the Census, 1990 Census of Population and Housing *Education in the United States*, Table 1.

Figure 22b: Percentage of women among those aged 25 to 64 whose highest level of educational attainment is non-university higher education, by country (1991) and state (1990)



SOURCE: Organization for Economic Co-operation and Development, Center for Educational Research and Innovation, *Education at a Glance, 1993*, Table C2(A). U.S. Department of Commerce, Bureau of the Census, 1990 Census of Population and Housing, *Education in the United States*, Table 1.

Figure 22c: Percentage of women among those aged 25 to 64 whose highest level of educational attainment is university education, by country (1991) and state (1990)



SOURCE: Organization for Economic Co-operation and Development, Center for Educational Research and Innovation, *Education at a Glance, 1993*, Table C2(A). U.S. Department of Commerce, Bureau of the Census, 1990 Census of Population and Housing; *Education in the United States*, Table 1.

Table 22a: Proportion of women among those aged 25 to 64, by level of educational attainment and country: 1991

Country	Less than upper secondary	Upper secondary	Higher education (non-university)	Higher education (university)	All levels
Australia	58	26	66	39	50
Austria	66	43	—	41	50
Belgium	52	47	59	35	50
Canada	50	54	50	45	51
Czechoslovakia	66	46	—	40	51
Denmark	55	45	55	47	49
Finland	50	52	18	42	50
France	55	45	58	45	51
Germany	71	49	35	35	50
Ireland	47	58	51	40	50
Italy	52	48	—	43	51
Netherlands	57	45	47	31	49
New Zealand	58	37	69	40	51
Norway	52	50	25	40	49
Portugal	52	44	77	47	52
Spain	53	43	—	47	51
Sweden	48	50	23	46	49
Switzerland	65	52	20	32	50
Turkey	41	35	—	28	40
United Kingdom	59	45	60	36	50
United States*	50	53	55	45	51

--Persons are included in counts of another level of education.
*1990 data.

NOTE: See supplemental note to Indicator 22 on pp.231-233 for a discussion of levels of education; on pp.243-248 for details on data provided by Australia, Austria, Belgium, Canada, Czechoslovakia, Finland, France, Germany, Ireland, the Netherlands, New Zealand, Norway, Portugal, Sweden, Switzerland, Turkey, the United Kingdom, and the United States, and for a discussion comparing educational attainment data for the United States as it is found in the Current Population Survey to the same in the 1990 U.S. Census of Population.

SOURCE: Organization for Economic Co-operation and Development, Center for Educational Research and Innovation, *Education at a Glance, 1993*, Table C2(A). U.S. Department of Commerce, Bureau of the Census, 1990 Census of Population, *Education in the United States*, Table 1.

Table 22b: Proportion of women among those aged 25 to 64, by level of educational attainment and state:1990

State	Less than upper secondary	Upper secondary	Higher education (non-university)	Higher education (university)	All levels
Alabama	51	54	55	46	52
Alaska	47	47	47	46	47
Arizona	51	53	51	44	51
Arkansas	50	53	58	47	52
California	50	52	52	44	50
Colorado	50	53	52	45	50
Connecticut	49	54	59	46	51
Delaware	48	54	57	46	51
District of Columbia	51	55	57	50	52
Florida	50	54	56	44	51
Georgia	51	53	55	46	41
Hawaii	53	50	51	47	50
Idaho	47	53	54	41	50
Illinois	49	54	55	46	51
Indiana	50	53	54	45	51
Iowa	47	52	59	46	51
Kansas	49	52	55	45	50
Kentucky	49	53	60	46	51
Louisiana	50	54	60	47	52
Maine	47	52	55	49	51
Maryland	49	54	59	46	51
Massachusetts	50	53	59	47	51
Michigan	48	53	55	45	51
Minnesota	46	52	54	45	50
Mississippi	51	54	58	48	52
Missouri	51	53	55	45	51
Montana	47	52	58	45	50
Nebraska	48	52	53	46	51
Nevada	50	50	49	41	48
New Hampshire	47	53	55	45	50
New Jersey	50	54	59	45	51
New Mexico	52	52	54	45	51
New York	50	54	57	48	52
North Carolina	48	54	56	47	51
North Dakota	43	52	51	46	49
Ohio	50	53	57	45	52
Oklahoma	51	53	52	44	51
Oregon	49	53	51	45	50
Pennsylvania	50	54	56	45	51
Rhode Island	50	54	54	46	51
South Carolina	50	53	54	46	51
South Dakota	45	51	60	46	50
Tennessee	50	54	58	46	52
Texas	50	53	52	44	51
Utah	51	54	51	40	50
Vermont	43	52	57	49	50
Virginia	48	54	57	46	51
Washington	50	52	52	44	50
West Virginia	49	53	61	47	52
Wisconsin	46	52	54	46	50
Wyoming	49	51	54	44	50

SOURCE: U.S. Department of Commerce, Bureau of the Census, 1990 Census of Population and Housing; *Education in the United States*, Table 1.

Indicator 23: Secondary school completion

Upper secondary school completion is measured by the number of graduates per 100 persons in the general population of the graduation reference age, which is age 17 in the United States but which varies across countries. Countries and states with high upper secondary completion ratios may have economies that require highly skilled labor forces and that depend on the education system to provide necessary training. They also may place a higher priority on programs designed to encourage teenagers to stay in school rather than drop out. Countries and states with relatively high ratios, furthermore, may educate a large number of students from outside the typical age range enrolled in upper secondary education. This situation is common in countries where older students return for specialized vocational training, sometimes earning second or third credentials.

- ▶ **Among the G-7 countries in 1991, West Germany and Japan had the highest secondary school completion ratios, above 90 graduates per 100 persons at the graduation reference age; Italy had the lowest at about 50. The graduation ratios for France, the United Kingdom, and Canada were close to that of the United States (74).**
- ▶ **The range of secondary school graduation ratios across the U.S. states, from 63 in Florida and Louisiana to 91 in Maine, was not as broad as that across countries, which ranged from 28 in Turkey to 125 graduates per 100 persons in Finland.**
- ▶ **The secondary school completion ratio was above 85 in only four U.S. states. However, nine of the nineteen other countries recorded completion ratios that high.**

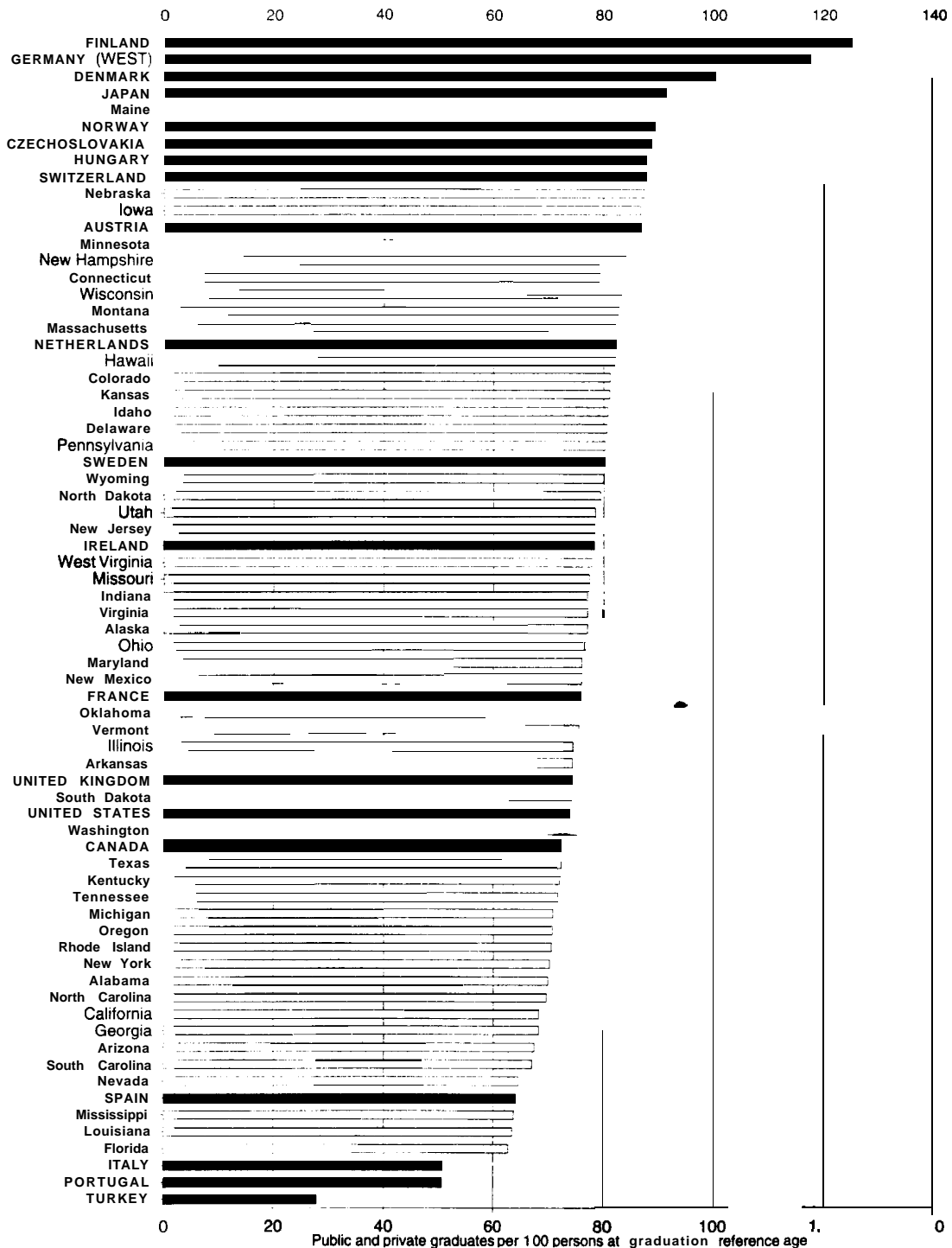
Notes on interpretation:

For the United States, upper secondary education is defined as the last three years of high school. In some countries, a large proportion of upper secondary students attend vocational, technical, or apprenticeship programs. In countries where the graduation ratio exceeds 100, it is likely that there are some students earning second degrees.

Countries differ greatly in how they classify certain programs as either higher education or upper secondary programs. For example, some programs that are begun subsequent to the completion of general secondary education are classified as non-university higher education in the United States and in parts of Canada, whereas they are defined as upper secondary education in most other countries.

A completion ratio should *not* be interpreted as a completion *rate*. Completion ratios allow comparisons across states and nations by standardizing the number of graduates at a particular education level to the size of the population in an age group typical for graduation at that level. It is *not, however*, an estimate of the percentage of that age group who have graduated. See supplemental note on pages 233–236 for an explanation of graduation reference age.

Figure 23: Public and private upper secondary school graduates per 100 persons at the graduation reference age, by country and state: 1991



NOTE: In some countries, a large proportion of upper secondary students attend vocational, technical, or apprenticeship programs. In countries where the graduation ratio exceeds 100, it is likely that there are some students earning second degrees

SOURCE: Organization for Economic Co-operation and Development, Center for Educational Research and Innovation, *Education at a Glance*, 1993, Table R5. U. S. Department of Commerce, Bureau of the Census, 1990 Census of Population and Housing. U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1993*, Table 99; *Digest of Education Statistics, 1994*, Table 63.

Table 23a: Public and private upper secondary graduates per 100 persons at the graduation reference age, by sex and country:1991

Country	Graduates per 100 persons		
	Total	Male	Female
Austria	86.6	92.3	80.6
Canada	72.5	71.0	74.1
Czechoslovakia	88.6	86.9	90.4
Denmark	100.4	90.0	111.8
Finland	124.9	103.2	148.0
France	75.8	71.8	80.1
Germany (West)	117.3	118.7	115.9
Hungary	87.8	—	—
Ireland	78.3	71.0	85.9
Italy	50.7	47.3	54.4
Japan	91.1	88.0	94.3
Netherlands	82.2	87.8	76.4
New Zealand*	35.5	34.3	36.7
Norway	89.3	98.9	79.3
Portugal	50.6	43.4	58.1
Spain	64.0	58.2	70.1
Sweden	80.2	78.4	82.1
Switzerland	87.6	90.7	84.4
Turkey	27.9	33.0	22.5
United Kingdom	74.4	72.2	76.7
United States	73.9	71.7	76.2

*Graduates of general education programs only; not graduates of vocational, technical, or apprenticeship programs.
 — Not available.

NOTE: In countries where the graduation ratio exceeds 100, it is likely that there are some students earning second degrees. See supplemental note to Indicator 23 on pp.278–279 for details on data provided by Czechoslovakia, Denmark, Finland, France, West Germany, Ireland, Spain, the United Kingdom, and the United States; on pp. 231–233 for a discussion of levels of education; and on pp.233–236 for a discussion of enrollment reference groups — typical starting ages and years of completion for upper secondary education — and for an explanation of graduation reference age.

SOURCE: Organization for Economic Co-operation and Development, Center for Educational Research and Innovation, *Education at a Glance, 1993*, Table R5.

Table 23b: Public and private upper secondary school graduates per 100 persons 17 years old, by state: 1991

State	Graduates per 100 persons
Alabama	69.9
Alaska	77.1
Arizona	67.4
Arkansas	74.4
California	68.2
Colorado	81.2
Connecticut	84.6
Delaware	80.6
District of Columbia	69.7
Florida	62.7
Georgia	68.2
Hawaii	82.0
Idaho	80.8
Illinois	74.4
Indiana	77.3
Iowa	86.7
Kansas	81.1
Kentucky	72.1
Louisiana	63.4
Maine	90.8
Maryland	76.1
Massachusetts	82.3
Michigan	70.8
Minnesota	86.4
Mississippi	63.7
Missouri	77.5
Montana	82.7
Nebraska	87.3
Nevada	64.6
New Hampshire	84.6
New Jersey	78.5
New Mexico	76.0
New York	70.2
North Carolina	69.6
North Dakota	79.4
Ohio	76.6
Oklahoma	75.7
Oregon	70.7
Pennsylvania	80.3
Rhode Island	70.5
South Carolina	67.0
South Dakota	74.3
Tennessee	71.8
Texas	72.4
Utah	78.5
Vermont	75.5
Virginia	77.1
Washington	73.3
West Virginia	77.9
Wisconsin	83.4
Wyoming	79.9

NOTE: Data include graduates of regular day school programs, but exclude graduates of other programs and persons receiving high school equivalency certificates.

SOURCE: U.S. Department of Commerce, Bureau of the Census, 1990 Census of Population and Housing; U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1993*, Table 99; *Digest of Education Statistics, 1994*, Table 63.

Indicator 24: University completion

The proportion of young people completing bachelor's degrees in the United States and its equivalent in other industrialized countries provides an indication of the skill level of entrants into the U.S. workforce and those of its economic competitors. Even though some graduates migrate across states or nations after graduation, the ratio of college and university graduates to the local population at the graduation reference age (university completion ratio) is an indicator of the skill level of the young adult labor pool in a particular state or country.

- ▶ **Among the G-7 countries in 1991, only Canada had a greater university completion ratio than the United States (33 versus 30 graduates per 100 persons at the graduation reference age). The ratio for the United States was more than twice that of Germany, and more than triple that of Italy.**
- ▶ **The university completion ratio ranged from less than 8 in Austria, Hungary, Spain, Switzerland, and Turkey, to more than 25 in Canada, Norway, and the United States. Only Canada and the United States had ratios higher than 25 for both males and females.**
- ▶ **In general, most U.S. states had university completion ratios much higher than those of the countries included here in 1991. Forty-eight states had university completion ratios of 20 or higher, and 32 states had ratios of at least 30. Only four of the other countries for which data were reported had university completion ratios as high as 20, and only Norway and Canada had ratios above 30.**
- ▶ **For half of the countries included here, and for all but one of the states, the number of graduates per 100 persons at the graduation reference age was higher among females than males. The female graduation ratio was more than 10 percentage points greater than the male ratio in 2 countries (Canada and Norway) and 6 states (Delaware, Hawaii, Maine, Rhode Island, South Dakota, and Virginia). Japan was the only country where the male graduation ratio was more than 6 percentage points higher than the female ratio, with a percentage point difference of 20.**

Notes on interpretation:

All students completing bachelor's degrees (or the equivalent) in country or state universities are included in the higher education completion figures. That includes students who had lived in other countries or states before attending their university or who moved to other countries or states after attending their university. Some states and countries, particularly those with a relatively large public university system and many private universities, may have a surplus of "in-migrant" students. Other states and countries, particularly those with a relatively small public university system and few private universities, may have a deficit of "out-migrant" students. Among OECD countries, Luxembourg is notable for a deficit of out-migrant students, as most of its university students attend universities in neighboring countries. See Indicator 11 for a migration adjustment across U.S. states, made at the initial point of that migration — when students first enter higher education institutions.

A completion ratio should *not* be interpreted as a completion *rate*. Completion ratios allow comparisons across states and nations by standardizing the number of graduates at a particular education level to the size of the population in an age group typical for graduation at that level. It is *not, however*, an estimate of the percentage of that age group who have graduated. See supplemental note on pages 233–236 for a discussion of graduation reference age.