

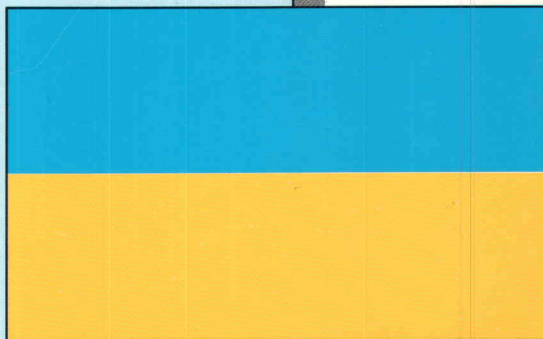
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Ukraine

An Economic Profile



November 1992

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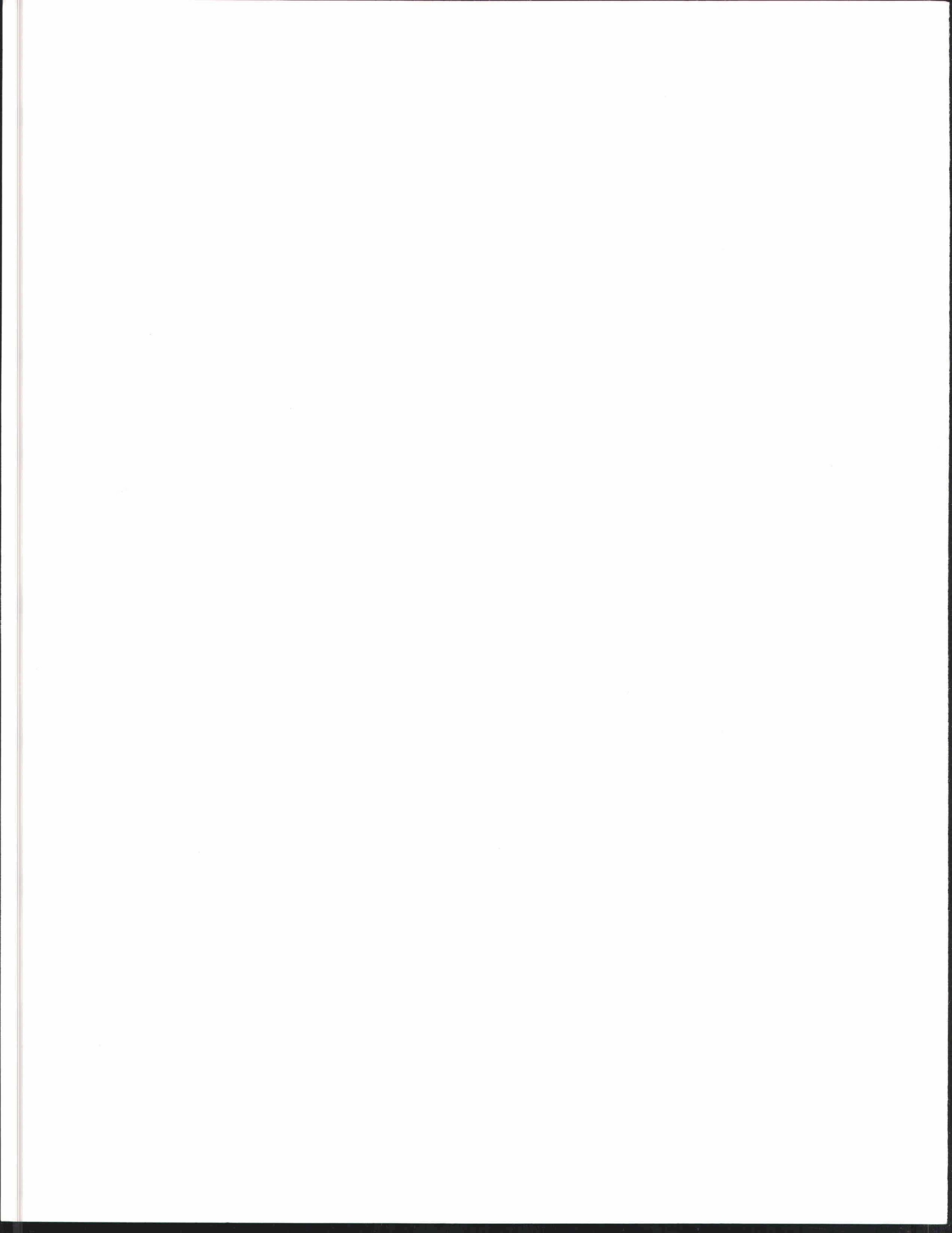
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Ukraine: An Economic Profile

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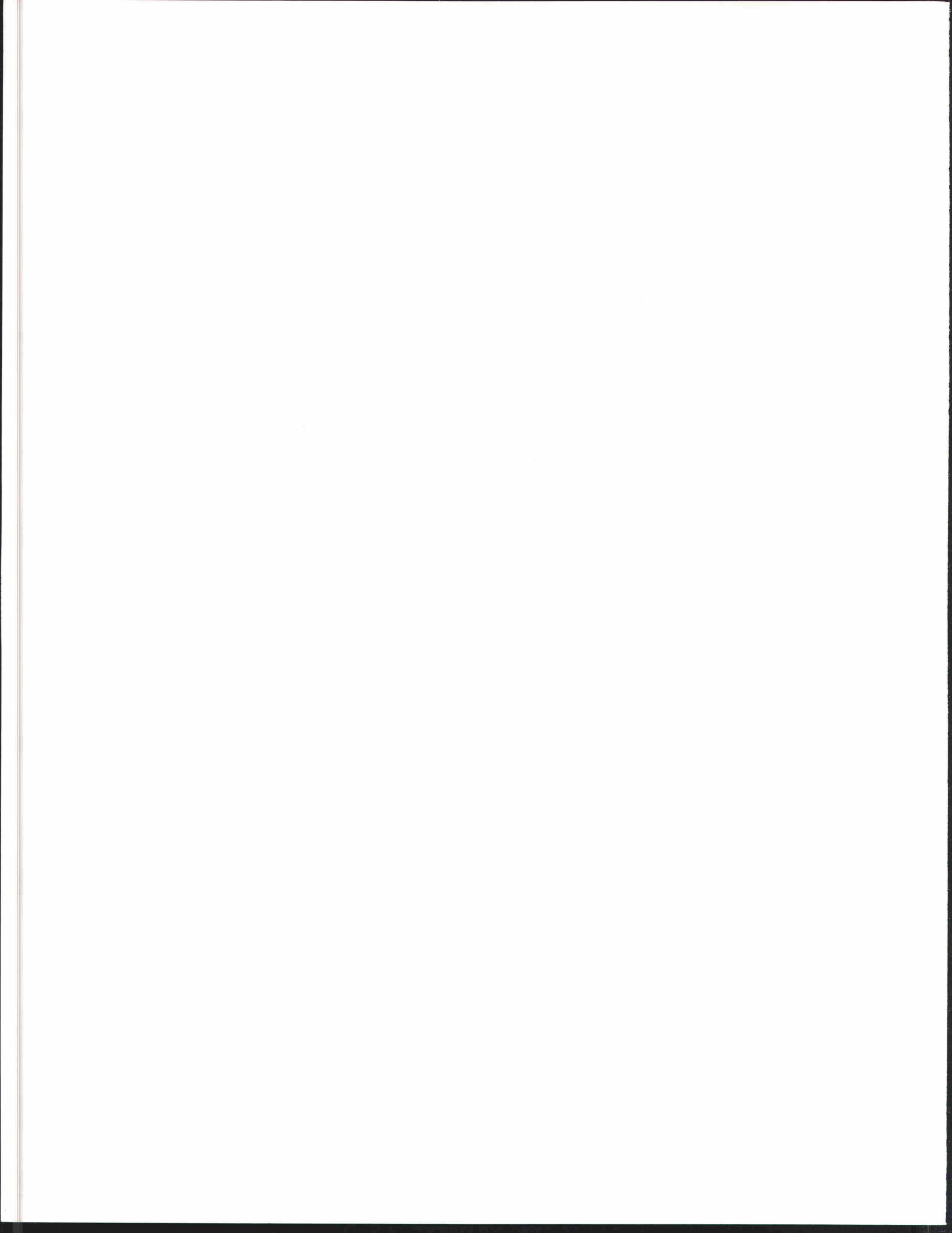
Ukraine: An Economic Profile

Preface

This is one in a series of profiles on the republics of the former Soviet Union that are intended to provide basic reference material as a backdrop for assessing future development in these new states. The profile provides a description of the geography, population, and economy of Ukraine and compares its level of development, growth, and social welfare with that in France and Poland.

International comparisons, particularly for aggregate measures such as GNP, are difficult to make because of differences in definitions and methods used by various countries in compiling statistics. International currency exchange rates are deficient for this purpose because they do not reflect relative purchasing power of different currencies over the whole range of output of goods and services included in GNP. Because of the lack of these parities, alternative measures have been selected. These measures include primarily data for which comparable international statistics were available.

For the most part, official statistics in the public domain were used in compiling the tables and other numerical entries. The annual statistical abstract for Ukraine (*Narodnoye khozyaystvo*) was the most important source of data. Extensive use was also made of *Trud v SSSR (Labor in the USSR)*, *Sotsial'noye razvitiye v SSSR (Social Development in the USSR)*, and the *Perepis' naseleniya (Population Census)*. Reference country comparisons—France and Poland—relied on the information found in their yearbooks and in various OECD publications covering national accounts, food consumption, and the like. More detailed data on the profile state are included in the appendixes.



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Figure 1
Ukraine



Ukraine: An Economic Profile

Geography and Climate

Ukraine (Republic of Ukraine/Ukraina) occupies 603.7 thousand square kilometers. It is nearly the size of Texas and larger than any other European state outside the former Soviet Union. The territory of Ukraine extends westward from the shores of the Black Sea and the Sea of Azov to the Carpathian Mountains and beyond, where it borders on Poland, Czechoslovakia, and Hungary. Romania and the Republic of Moldova lie to the south, and Belarus is Ukraine's northern neighbor; Russia shares more than 1,000 kilometers of the border to the east. In area, Ukraine was the third-largest republic of the former Soviet Union behind Russia and Kazakhstan. Physiographically, the predominant lowland relief of Ukraine is interrupted by several regions of modest elevation, such as the Donets Ridge in the southeast, the Volyn'-Podolian Plateau in the west, and the intervening Dnipro Ridge. The drainage pattern is quite extensive, with the Dnipro River at its heart and the Pivdenny Buh (Southern Bug), the Dnister, and the Sivers'kyi Donets (Northern Donets), a tributary of the Don, covering the outlying areas. The Carpathians and their foothills in the southwest, along with the Crimean Mountains bordering the southern coast of the Crimean Peninsula, constitute the only significant mountainous sections of Ukraine. Four natural/vegetative zones can be distinguished: the Polissya (Poles'ye), a forested zone in the north; the wooded steppe in the center; the true steppe in the south; and the Carpathian region (including the foothills, mountains proper, and Carpathian Ukraine) in the southwest.

Ukraine has a continental climate with variation depending, in part, on proximity to large bodies of water like the Black Sea or mountain ranges such as the Carpathians. There are anticyclonic (clockwise) air mass circulations throughout, with a Siberian high-pressure system dominating during the winter and an Azores high taking over in the summer. These weather patterns result in January mean temperatures as high as 27 degrees Fahrenheit (−30 degrees Celsius)

near Odesa to as low as 18°F (−8°C) in northern regions. July mean temperatures vary from 73°F (23°C) on the Black Sea coast to 62 to 68°F (17 to 20°C) inland and farther north. Precipitation also exhibits wide swings. The driest areas on the Black Sea receive only about 8 inches (200 mm) of rain per year, while annual precipitation reaches 24 inches (600 mm) in the north.

Ukraine was an important economic component of the Russian and Slavic states. This prominence rested on Ukraine's proximity to the Black Sea, diverse mineral resource base, comparatively moderate climate, rich soils, and well-developed transport network. Until the breakup of the union, it was the breadbasket of the USSR. During the 1980s, Ukraine contributed more than half of the Soviet Union's annual production of sugar beets, a quarter of the wheat, more than one-fifth of its meat and milk, one-quarter of the butter, and more than half of all corn. In the industrial sector, Ukraine's contribution was also substantial. As of 1989, Ukrainian mines and foundries accounted for nearly a quarter of the union's coal, roughly half of its iron ore, two-fifths of the pig iron, and more than one-third of its steel. Similarly, the republic contributed large shares of several manufactured products—one-third of television sets, one-fifth of shoes, and more than one-half of tractor plows—and a major portion of the equipment and armaments for the defense of the union.

Since the early 1960s, the territory of Ukraine has been administratively organized into three of the former Soviet Union's 19 economic regions. These are the Donets-Dnipro, the Southwest, and the South. They differ considerably in economic and demographic characteristics. More detailed descriptions of these regions are given in appendix A.

History and Government

Ukraine was the center of the first Slavic state, Kievan Rus'. From A.D. 900-1200, it was the strongest and most advanced state in Eastern Europe.

Kiev



Significantly, the rise in Kievan Rus' coincided with, and was consolidated by, the arrival of Byzantine Christianity. These early religious contacts led to the founding of the modern-day Russian Orthodox and Ukrainian Greek Catholic Churches, both of which remain powerful forces today, particularly in western Ukraine. The history of Kievan Rus' as a leading Slavic religious and cultural center laid the foundation for Ukrainian nationalism throughout the ages. Except for the brief flourishing of an independent Cossack Hetmanate created in 1648 after an uprising against the Poles, and for the short-lived Ukrainian Republic, which was declared sovereign between 1918 and 1920, the present-day Ukrainian territory has existed under foreign rule (Lithuanian, Polish, Ottoman, Austro-Hungarian, Russian, and Soviet) for the past six centuries.

This history of foreign rule imposed on a people with strong nationalistic sentiments speeded the move toward separation from the Soviet Union. On 28 October 1989, the Ukrainian parliament approved a law that made the Ukrainian language the official language of the republic. On 16 July 1990, Ukraine issued a proclamation of sovereignty. Thirteen months

later (24 August 1991), the move toward statehood was further strengthened by a proclamation of independence. On 1 December 1991, 90.9 percent of the citizens voting in a referendum ratified the 24 August declaration. Seven days later, Ukraine announced that it was joining Belarus and Russia in a "Commonwealth of Independent Slavic States." This move was superseded on 21 December by Ukraine's decision to become a member of the Commonwealth of Independent States.

Ukraine is a democracy headed by a popularly elected president who serves as head of state, chief executive in the land, and commander in chief of the armed forces. The highest legislative authority is the Supreme Council. The current body was elected in March 1990. In addition, there is a prime minister who is primarily responsible for administering the economy and implementing economic reform. He has a Cabinet of Ministers under him who head 27 ministries, 16 of which deal directly with aspects of the economy. The other ministries govern issues ranging from foreign affairs to justice to health. The State

Duma, an advisory board subordinate to the president, is closely involved in the formulation of economic policy as well as scientific, humanitarian, and legal affairs.

Ukraine is organized into 24 oblasts and one autonomous region, Crimea. Within that structure there are 481 rayons and 436 cities. Crimea enjoys a unique status because of its majority Russian population and its recent 1954 transfer to Ukraine from Russia. The region has full economic autonomy and can conduct its own relations with the former Soviet republics, but it is subordinate to Kiev's foreign and defense policies. While Crimea is self-governing, each of the oblasts and the cities of Kiev and Sevastopol' are governed by presidential representatives. These representatives are responsible only to the president, are charged with ensuring the execution of laws and decrees from Kiev, and can veto the local elected council's decisions.

Ukraine is currently operating under its preindependence constitution, which has been amended to allow for such changes as an elected presidency and separation from the Soviet Union. A new constitutional draft will be debated by the legislature and will subsequently be submitted for a nationwide referendum following ratification. The draft retains the current administrative units and Crimea's autonomous status and delineates a separation of powers among the executive, legislative, and judicial branches of government. It also formalizes the system of presidential representatives.

Population and Labor Force

Ukraine was the second-most-populous Soviet republic with 51.5 million inhabitants (table 1). Its population is smaller than that of France (56 million) but larger than Poland's (38 million). Women make up 54 percent of Ukraine's population, a somewhat higher share than in either France or Poland, where they comprise 51 percent of the populace. Over the past decade, Ukraine's population has grown more slowly than that of France or Poland, but all three are considered "low growth" countries (appendix table B-1).

Life expectancy in Ukraine is shorter than in either of the two reference countries. A key factor in life expectancy is infant mortality. Ukraine's infant mortality rate (reported at 13 per 1,000 births in 1989 and believed to be understated) is more than double the rate in France but slightly lower than in Poland.¹ Fertility rates for Ukraine and the reference countries are virtually equal, with Ukraine's rate falling between those of France and Poland. In 1989, Ukraine's fertility rate of 1.9 births per female slightly exceeded the rate for France and was marginally lower than the rate for Poland.

In 1979, ethnic Ukrainians comprised 74 percent of the population, with Russians making up 21 percent. Ten years later, the Ukrainian share had fallen to 72 percent, while the ethnic Russian share rose to 22 percent (appendix table B-2). Jews and Byelorussians (both 1 percent) are the next-largest ethnic groups, with Moldavians, Bulgarians, and Poles comprising most of the balance of the population.²

The Ukrainian language, whose written alphabet uses Cyrillic characters, is one of the three branches of the Slavic language group (the Russian and Byelorussian languages are the other branches). In 1989, the Russian language was more commonly spoken among Ukrainians in Ukraine than was the Ukrainian language by the Russians there.

Similar resource endowments and a common experience in centralized planning combine to produce labor force distributions with many of the same characteristics in Ukraine and Poland (table 2). Both have high

¹ Because of definitional differences, the official Ukrainian infant mortality rate, which is an important indicator of health conditions in a country, cannot be directly compared with other countries' rates. The reported infant mortality rates are understated, in part, because they do not include deaths in the first seven days after birth. Estimates for the former USSR suggest that the true rate is about twice the reported rate. The differential has not been estimated for the individual republics.

² Jews remain the largest non-Slavic minority in Ukraine, which, with the exception of Russia, contains more Jews than any other former republic. Jews have emigrated in large numbers, and their number fell by 150,000 between 1979 and 1989, when they comprised about 1 percent of the Ukrainian population.

Table 1
Selected Demographic Statistics, Selected Years

	Ukraine		France ^a		Poland ^a	
	1979	1989	1979	1990	1979	1990
Population						
Total (thousands)	49,609	51,452	53,372	55,996	35,382	38,038
Male	22,616	23,745	26,143	27,275	17,235	18,540
Female	26,993	27,707	27,229	28,721	18,147	19,498
Average annual growth rate (percent)	0.4		0.5		0.7	
Age dependency ratios ^b						
Total	50	50	57	52	53	54
Young (0-15)	32	32	35	31	37	39
Old (over 64)	18	18	22	21	16	15
Percent urban	61	67	73	74	58	62
Total fertility rate ^c (births per woman)	2.0	1.9	1.95	1.81	2.26	2.07
Life expectancy (years)						
Total	69.7	70.9	74.3	76.5	NA	71.3
Males	64.6	66.1	70.1	72.3	67.3	66.8
Females	74.0	75.2	78.3	80.5	75.0	75.5
Largest cities (thousands)						
	Kiev	2,587	Paris	9,063	Warsaw	1,656
	Kharkiv	1,611	Lyon	1,262	Lodz	848

^a Although the years 1979 and 1990 are indicated, the data for France and Poland refer to a range of different dates, depending on the country and measure in question.

^b Age dependency is the percent of the population that is younger and older than the working ages (15 to 64).

^c Total fertility rate represents the number of children a woman would bear in her life if she survived to the end of the reproductive ages and was subject over this period to the regime of age-specific fertility rates observed in the given country and year.

proportions (over half) of their labor force in industry and agriculture and small portions employed in services, such as trade, public dining, and personal services. By contrast, France, which is far more developed and has followed the path of indicative planning, employs a much lower percentage in agriculture and a far higher percentage in services.

In Ukraine, the size of the labor force as a percent of the total population is approximately the same as in Poland but much higher than in France. This similarity results from both demographic and economic policy factors. France has a higher percentage of its population above retirement age, which tends to shrink the size of its labor force. But Ukraine, and, to

a lesser extent, Poland, pursued a development strategy that relied on large annual infusions of labor as a means of stimulating economic growth. This policy contributed to higher labor force participation rates in these two countries than in France, especially for females.

A final noteworthy feature of the labor force is that ethnic Russians are disproportionately represented in the higher paying sectors, such as industry and construction, while Ukrainian presence in the lower paying sectors, such as agriculture and education, exceeds its population share (table 3 and appendix table B-3). This pattern is repeated throughout most

Table 2
Distribution of Labor Force by Sector

	Ukraine 1990	France 1988	Poland 1989
Total (thousands)	22,951.0	21,738.4	17,129.8
Total, national economy (percent share)	100.0	100.0	100.0
Industry	29.9	22.4	28.6
Agriculture and forestry	21.2 ^a	6.4	27.3
Transportation and communications	7.5	6.4	5.7
Construction	8.2	7.2	7.7
Trade, public dining and housing	11.4	17.0	12.2
Credit and insurance	0.6	9.5	1.0
Social services and other branches ^b	21.2	31.1	17.5

^a Includes collective farms and private agriculture.

^b Residual category comprises administrative activities, health and physical culture, social security, education, culture, art, science, and small unclassified enterprises.

non-Russian republics of the former Soviet Union, reflecting earlier Soviet policy of dispatching skilled Russians to the republics to staff new industrial enterprises.

Structure and Performance of the Economy

Aggregate Measures. Gross domestic product (GDP) accounts comparable to those of the West are not yet available for Ukraine. Preliminary estimates suggest, however, that industrial, agricultural, and construction activity probably contribute about three-fourths of total GDP, as compared with one-third in France and more than half in Poland. Trade and services may account for less than one-fifth of Ukrainian GDP, as compared with roughly 60 percent in France and somewhat more than one-third in Poland.

The distribution of Ukraine's domestic product among final uses—consumption, investment, and government services—differs significantly from reference country patterns. According to preliminary estimates,

Table 3
**Shares of Ethnic Ukrainians in
State-Sector Employment, 1987**

Percent

Total population	72
Total state sector	70
Sector	
Industry	68
Agriculture ^a	79
Transport and communications	71
Construction	69
Trade and public dining	73
Health and physical culture	68
Education	74
Culture and art	70
Government administration	73

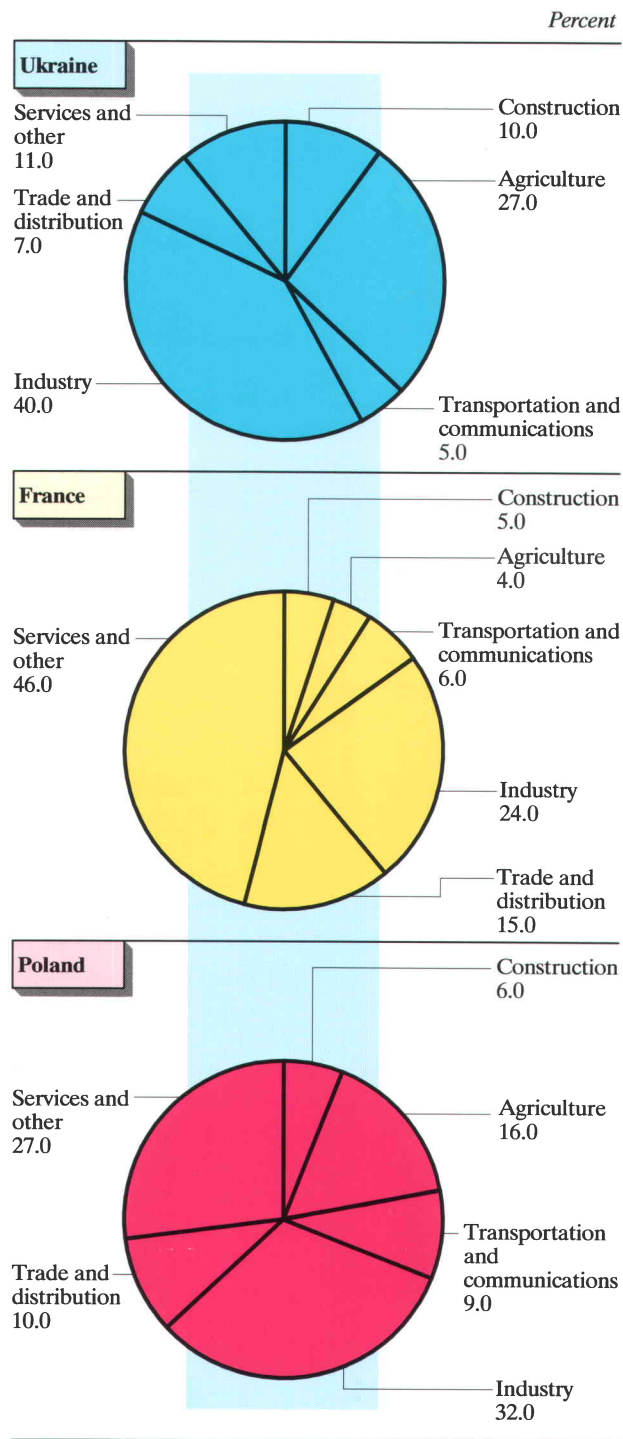
Note: Total population figure is for 1989.

^a Excludes collective farms.

Ukraine devotes a smaller share of its GDP (55 percent) to consumption than either Poland (63 percent) or France (68 percent). The share of investment in Ukraine's GDP is somewhat higher than in the reference countries, 30 percent, as compared to 21 percent in France and 27 percent in Poland.

Growth rates for GDP comparable with those in the West have not yet been calculated for the former Soviet republics. Preliminary estimates for Ukraine suggest, however, that GDP in Ukraine increased at less than 1.7 percent annually during 1981-88. This was clearly more than the -0.47-percent annual growth registered by Poland but below the 2.1 percent achieved by France. Despite the overall expansion of the economy, it appears that the productivity of labor and capital stagnated or declined in Ukraine during the 1980s, as compared with modest growth in France (roughly 1 percent). Production declined sharply in Ukraine in 1990 and 1991, as it did in Poland.

Figure 2
Gross Domestic Product by Sector of Origin, 1989



Industry. As in the case of the other republics, industrial growth in Ukraine in the 1980s slowed following earlier decades of comparatively rapid growth. The sluggish average annual rate of increase of 1.8 percent, however, still surpassed the 1.1-percent increase in France and the 1.0-percent decline in Poland. In 1990 and 1991, industrial production declined in both Ukraine and Poland.

Ukraine's raw material base is generally adequate to support industrialization. The country has one of the world's largest metallurgical bases located in the Donets-Dnipro region of eastern Ukraine. The Donbass, one of the oldest centers of coal production in the former USSR, has ample and varied supplies of coal, including quality coking coal. Coal production costs are high, however, mines are rapidly aging, and geologic conditions are becoming increasingly unfavorable.

In 1991, Ukraine's energy production was equivalent to more than 2 million barrels per day of oil. Coal, mostly from the Donets basin in the eastern part of the country, is the largest indigenous energy source in Ukraine and satisfies about one-third of the country's energy needs. Most of the more easily accessible coal has been extracted, however, and output has fallen by one-third since 1988, prompting coal officials to halt most exports. Similarly, domestic production of oil and natural gas, though sizable, is also declining, and the lion's share of Ukraine's domestic needs is satisfied by imports from other republics, primarily Russia. Ukraine has a well-developed oil refining sector that, given sufficient availability of crude, can satisfy most of Ukrainian oil product requirements. The country is also a large producer of electric power, and one-quarter of its electricity is generated from its five nuclear power plants.

Ukraine has large reserves of iron ore and was a major exporter to other republics. Other than iron ore and supplemental minerals for the ferrous metallurgy industry (for example, manganese), however, Ukraine is not well supplied with mineral resources. At the end of the 1980s, it nevertheless was producing a major share of the former Soviet Union's processed and semiprocessed industrial materials—one-third to two-fifths of steel and other ferrous metal products; 10 to

Figure 3
Major Energy Facilities in Ukraine



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Figure 4
Industrial Activity in Ukraine



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Coal miners in Donets



20 percent of a wide array of chemical products (for example, sulfuric acid and fibers) and construction materials (for example, bricks and cement).

Because of Ukraine's prominence in the agricultural production base of the former Soviet Union (exceeding one-fifth), the republic has a well-developed food-processing industry. In recent years, Ukraine produced more than one-half of the Soviet Union's output of sugar and more than one-third of vegetable oils.

Together with the Russian Republic, Ukraine led the march during the past 70 years in developing a machinery sector that would support the rapid growth of industry and the modernization of the Soviet armed forces. As a result, Ukraine's machinery sector produces a wide spectrum of producer, consumer, and defense durables. Most facilities, however, were built or renovated in the late 1940s and early 1950s as part of the massive rebuilding of Ukrainian industry, which was heavily damaged in World War II. Today, Ukraine is shackled with an aging and technologically outdated industrial base, especially in the machinery area.

The structure of industrial production in Ukraine reflects its raw material base and extensive agriculture. Metallurgy, machinery, and food processing account for about two-thirds of industrial output in Ukraine, but account for one-half or less in Poland and France. Consistent with this emphasis on heavy industry and agriculture, Ukraine produces relatively small amounts of clothing, textiles, and other soft goods, as compared with Poland and France (table 4 and appendix tables B-4 and B-5).

Agriculture. Ukraine has a highly diverse and, by past Soviet standards, a relatively productive agricultural sector. With only 15 percent of the former Soviet Union's farming area, Ukraine accounted for an average of 22 percent of total farm output in the 1980s. Two-thirds of the republic is covered with *chernozem* (black earth), the soils with the world's highest fertility.³ Nearly all crops and livestock of

³ Most of Ukraine's farming area is analogous to central Nebraska in terms of sufficiency of moisture, length of growing season, and levels of soil nutrients.

Table 4
Comparative Structure of
Industrial Output

Percent shares^a

	France (1988)	Poland (1985)	Ukraine (1989)
Electric power	9.1	6.5	7.3
Fuels	9.1	17.0	2.7
Metallurgy	4.7	8.2	14.1
Machinery	34.4	27.2	31.1
Chemicals	10.3	7.7	8.3
Wood, paper, and pulp	9.4	4.5	4.3
Construction materials	3.9	3.7	5.2
Soft goods	6.2	10.9	3.2
Processed foods	11.4	10.4	20.9
Other industries	1.5	3.9	2.9

^a Value-added statistics were used in these computations.

economic significance in the Northern Hemisphere's temperate zone are represented in Ukraine. Ukrainian crop yields are lower and production more unstable, however, than they are in analogous climatic areas in North America. Nevertheless, on average, Ukraine has consistently been a net exporter of agricultural products almost entirely to other former Soviet republics.

The overwhelming dominance of state and collective agriculture in Ukraine stands in marked contrast to the private farming sectors in Poland and France. The public sector typically has supplied three-fourths of total farm output. Until recently, the private sector in Ukraine, contributing roughly one-fourth of total farm output, had practically no individual peasant holdings. State and collective farm households were permitted to cultivate private plots of one-half to 1 acre (0.5 hectare) and to maintain one or two head of livestock. In addition, nonagricultural households had, and still have, very small "garden-size" plots for cultivation. Despite a common policy in Warsaw and Moscow to nurture and expand the socialist sector of agriculture and, in general, to provide an environment of benign neglect to the private sector, Polish private farmers ended the 1980s with a higher share of farm output (87 percent) than at any time since the 1950s.



Collective farm in Cherkasy

Before independence, Ukrainian agriculture was centered in nearly 11,000 large collective and state farms (table 5). In contrast, Polish agriculture was dominated by more than 2 million private landholders. France has more than 900,000 individual private farms that operate under the protective umbrella of an elaborate framework of Common Market subsidies and import levies (tariffs).

Collective farms, which comprise more than three-fourths of the total number of farms, were organized nominally as producers' cooperatives, whereas state farms were organized along the lines of state-operated industrial enterprises.

Table 5
Selected Characteristics of Agricultural Enterprises, 1989

	Ukraine ^a	Poland	France
Number of farms	10,763	2,146,469	911,800
Agricultural land per farm (<i>hectares</i>)	3,876	9	31
Cattle (<i>per farm</i>)	2,013	5	22
Hogs (<i>per farm</i>)	1,393	9	13
Number of workers (<i>per farm</i>)	462 ^b	2	1.5 ^c

^a State and collective farms only.

^b Annual average per farm.

^c Includes forestry, hunting, and fishing.

Despite the historical regularity of fluctuation in the output of agriculture worldwide, output in Ukraine and the reference countries was remarkably stable during the last half of the 1980s. During 1986-90, Ukrainian and Polish farm output increased at an average annual rate of 0.7 percent, while French farm output declined at an average annual rate of 0.8 percent.

Overall, when average production of crops and livestock for the period 1987-88 is valued at US "farm-gate" prices (1988), Ukraine's output is roughly the same as that in France and three-fifths above that of Poland. Livestock production in all three countries ranged between 53 and 61 percent of the value of total output. Production of important commodities is given for a series of years in table 6.

Ukraine lags in both crop and livestock productivity, as compared with France and Poland. In the case of crops, the relative advantage of the highly fertile *chernozem* soils of Ukraine is at least partially offset by the higher levels of precipitation and the larger application of mineral fertilizers in the two reference countries. When yields of six major crops (average 1988-89) are weighted together, the Polish and French indexes are 26 percent and 131 percent, respectively, above Ukrainian yields.

Table 6
Ukraine: Production of Major Agricultural Products, Selected Years

Thousand metric tons
 (except where noted)

	1980	1985	1988	1989	1990	1991
Meat	3,500	3,918	4,395	4,430	4,385	4,082
Milk	21,100	23,600	24,200	24,400	24,500	22,700
Eggs (<i>million</i>)	14,606	16,645	17,672	17,393	16,287	15,300
Wool (<i>metric tons</i>)	27	29	30	30	30	26
Potatoes	13,133	20,315	13,510	19,308	16,732	14,550
Vegetables	7,186	7,384	7,292	7,443	6,666	5,932
Grapes	806	430	662	789	836	673
Grain	36,652	38,956	45,369	51,212	51,009	38,674
Sugar beets	37,558	38,000	42,112	51,917	44,264	36,300
Sunflower seeds	2,257	2,288	2,775	2,885	2,725	2,448

Though not as pronounced as in the case of crops, milk yield per cow in Ukraine lagged 13 percent behind Poland and 50 percent behind France. The private sector in both Ukraine and Poland posted higher milk yields than did the socialized sector. Also, the private-sector performance was superior to that of the public sector in terms of yields of crops commonly grown in both sectors.

Transportation. Judging by the extent of its road and rail networks, Ukraine's transportation infrastructure far exceeds the average for the former Soviet Union. Though better developed, it is nevertheless similar to other former Soviet republics in that it is primarily geared to cargo transport. Kiev serves as the hub for the rail and road networks, which, in turn, link up with Ukraine's major Black Sea ports (most prominently Odesa, Mykolayiv, and Kherson). In addition, road and rail links provide access to the tourist spas in the Crimea.

A major gas pipeline, now jointly owned by Ukraine, Russia, and Belarus, runs through Ukraine.

Figure 5
Investment Allocations by
Sector of the Economy

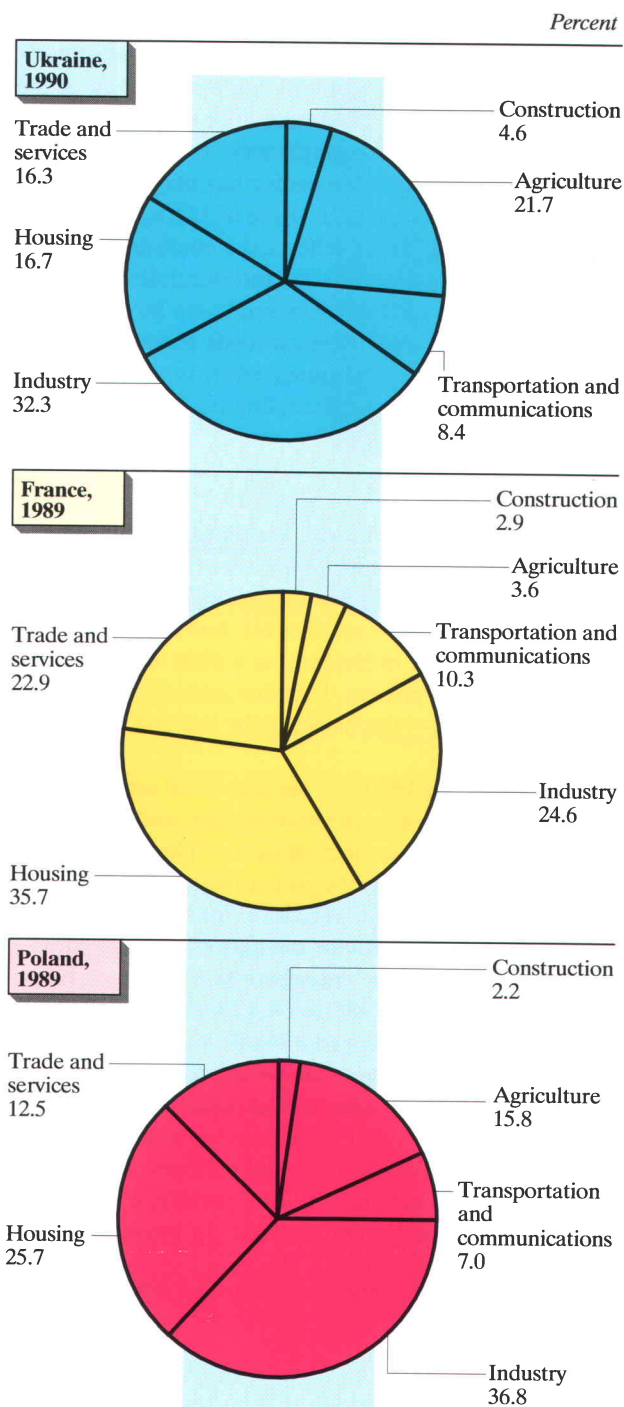


Table 9
Structure of Industrial Investment
by Branch, 1989

Percent share

	Ukraine	Poland	France
Electric power	12.9	10.3	17.1
Fuels	26.0	15.0	15.5 ^a
Chemicals and petrochemicals	8.1	10.7	
Machinery	36.2	28.0	29.4
Wood, paper, and pulp	1.9	5.0	18.0
Construction materials	4.3	4.1	6.3
Soft goods	2.5	8.1	3.5
Processed foods	8.1	18.8	10.2

^a Fuels, chemicals, and petrochemicals combined.

Table 10
Ukraine: Employment by Form of
Property, 1987-90

Percent

	1987	1988	1989	1990
State	83.6	83.6	82.5	81.9
Collective farms	14.4	13.8	13.6	13.4
Cooperatives	0.1	0.5	1.9	2.4
Private	0.1	0.2	0.2	0.2
Private agriculture	1.8	1.9	1.8	2.1

two-thirds (62 percent) of Ukrainians involved in private enterprise worked in the handicrafts industry, with the service sector accounting for most of the remainder (27 percent).

The Ukrainian parliament has enacted legislation legalizing and encouraging private ownership of both land and capital assets. In January 1992, the government adjusted measures to implement the privatization of state property and indicated its aim to privatize some two-thirds of state enterprises over the next four to five years. A variety of methods are to be used, including sale or distribution of vouchers. The privatization process is to start in 1992 with small units in

trade and services and the transformation of some large firms into joint stock companies. In agriculture, Ukraine has managed to register some 10,000 private farms against much opposition by 1 July 1992; 3,000 were registered at the start of the year.

Inflation and Unemployment. In the postwar years open inflation was not a problem in Ukraine, although the degree of repressed inflation was rising, especially in the 1980s. According to the official retail price index (which understates the rate of price change), prices during 1981-90 increased a mere 1.3 percent annually on average. In France, the consumer prices rose an average of about 6.5 percent annually during 1981-90, rather high by West European standards. The average inflation rate in Poland was many times higher during that period, the result of decontrol of nearly all prices. In 1991, retail prices in Ukraine increased by some 84 percent, the consequence of steep price increases for most consumer goods and the freeing of prices for some others. Following Russia's lead, Ukraine freed most prices in January 1992, and consumer prices increased by more than 700 percent in the first half of the year.

While Ukraine was still part of the Soviet Union, unemployment was not officially acknowledged, and no data were published. Data available for 1990 show 794,400 unemployed persons registering at job placement centers, reflecting an unemployment rate of about 3 percent. In mid-1991, the unemployment rate in Poland was about 10 percent. In France, the rate was 6.3 percent in 1980 and climbed to a peak of 10.5 percent in 1987 before declining to 9 percent in 1990.

Foreign Economic Relations

In 1989, imports provided 18 percent of Ukrainian domestic consumption. Other republics supplied over 70 percent of imports, and three-quarters of this total came from Russia. Ukraine's largest net imports are energy and soft goods, especially textiles and clothing. Together, these categories accounted for 25 percent of total imports in 1989. Ukraine is also a net importer of nonferrous metals, chemicals and petrochemicals, and forestry products (appendix tables B-8 and B-9).

Table 11
Energy Production, Consumption,
and Imports, 1991

		Thousand Barrels Per Day Oil Equivalent
Primary energy production		
Oil (<i>thousand b/d</i>)	98	98
Natural gas (<i>billion cm</i>)	24	388
Coal (<i>million tons</i>)	136	1,551
Electric power (<i>billion kWh</i>)	87	402
Consumption		
Total (<i>percent shares</i>)	100	4,300
Oil	26	
Gas	35	
Coal	33	
Other ^a	6	
Net imports ^b		1,861

^a Primary electricity, shale oil, peat.

^b Net imports are calculated by subtracting production from consumption.

Ukraine exported 15 percent of production in 1989. Over four-fifths of exports went to other republics, with Russia receiving two-thirds. Ferrous metals and food products are Ukraine's largest net exports and together accounted for about one-third of total exports in 1990. Sugar, vegetable oil, meat, and dairy products dominate food exports.

Ukraine imports about half of its energy needs, primarily from Russia, which supplies crude oil to Ukrainian refineries. Ukraine is a net exporter of coal and electricity. Western Ukraine serves as a principal export route for oil, gas, coal, and electricity to Eastern and Western Europe. A more detailed picture of Ukraine's sources and uses of energy is presented in table 11.

Ukraine has been actively courting potential foreign investors but has had only modest success. Its foreign investment law, passed in September 1991 and liber-

Joint-venture arts and crafts store



Table 12
Joint-Venture Partners in Ukraine,
by Partner Country, 1990

	Number of Firms		Number of Firms
United States	12	France	5
Germany	12	Switzerland	5
Bulgaria	11	Australia	4
Austria	10	Belgium	4
Poland	7	United Kingdom	4
Hungary	5	Italy	4
Canada	4	Yugoslavia	4
		Others	11

alized in March 1992, is based on international standards. Both foreign ownership and the repatriation of profits are permitted. Before independence, Ukraine had managed to get some 155 joint ventures into operation (as of mid-1991). At the start of the year, there were 125 of them. They were engaged in a wide variety of activities, nearly half being in industry. Most joint ventures are small and at present

Table 13
Ukraine: Joint Ventures by Oblast, 1990

	Number of Ventures		Number of Ventures
Kiev	31	Luhan'sk	3
Odesa	18	Cherkasy	3
Donets'k	11	Mykolayiv	2
L'viv	11	Rivne	2
Kharkiv	7	Ternopil'	2
Krym (Crimea) ^a	6	Chernihiv	2
Zaporizhzhya	5	Vinnytsya	1
Zakarpats'ka	3	Ivano-Frankivs'k	1
Dnipropetrovs'k	3	Sumy	1

^a Krym is a republic.

account for a tiny share of economic activity and employment.⁵

⁵ Includes only functioning joint ventures, which are those that have commenced their intended production or service activities. Registered joint ventures are potential projects that have been agreed to by firms in the former Soviet Union and abroad, and whose nominal existence has been registered by authorities in the former republics. The 125 functioning joint ventures accounted for 60 percent of the 209 ventures that were registered in Ukraine in 1991.

A wide range of countries have entered into joint ventures with Ukraine. In 1990, firms from 33 foreign countries were represented. Most were from nearby European states, although the United States also played a key role (table 12). The largest number of joint ventures were located in the capital region (Kiev Oblast) (table 13).

Living Standards and Social Indicators

Personal Income. Workers in the Ukraine receive the vast bulk of their income from wages and salaries in the state sector. In accord with the Soviet policy of centralized wage-setting, wage differentials are relatively narrow by international standards. The highest wages typically have been paid to workers in industry, construction, and transportation (appendix table B-5). The lowest paid branches typically have been trade and services such as education and health care. Ukraine's collective farmers have been paid lower wages than workers in state agriculture, although differences have been reduced in recent years. Average wages also differ, but rather narrowly, among oblasts in Ukraine. In 1990, the highest average wages were paid in the Kiev and Donets'k Oblasts and the lowest in Chernihiv and Ternopil' Oblasts.

Until recently, little information has been available on the distribution of income within the Soviet Union and its republics. Data available for 1990, the last year before rapid inflation set in, show that 11.3 percent of the population in Ukraine had incomes below 100 rubles a month, the semiofficial poverty line. At the same time, 5.4 percent of the population had incomes over 300 rubles per month:

Per capita monthly income, 1990

Average Monthly Income ^a (rubles)	Share of Population (percent)
Less than 75	2.7
75.1 to 100.0	8.6
100.1 to 150.0	31.2
150.1 to 200.0	28.0
200.1 to 250.0	16.2
250.1 to 300.0	7.9
More than 300.0	5.4

^a Includes pensioners.

Although unambiguous statistics on income distribution are difficult to obtain for intercountry comparisons, the indicators available suggest that incomes have been distributed much less unequally in Ukraine than in France and perhaps also than in Poland.

In Ukraine, in 1989 nearly half of total household consumption consisted of expenditures on food and beverages and about one-fifth was spent on clothing and similar goods. Only about 15 percent went for services. This pattern is roughly similar to that in Poland, but it differs markedly from that in much more affluent France. There, a little more than one-fourth of total consumption went for food and beverages, about one-twelfth for clothing and the like, and more than two-fifths for services.

Food Consumption. The caloric content of the average daily diet during the period 1989-90 in Ukraine (3,518 calories), Poland (3,464 calories), and France (3,491 calories) exceeded both US and internationally recommended dietary allowances.⁶

The shares of calories from starchy staples (potatoes and grain products) in the Ukrainian diet (43 percent) and that in Poland (35 percent) were above those in countries of the developed West. The starchy staple share for France of 29 percent was near the average of other countries. The French obtained substantially larger shares of their total calories from meat and dairy products than did Ukraine and Poland, where the shares were similar.

Inventories of Selected Consumer Durables. By and large, Ukrainian families were supplied with the major consumer durables almost at the same level as in Russia. Virtually all families owned radios and TV sets, and about nine-tenths had refrigerators. In contrast, only one-fifth of families had an automobile, and only about a third of urban families had a home telephone. Telephones are rare in rural homes in Ukraine. Ukrainian families by and large resemble those in Poland in terms of possession of consumer

⁶ Recommended daily caloric allowances for US adults are 2,650 for males and 1,950 for females.



State retail outlet for fruits and vegetables



Collective farm market in Kiev

durables, but families in both countries are much less well supplied than those in France. The tabulation below provides ownership rates of selected household durables for the three countries:

Holdings per 1,000 population, 1989

	Ukraine	Poland	France
Durable goods ^a			
Telephones	133	122	441
Televisions	323	388	421
Automobiles	63	78	190

^a Because the higher quality of French consumer durables results in greater reliability, enhanced operating life, and fewer repairs, numerical measures do not capture the full difference.

Housing. As of the late 1980s, the provision of housing in Ukraine was well below that in the two reference countries. In terms of general housing space per capita, the average Ukrainian was provided with 17.6 square meters; 16.3 square meters in urban areas, and 20.4 square meters in rural areas. There were also wide variations among regions. By way of contrast, the average Pole had 17.5 square meters, but in France the average was 36.2 square meters. In 1989, over three-fifths of all Ukrainian urban housing was owned by the state, and the remainder was held

privately or by housing cooperatives. Just the reverse was true in rural areas, with over four-fifths being held privately. Housing is overwhelmingly privately owned in both Poland and France. In terms of the availability of housing amenities, Ukrainian standards are well below the levels of the two reference countries:

Percent share of housing equipped with amenities ^a

	Ukraine (1989)	France (1988)	Poland Urban	Rural (1990)
Utility				
Running water	55	99	95	65
Hot water	38	NA	NA	NA
Central heating	50	99	74	41
Sewerage	49	98	85	47
Bathing facilities	45	77	83	52

^a End of year shown. Figures for Ukraine are for urban and rural areas combined. In rural areas only 12 percent of the homes had running water, 4 percent had hot water, 8 percent had sewerage, 12 percent had central heating, and 7 percent have bathing facilities.

Rents on state-owned apartments in Ukraine are low and heavily subsidized. Since rents covered only about one-fifth of current maintenance costs, much housing is in poor repair. Despite the low rents, housing

conditions have been the subject of much complaint. In 1989, only 9 percent of Ukrainian families (as compared to 13 percent for the former Soviet Union as a whole) who were on waiting lists for better housing actually upgraded their circumstances. Such shortages have been chronic and persistent despite a sizable program to build new housing in the 1980s.

Pensions, Health, and Welfare. As in all former Soviet republics, Ukrainians have been covered by a state-provided system of "cradle-to-grave" social security, which was funded mainly by the state budget and which did not require direct contributions from the population. In 1991, the system was changed to create a pension fund, an employment fund, a social insurance fund, and budget-funded family allowances. Under the former system, both the nominal value of Ukrainian pensions and the extent of the population covered increased during the 1980s. Reflecting the aging of the population, the number of pensioners grew by roughly 19 percent, while monetary value rose by 60 percent, at least compensating for the increase in the cost of living. Pensions were given for old age (59 for men and 54 for women), loss of the breadwinner, and disability. Pensions were much lower for collective farmers than for state workers. In 1990, the average old-age pension was less than half the average wage of state and collective farmers, and 37 percent of pensioners received only the minimum pension of 70 rubles per month.

Poland's system of social security and welfare was patterned more or less after that in the Soviet Union. The system, financed mainly by a large payroll tax, provides old age, survivors, and disability pensions, family allowances, and miscellaneous other benefits. Eligibility ages for pensions are later than in Ukraine—65 for men and 60 for women. In 1990, the average pension amounted to nearly 65 percent of the average monthly wage. Welfare benefits are indexed for changes in the consumer price index.

As in Ukraine and Poland, the population of France is covered by a comprehensive social welfare program with benefits at the West European level. Although comparisons on such complex matters are tenuous, it appears that France's social safety net has historically been more inclusive and protective than its Ukrainian

and Polish counterparts. Thus, nearly 100 percent of the eligible population receives old-age pensions in France, whereas Ukraine's net extended to 89 percent of the eligible population in 1989. In the same year, only 68 percent of Poland's old-age population received retirement benefits, the principal excluded group being private farmers. However, according to the 1990 Polish Social Welfare Act, all persons who do not have any income or whose income does not exceed 90 percent of the minimum pension will receive a permanent benefit.

In 1991, the Ukrainian Supreme Soviet passed a law to enhance both the level and coverage of various social welfare benefits. Among other things, it established a minimum wage of 400 rubles per month and a minimum pension of 442 rubles per month as of 1 January 1992. In May 1992, a second edict further increased the minimum wage to 900 rubles and the minimum pension to 800 rubles per month and directed the Cabinet of Ministers to revise the amounts of other social payments and student stipends in accordance with the new minimum wage and pension levels. All future social payments are supposed to be indexed for changes in the price level and thereby protect Ukrainian pensioners from inflation.⁷ Similar indexation policies are in effect in Poland and France.

The health care system in Ukraine is overwhelmingly state run and provided without direct charge. There have been a few fee-for-services clinics in recent years. Private practice, legalized under Gorbachev policies in 1985, supplements the state system to some extent. Since independence, Ukraine has not moved toward either an insurance-based system or private delivery of services. Health care in Ukraine is provided mainly by public hospitals and clinics in cities and rural areas. Also, most institutions and organizations, including factories, have out-patient clinics and dispensaries of varying quality for employees and their

⁷ The 1991 decree also specifies the sources of income for the various funds. Payroll taxes are the main source of financing. In 1991, about 26 percent of the collected tax revenues, which were generally about 37 percent of the wage bill, went to the social safety net. Of this amount, 85 percent went to the pension fund and 15 percent to the social insurance fund. Budget transfers supplemented tax receipts.

Table 14
Social Indicators in Ukraine, France, and Poland, 1989

	Ukraine	France	Poland
Consumption measures			
Per capita living space, 1989 (<i>square meters per capita</i>)	17.6	36.2	17.5
Entertainment expenditures, 1989 (<i>rubles, workers, and employees</i>)	14.4	NA	NA
Doctors, 1989 (<i>of all specialties per 100,000 persons</i>)	440.0	312.5	204.1
Option indicators			
Access to day care, 1989 (<i>preschools per 1,000 children of preschool age</i>)	61.0	4.9	42.0
Savings, 1989 (<i>average deposit per person, rubles</i>)	1,614.0	NA	NA
Vacation time, 1989 (<i>days per year in industry</i>)	21.0	34.0	19.4
Risk indicators			
Lost labor due to illness, 1989 (<i>days per year in industry</i>)	10.9	20.5	14.4
Pensions paid, 1989 (<i>rubles per person</i>)	57.8	NA	NA
Per capita expenses on labor safety, 1987 (<i>rubles</i>)	46.3	NA	NA
Percent below poverty line, 1989 (<i>disposable income below 100 rubles</i>)	20.2	NA	NA
Labor discipline			
Strikes, 1989 (<i>worktime lost in thousand workdays per 1,000 state sector employees</i>)	49.9	21.5	NA
Alcoholism and drug abuse			
Alcoholism, 1989 (<i>cases per 100,000 persons</i>)	152.0	NA	12.5
Drug abuse, 1989 (<i>cases per 100,000 persons</i>)	7.0	NA	2.1
Alcohol-related deaths, 1989 (<i>deaths per 100,000 persons</i>)	10.2	NA	NA
Crime rates			
All crimes, 1989 (<i>per 100,000 persons ages 15 to 67 or 69</i>)	1,017.6	7,707.1	4,035.4
Murder	7.7	NA	2.1
Assault	300.8	104.6	NA
Rape	7.4	9.3	8.2
Robbery	10.7	NA	NA
Theft	524.2	NA	NA
Fraud	20.4	NA	NA
Suicide			
Totals, 1990 (<i>per 100,000 persons</i>)	19.0	20.9	13.0
Family structure and divorce			
Divorce rate, 1989 (<i>per 1,000 32 persons</i>)	3.7	1.9	1.3

families. Quality of health care is well below Western standards and varies widely among groups, with top officials having had access to the best facilities, and also between urban and rural areas.

The system of medical care in Poland closely resembles that in Ukraine. Health care has been treated as a public good and financed from general budget funds without direct payments by the population. The private sector evidently plays a larger role there, especially after 1988, when Poland legalized the establishment of private pharmacies. By 1991, half of all pharmacies were privately owned. Many medicines are sold at subsidized prices. An insurance-based approach to health care is being considered.

In keeping with its much greater affluence, France has an extensive system of universal health care financed through compulsory insurance contributions by employers and employees. The quality of medical facilities and the level of training of medical personnel are much higher than in either Poland or Ukraine. In the late 1980s, expenditures on health care services made up about 2.5 percent of GDP there, as compared with 4 percent in Poland and 7 percent in France.

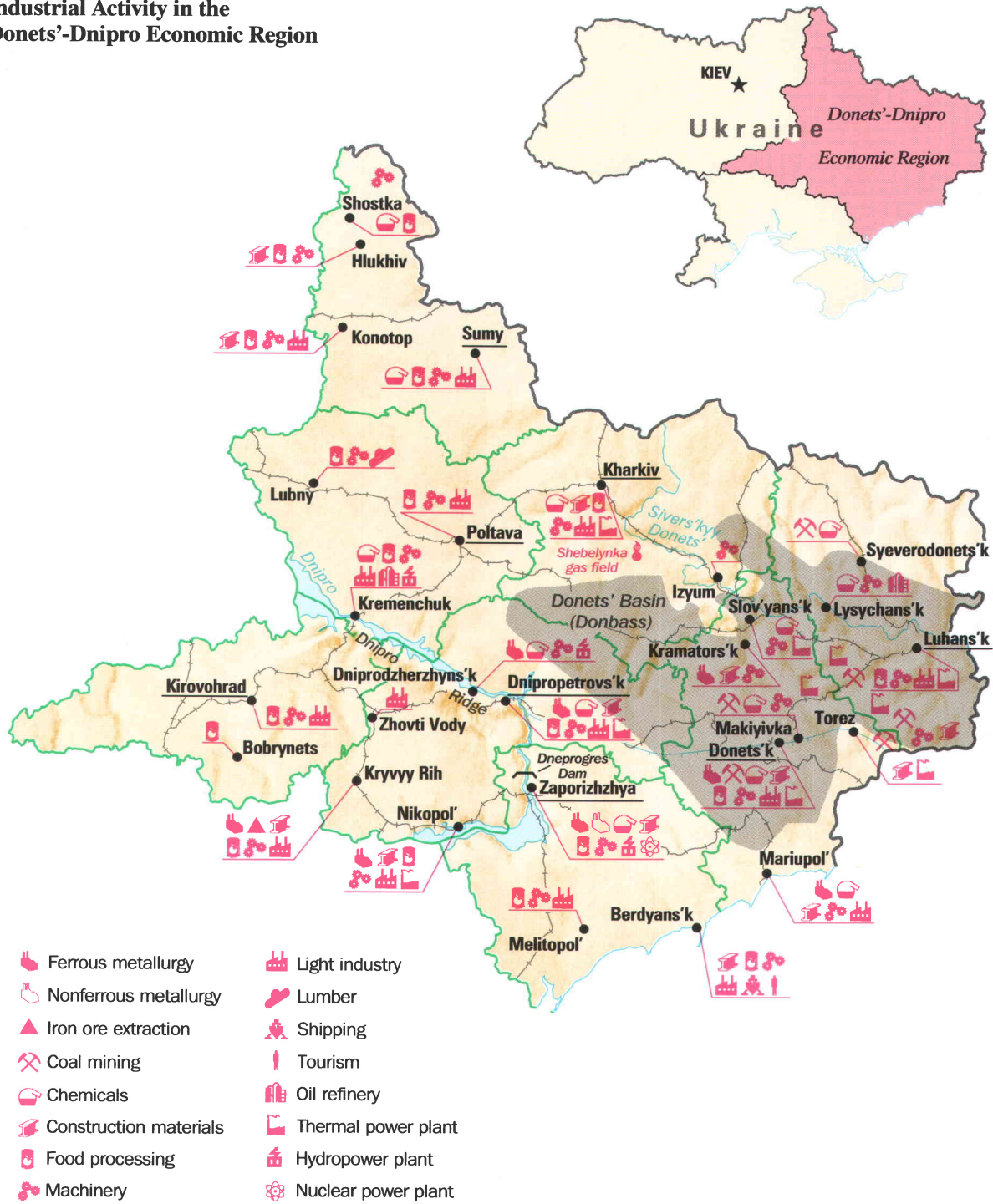
The results of health care systems in the three countries are reflected to an important extent in their vital statistics. Life expectancy of Ukrainians (70.9 in 1989 for both sexes) was about the same as that of Poles (71.3), but much lower than the French (76.5 in 1988). Although infant mortality was lower in Ukraine than the average for the former Soviet Union, its rate of 13 deaths per 1,000 births, which

probably is seriously understated, in 1989 was greater than in France but lower than in Poland. The infant mortality rate in France was 6.2 deaths per 1,000 births in 1988 and 15.9 deaths per 1,000 births in Poland in 1989. For all other age groups, the two leading causes of death in Ukraine (as well as in Poland) were cardiovascular diseases and cancer. In France, the leading cause of death was cancer with cardiovascular diseases being second.

Other Social Indicators. A collection of social indicators describing aspects of Ukrainian society not covered in other sections is shown in table 14. It is not meant to be an exhaustive index of social conditions but is intended to pinpoint areas where tensions exist or could develop. As of 1989, the strike rate in Ukraine was much higher than in France. Ukraine contains many of the former Soviet Union's coalfields where strikes have been common in recent years. A second indicator, the suicide rate, places Ukraine at roughly the same level as France but higher than Poland by 50 percent. The divorce rate, another significant social statistic, suggests that Ukrainian marriages break up twice as often as in either of the other two countries.

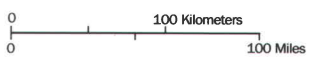
A final indicator of social malaise is the crime rate. Comparisons of overall levels of crime are unreliable due to definitional differences. However, the murder rate is a crime indicator that is reliable across time and geographic space. In this category, Ukraine's rate is much higher than in both France and Poland.

Figure 6
Industrial Activity in the
Donets'-Dnipro Economic Region



— Oblast boundary
Sumy Oblast center

An oblast is named only when its name differs from that of its administrative center.



Appendix A

Economic Regions of Ukraine

Donets-Dnipro

Location, Area, and Physical Geography. The Donets-Dnipro economic region consists of eight oblasts—Dnipropetrovs'k, Donets'k, Zaporizhzhya, Luhan'sk, Kharkiv, Poltava, Kirovohrad, and Sumy Oblasts. Its total area of 220.9 thousand square kilometers comprises 36.6 percent of Ukrainian territory. Although the Donets-Dnipro has undergone a relative loss of its economic dominance over the years, it remains one of the most highly industrialized and densely populated regions of the North European Plain. In terms of topography, the Dnipro Ridge (Azov Heights), which rises to heights of 975 feet (300 meters) in the southeast, is the most prominent feature, particularly where the Dnipro River cuts through crystalline rock formations between Dnipropetrovs'k and Zaporizhzhya. Before the construction of the Dneproges Dam in 1932, this section of the river was riddled with rapids and posed serious hazards to waterborne traffic. Northwest from Dnipropetrovs'k toward Kiev is a broad plain where the river takes on its characteristic aspect of steep, high bluffs on its western bank and low terraces on the eastern shore. The plains of the Poltava, Kharkiv, and Sumy Oblasts lie in the northernmost part of the region; southward of Zaporizhzhya is a flat, loess-covered coastal plain stretching to the Black Sea and the Sea of Azov.

Climate, Soils, and Vegetation. The Donets-Dnipro has a continental climate with a brief spring, comparatively wet summer, and protracted autumn. As in the rest of Ukraine, the climate is characterized by anticyclonic (clockwise) circulations, with a Siberian high pressure dominating during the winter and the Azores high in the summer. The region is more than 1,000 miles (1,600 kilometers) from the Atlantic Ocean, and, as a result of this distance and the interposition of a mountain range (Carpathian), it suffers from some degree of moisture deficit and periodic regional drought. The January mean temperatures range from 23 degrees Fahrenheit (−5 degrees Celsius) in the south to 18°F (−8°C) in the

north. July temperatures range from a mean 68°F (20°C) in the north to 73°F (23°C) in the south. Precipitation is quite variable, both regionally and from year to year. It ranges from 24 inches (600 mm) in the north to as low as 8 inches (200 mm) along the coasts of the Black Sea and the Sea of Azov. In judging the adequacy of precipitation, one must take into account the fact that the slight (30 to 40 cm) but consistent winter snow cover both irrigates and insulates the soil, keeping it sufficiently warm to permit the early spring growth of fall-sown grains.

The natural vegetative zones move from forest steppes in the north to steppe in the south, although most of the natural grasslands have long disappeared and have been replaced by cropland. Both the chestnut brown and especially the deep black earth (*chernozem*) soils are quite fertile. The variability in agricultural production, therefore, depends primarily on factors other than the natural condition of the land itself, such as storm activity, erosion, droughts, irrigation, overplanting, and hot, dry, desiccating (*sukhovey*) winds that blow from the east between May and August.

Agriculture. Although the Donets-Dnipro region is the most heavily industrialized and urbanized region in Ukraine, it also has a strong agricultural economy intermingled with its industrial and mining centers. In the more moist northern oblasts, dairying is widespread; flax, hemp, and potatoes are also produced. A more mixed type of farming has developed in the less moist southern belts, producing a variety of grains, potatoes, and, in the drier steppelands, sunflowers. Industrial cash crops dominate the central zone, which grows mostly wheat, corn, and sugar beets. Market gardening and dairying take place on farms surrounding the towns and cities throughout the region. All of this region's major cities have agricultural-based industries as well, including flour milling, sugar processing, meatpacking, and the production of vegetable oils.

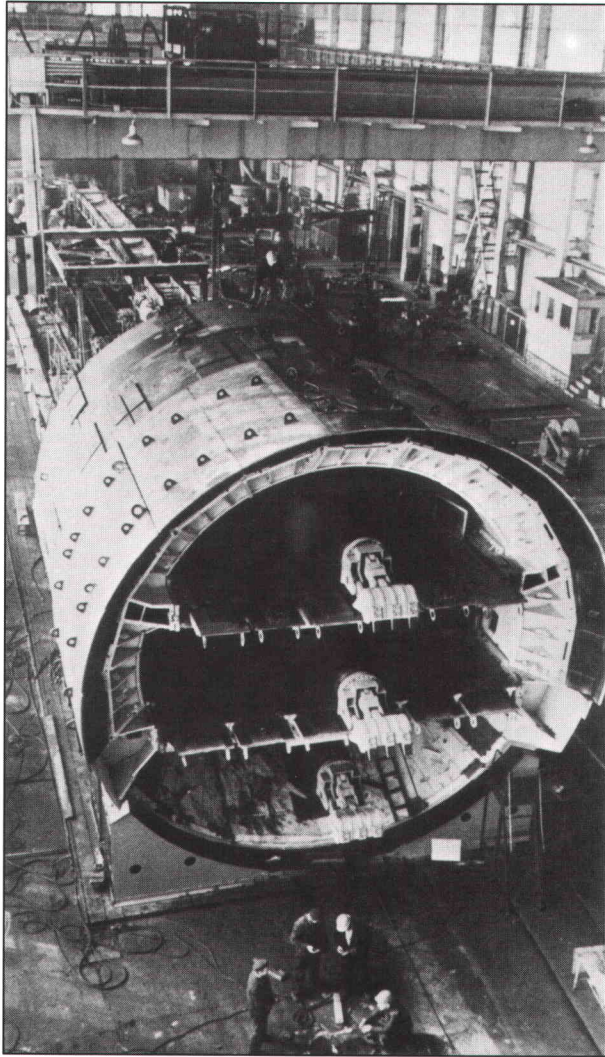
*Collective farm village in
Kharkiv*



Resources, Energy, and Industry. The most important industrial activity in Ukraine is metallurgy, which is based on the rich mineral resources of the Donets-Dnipro region, specifically on the coal from the Donets Basin (Donbass) and the iron ore at Kryvyi Rih, 300 kilometers to its west. The Dnipro Ridge contains the Donbass, the oldest center of coal production in the former Soviet Union, with its ample and varied supplies of coal, including quality coking coal. While the importance of Donbass coal declined over the years as newer Soviet fields were exploited in West Siberia (Kuzbass), Kazakhstan (Karaganda and Ekibastuz), and the Pechora Basin (Vorkuta), the Donbass still produced in 1990, although at increasingly greater costs, a quarter of the total coal mined in the former USSR and nearly 40 percent of the coking coal. The location of high-grade iron ore at nearby Kryvyi Rih, which was producing half of the iron ore in the USSR, facilitated the growth of the country's largest metallurgy complex in the large, integrated iron and steel plants of both the Donbass and Kryvyi Rih regions. Ukraine's self-contained ferrous metallurgy industry also makes use of a wide variety of other local Donets-Dnipro minerals, such as mercury, salt, limestone, and especially manganese (used to

harden finished steel). The area around the city of Nikopol', lying on the Dnipro between Donets and Kryvyi Rih, has one of the world's major deposits of manganese, containing an estimated 40 percent of the reserves of the former Soviet Union.

Regarding the energy sector, coal from the region provides an abundant source for local thermal power production. There is also hydropower from the heavily dammed Dnipro (at Zaporizhzhya, Dniprodzherzhyn'sk, and Kremenchuk) as well as electricity produced by the five-reactor nuclear power station at Zaporizhzhya. A pipeline network brings in some natural gas and oil from the northern oblasts of Poltava, Sumy, and Kharkiv (Shebelynka) to support the metallurgy complex of the Donets-Dnipro, although the latter receives most of its gas and oil from Russia. Other heavy industries of the Donets-Dnipro region include the production of mining equipment, machine tools, instruments, agricultural machinery, diesel locomotives, electric motors, transformers, and large turbo-alternators. An aluminum refinery is located at Zaporizhzhya, and uranium is enriched in the town of Zhovti Vody (Yellow Waters).



A tunneling machine built in Donetsk

The city of Kharkiv is the most important industrial center of the region located outside the Donbass. Its engineering works produce locomotives, tractors, aircraft, turbines, agricultural machinery, motorcycles, and bicycles. With a (1989) population of 1.6 million, it ranks sixth in size of all former Soviet cities. Kharkiv functions as the gateway from Moscow to the Donbass and is a focal point for eight rail routes. The Shebelynka gasfield supports a petrochemical industry in the Kharkiv region and a chemical complex based primarily on phosphate fertilizers in the adjacent Sumy Oblast. Light industries are also well

developed in the Donets-Dnipro region, particularly those based on local agricultural resources in the northern oblasts. Poltava is a center for food processing and textiles.

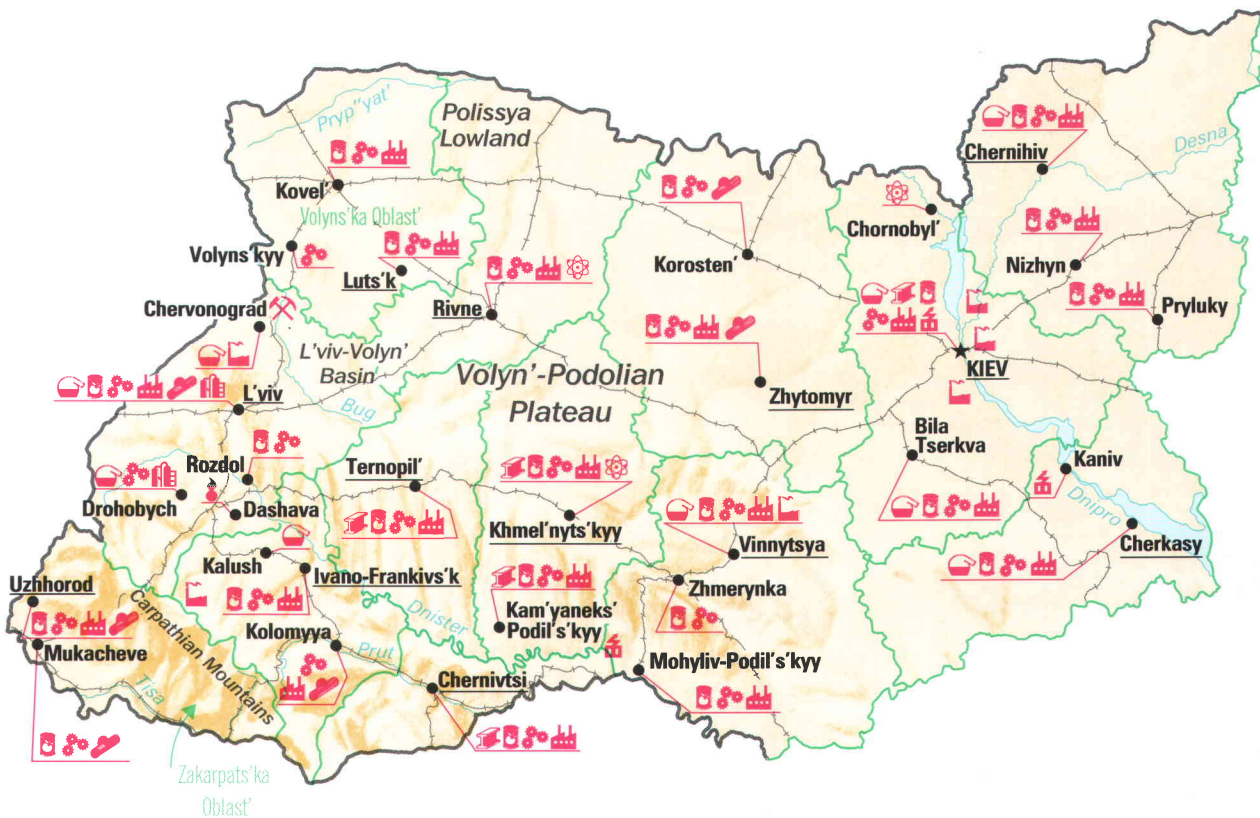
Transportation. The Donets-Dnipro transport and rail communications are among the densest and most highly developed in the former USSR. There is a widespread canal system along the Dnipro River that is used both for transport and for irrigating the dry southern steppe. The 410-kilometer Northern Donets-Donbass Canal, completed in 1981, was designed to enhance the water supply of the Donbass and at the same time irrigate 165,000 acres (67,000 hectares) of arable land in the Kharkiv, Donetsk, and Luhans'k regions.

Population, Urbanization, and Regional Issues. The Donets-Dnipro region, which had an estimated population of 21,766,000 in 1991, is the most heavily urbanized of the three Ukrainian economic regions (78.9 percent urban in 1989, as compared with 66.7 percent for Ukraine as a whole). According to the Soviet census of 1989, the region's ethnic population was 64.8 percent Ukrainian and 31.2 percent Russian. Russians are most heavily concentrated in the urban areas of the easternmost oblasts (Luhans'k and Donetsk), where they comprise nearly 45 percent of the population, a share that approaches the Ukrainian totals for these regions.

Southwest

Location, Area, and Physical Geography. The largest and most populous of Ukraine's three economic regions is the Southwest, which includes the capital city of Kiev. Specifically, the Southwest consists of the following oblasts: Cherniv, Kiev, Cherkasy, Vinnytsya, Zhytomyr, Khmel'nyts'kyi, Rivne, Volyns'ka, L'viv, Ternopil', Ivano-Frankivs'k, Zakarpats'ka and Chernivtsi. Its total area of 269.5 thousand square kilometers comprises 44.6 percent of Ukrainian territory. Seven oblasts established after post-World War II come from former Austro-Hungarian provinces and Polish regions of Volyns'ka and Rivne and Galicia (L'viv, Ternopil', and Ivano-Frankivs'k), from Czechoslovakia's Ruthenia (Carpathia), and from Romania's northern Bukovina (Chernivtsi). These latter

Figure 7
Industrial Activity in the Southwest Economic Region

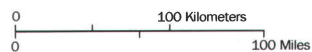


- | | |
|------------------------|---------------------|
| Coal mining | Lumber |
| Chemicals | Natural gas |
| Construction materials | Oil refinery |
| Food processing | Thermal power plant |
| Machinery | Hydropower plant |
| Light industry | Nuclear power plant |

— Oblast boundary
L'viv Oblast center

An oblast is named only when its name differs from that of its administrative center.

Boundary representation is not necessarily authoritative.



Ternopil'



territories, with the exception of Volynia, were never a part of the Russian Empire or the Soviet Union until they were forcibly annexed.

The Southwest region is primarily an agricultural area, with related food-processing industries and a consumer goods sector based in and around Kiev. Physiographically, this region has several distinct components: the Carpathians in the southwest, the Podolian Upland in the center, and the Polissya (Poles'ye) Lowland to the north. The small arc of the Carpathians that lies within Ukraine is one of the lower sections of that range, with elevations no higher than 2,000 meters. Its slopes remain well forested, with beech trees covering the lower slopes and firs found at the higher elevations. To the southwest, beyond the crest of the mountains, is a small section of the Hungarian Plain, sometimes referred to as Ruthenia, which was annexed from Czechoslovakia in 1945. East of the Dnister River and stretching toward the Dnipro lies the Volyn'-Podolian Plateau of moderate (150 to 300 meters) elevation, dissected by numerous rivers and gently sloped downwards to the east. To the north is the southern third of the Polissya Lowland (most of it is in Belarus).

Climate, Soils, and Vegetation. The continental climate of the Southwest region has relatively long and warm summers and cold winters. January mean temperatures range from about 25°F (−4°C) in the west (L'viv) to near 21°F (−6°C) in the east (Kiev). July mean temperatures range between 62°F (17°C) and 68°F (20°C) throughout the region. Annual precipitation is moderate at 24 to 28 inches (600 to 700 mm), except for certain moist sections of the Carpathians. Summer maximum rainfalls often take the form of heavy thunderstorms, contributing to soil erosion. During the winter, snow cover is slight and subject to frequent thaws. Drought and *sukhovey* winds are also common here. The pattern of natural vegetation moves from forest-steppe in the northwest to steppe in the southeast. The extensive mixed Polissya oak and pine forests stand on podzols and wet, poorly drained bog soils (Pryp'yat Marshes). The Podolian plateau consists primarily of sands and clay soils in the west (underlying the broadleaf forest) and the fertile *chernozem* and chestnut soils on the eastern steppes.

Agriculture. The fertile black earth *chernozem* soils and warm, humid summers have combined to turn the Southwest into a region of intensive agriculture. Arable farming predominates with cereal grains as the main crops. Regional patterns of agricultural land-use are distinct. In the Northwest, on the patches of dry land claimed from the marshes of Polissya and in the lower valley of the Desna River above Kiev, flax growing and dairy farming are the main concerns. To the south are belts of mixed grains (wheat, barley, millet, buckwheat, and rye) and industrial crops such as flax, sugar beets, and sunflowers. Alfalfa, corn, and grasses support large herds of cattle throughout the region. Intensive market gardening and dairying take place around towns and urban areas. The slopes of the Carpathians also support an agricultural economy of mixed grains, tobacco, potatoes, a variety of vegetables, and orchards. Large numbers of cattle, both dairy and beef breeds, are grazed on these Carpathian slopes as well.



Sheep breeding in Carpathians

The Southwest is one of the most productive agricultural areas of the former Soviet Union, considered for years to be the “granary” of the USSR. High yields have been achieved through draining and reclamation of swamplands, the application of phosphate fertilizers, and the rotation of grains with forage grasses. Recent years, however, have witnessed declines, particularly in the production of the commercially valuable sugar beet. Agriculture-based industries such as flour milling, sugar refining, and meatpacking are located throughout the cities and towns of the region.

Resources, Energy, and Industry. Mineral and energy resources are rather limited in the Southwest region. There are deposits of magnesium salt and potash in the Carpathian foothills that form the basis of a potash fertilizer facility at Kalush. Important sulfur beds are mined in the vicinity of Rozdol on the drained marshy flood plain of the Dnister. Soda ash and high-quality sands provide the raw materials for a glassmaking and building industry, although supporting timber production is limited. Power produced by thermal electric stations using local sources of peat (in Polissya), coal (in the L’viv-Volyns’ka region), oil (at Drohobych), and natural gas (at Dashava), are supplemented by oil and natural gas imported from Russia. Additional electric energy is provided by hydroelectric

power stations on the Dnipro at Kiev and Kaniv and the nuclear reactors at Rivne, Khmel’nyts’kyy, and Chornobyl’. This region lies on the route of the Druzhba oil pipeline to Czechoslovakia (via Uzhhorod) and is a terminus for gas trunklines from West Siberia and the Volga-Urals (at Drohobych, via Kiev). As a result, oil refineries have been built at L’viv and Drohobych, and the processing of natural gas has led to the development of a petrochemical industry. Chemical fertilizers are produced that help support the agricultural needs of the region, and the chemical industry also supplies toxic sprays, synthetic fibers, plastics, and synthetic rubber.

Food processing is an important light industry in this region, with sugar beet refining holding the top place. There are also engineering industries specializing in electronics and radio engineering, cameras, medical equipment, agricultural machinery, and machine tools. These industries, in addition to textile production, are scattered throughout the region, although the main centers are at L’viv and Kiev (which was the third-largest city in the former USSR). Kiev is also the center of the region’s transport network, the focal point for rail, river, and pipeline routes.

Transportation. The region plays a key role in the transport of freight for foreign trade because of its proximity to four East European countries (Poland, Czechoslovakia, Hungary, and Romania) and two former republics, Belarus and Moldova. The Southwest region features road and rail networks that are at least as well developed as the average network within the republic. Nearly all oblasts in the region have road densities, per unit of area, exceeding the Ukrainian average. The advantage in railroad track density is much smaller with the notable exceptions of the cities of L'viv and Chernivtsi, which are key railroad centers.

Population, Urbanization, and Regional Issues. According to 1991 estimates, the population of the Southwest region was 22,189,000. This represented 42.9 percent of the Ukrainian total and nearly 8 percent of the total population of the former Soviet Union on little more than 1 percent of its total land area. In 1989 this region was 54.8 percent urban, up from 48.3 percent in 1979, reflecting both the region's rapid urban growth and its rural depopulation. The 1989 Soviet census listed the nationality composition of the Southwest Region as 87.5 percent Ukrainian (7.8 percent Russian), the most ethnically pure of the three Ukrainian economic regions. Of the urban areas, 81.5 percent was Ukrainian and 13.2 percent Russian. The territories that were gained during and after World War II are referred to collectively as the Western Ukraine and include the oblasts of Rivne, Volyns'ka, L'viv, Ternopil', Ivano-Frankivs'k, Zakarpats'ka, and Chernivtsi. This region has long been considered geostrategically important, containing a border region that extends beyond the crest of the Carpathians. Because of its proximity to the West and predominantly rural nature, however, it was never considered an attractive area for investment opportunities. Furthermore, its ethnically homogeneous (88.8 percent Ukrainian), heavily Greek Catholic (Uniate) population is the most nationalistic of all the Ukrainian regions. Despite its overall Ukrainian homogeneity, this region nevertheless contains two oblasts with the largest concentrations of non-Slavic populations in all of Ukraine—Zakarpats'ka (17.5 percent non-Slavic) and Chernivtsi (22 percent non-Slavic). In 1989, Zakarpats'ka held a 12.5-percent Hungarian minority; Chernivtsi's population was 8 percent Romanian, 9 percent Moldavian, and 1.8 percent Jewish.



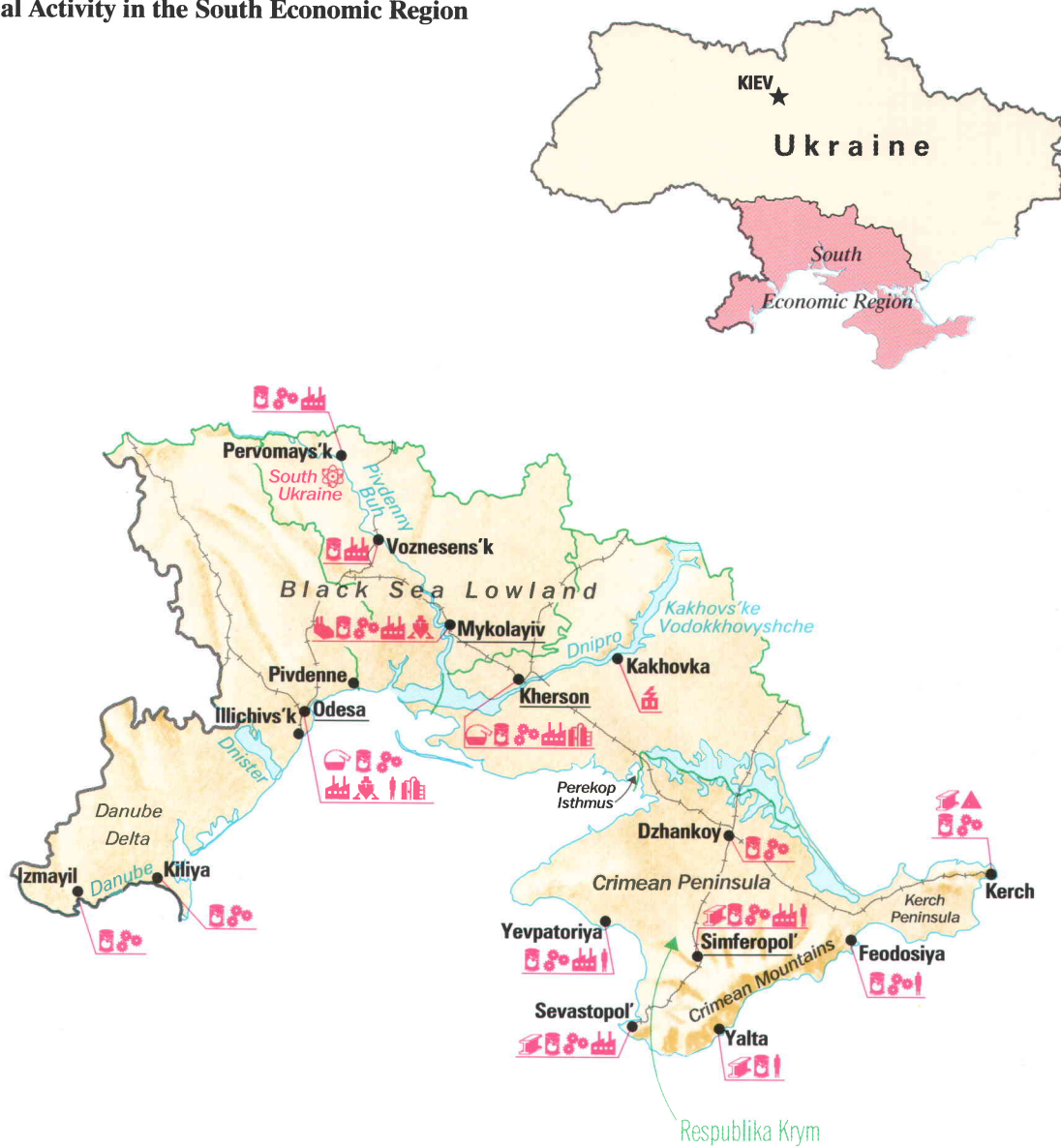
Odesa street scene

South

Location, Area, and Physical Geography. The South economic region is home to the Krym (Crimean) Republic, Mykolayiv, Odesa, and Kherson Oblasts. It is the smallest of Ukraine's economic regions, with a total land area of 113.4 thousand square kilometers, about 18.8 percent of the Ukrainian total. It includes the dry, level steppes of the Black Sea Lowland and the Crimean Peninsula. The Crimean Peninsula is bounded by the Black Sea to the west and south and by the shallow Sea of Azov to the east and is attached to the continent by the 6-kilometer-wide Perekop Isthmus. An elongated appendage, called the Kerch Peninsula, stretches from the main body of the Crimea toward the east and separates the former from the North Caucasus at the narrow Kerch Strait. With the exception of the Crimean Mountains, which reach elevations of over 1,500 meters along the southern tip of the Crimean Peninsula, the Black Sea Lowlands, a flat, featureless plain, dominate this region's overall topography. Throughout the lowlands, there are several shallow river estuaries (Dnipro, Pivdenny Buh [Southern Bug], and Dnister), which are heavily silted and which produce mudflats, lagoons, and sandbars before flowing into the sea.

Climate, Soils, and Vegetation. The climate of the region is continental, but tempered by the Black Sea and nearby Mediterranean Sea. Summers are relatively long and warm throughout the region, with

Figure 8
Industrial Activity in the South Economic Region

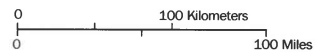


- | | |
|------------------------|---------------------|
| Ferrous metallurgy | Light industry |
| Iron ore extraction | Shipping |
| Chemicals | Tourism |
| Construction materials | Oil refinery |
| Food processing | Hydropower plant |
| Machinery | Nuclear power plant |

— Republic or oblast boundary

Odessa Republic or oblast center

An oblast is named only when its name differs from that of its administrative center.



little regional variation. A representative July mean temperature is 72°F (22°C in Odesa). Winter conditions vary more, with relatively mild winters in the west 27°F (−3°C January mean in Odesa), colder ones toward the east (January means of approximately 23°F, −5°C), and warm temperatures on the mountain-shielded southeastern shore of the Crimean Peninsula, which is a popular resort area. Precipitation is a slight 15 to 20 inches (380 to 500 mm), with early summer maximum rainfall (except for coastal Crimea, which has ample year-round precipitation and winter maximum rainfalls). The dry eastern *sukhovey* winds cause duststorms in the summer, blizzards in the winter, and considerable soil erosion on the region's treeless plains. Soils are alkaline and loess-covered *chernozems* in the north and dark chestnuts in the south. Most of the original steppe vegetation of this region has been placed under cultivation. Soils along the southern coast of Crimea are poorly developed, although well suited for growing tobacco and grapes (this was one of the USSR's major wine-producing regions).

Agriculture. A variety of crop combinations and animal husbandry practices have been implemented, along with extensive irrigation, in order to overcome the dry natural environment of the South region. Fall-sown wheat, drought-resistant sunflowers, and other oilseed crops (linseed, poppy, and caraway) thrive, and corn is produced for silage. Some sugar beets and barley are also grown in the region's moister northern sections. Vegetables, fruit, berries, and rice are grown in the area south of the Dnipro River, which is irrigated by the Kakhovs'ke Reservoir. Some of the coastal areas that receive sufficient rainfall from moisture-bearing winds have intensive farming of spring vegetables, salad crops, and orchard fruits. Cattle, sheep, and goat raising takes place throughout the drier parts of the region and on the pastures of the Crimean Mountains; fish processing is focused in Odesa, and meat and milk production is most important along the coast of the Sea of Azov and in areas in close proximity to the larger cities.

Resources, Energy, and Industry. The South region is not strong in mineral or industrial resources, with most of its industry associated with agricultural activity or with trading and shipbuilding at the port cities



Odesa beach on the Black Sea

of Odesa, Kherson, and Mykolayiv. There is low-grade iron ore mined at Kerch, which is beneficiated locally before being shipped across the Sea of Azov to the Azovstal iron and steel works in Mariupol. Impurities collected during the beneficiation process are used in the manufacture of fertilizers, sulfuric acid, and cement. Materials for the important engineering and shipbuilding industries of Odesa and Mykolayiv are largely imported. Large-scale engineering includes the production of farm equipment (tractor-drawn ploughs and corn harvesters), lathes, bulldozers, and other road-building equipment. Most of the labor-intensive industries, such as the production of machine tools, industrial acids, and clothing, are located in Odesa. Food industry is dominated by fruit and vegetable canneries, vegetable oil pressing, distilleries, and wineries. Light industry is focused on textile production (at Kherson). The region's energy needs are met largely through natural gas imported by pipeline from Russia, oil shipped to the ports of Odesa and Mykolayiv from Baku via Batumi, and electricity from the Kakhovs'ke hydropower station and the South Ukraine nuclear plant.

Transportation. Icebreakers keep the South region's Black Sea ports open all year-round, and there are good rail and river connections inland to the Ukrainian interior and beyond. The twin ports of Odesa and

Illichiv'sk are the former Soviet Union's busiest. Kherson serves as the gateway to the Dnipro waterway. Izmayil, on the Danube at the border with Romania, handles a great deal of trade with Central European countries. The town of Pivdenne (Yuzhnyy), east of Odesa, serves as a chemical product port while Mykolayiv imports bauxite (the raw material for aluminum production) from Greece, former Yugoslavia, and Guinea. The shipbuilding industry produces a wide variety of oceangoing vessels including super-tankers, container ships, cargo ships, and fishing vessels. Altogether, the Black Sea and Sea of Azov ports accounted for nearly a fifth of all of the ocean freight of the former Soviet Union.

Population, Urbanization, and Regional Issues. The South region's estimated population in 1991 was 7.7 million, or 15 percent of the Ukrainian total. Its (1989) urban percentage of 66.1 percent was midway between the Southwest and Donets-Dnipro figures. In terms of the nationality composition of the region, the 1989 Soviet census listed 52.5 percent of the population as Ukrainian, 37.5 percent as Russian, and 1.4 percent as Jewish. Of the three economic regions, the South contained the highest percentage of Russians, particularly in the urban areas (44.4 percent, as compared with 47.7 percent Ukrainian).

As with the Southwest, the South has had a rather turbulent territorial history, particularly concerning the Crimea and the territory along Odesa Oblast's Moldovan border. The predominantly Slavic Izmayil and Bolhrad regions of the Danube Delta were annexed from the southernmost part of Bessarabia into Odesa Oblast in 1940. In addition, the towns of Balta and Kotovs'k were taken from Ukraine's Moldavian ASSR (formed between the wars to highlight the importance attached to the Soviet Union's border with Romanian Bessarabia) and attached to the northern portion of Odesa Oblast in 1940. The population of Odesa Oblast included minority populations of Russians (719,039/27.4 percent), Bulgarians (165,821/6.3 percent), Gagauz (27,369/1 percent), and Jews (69,105/2.6 percent; Odesa Oblast contains the largest number of Jews of all the Ukrainian oblasts).

The Crimea was a Tatar khanate under Ottoman authority from the 15th through the middle of the 18th centuries when, in 1783, it was annexed by the Russian Empire. This act, combined with the events of the Crimean War (1854-56), caused more than 100,000 Crimean Tatars to flee the peninsula, after which Russian settlers arrived in larger numbers. In 1921, the Crimean Peninsula was organized as the Crimean Autonomous Soviet Socialist Republic (ASSR), based on its 25-percent minority population of Tatars (more than 50 percent of the Crimean population was Tatar in 1859), and placed within the jurisdiction of the Russian Republic. In 1944, its Tatar and German population was expelled because of alleged collaboration with the Nazis, and in 1945 the ASSR was abolished and made an ordinary oblast of the Russian Federation. The Crimean Peninsula was then transferred from the RSFSR to Ukraine in 1954, ostensibly to mark the 300th anniversary of the Russo-Ukrainian union. Not surprisingly, the Crimean Oblast in 1989 was the only Ukrainian oblast with a majority (67 percent) Russian population. Some of the Crimean Tatar population began to drift back to the Crimea following their partial repatriation in 1990 (more than 100,000 Crimean Tatars were estimated living on the territory of Crimea by the beginning of 1991). By a law adopted 12 February 1991, the Ukrainian parliament granted the Crimea autonomy and constituted it as an ASSR based on the results of a 20 January 1991 referendum. The Crimean Tatar population, however, boycotted this referendum and continues to demand full repatriation and restoration of their national rights within a sovereign Crimean Tatar republic.

Appendix B

Selected Economic Statistics

Table B-1

Ukraine: Births, Deaths, and Natural Growth of the Population, Selected Years

Per 1,000 persons

	1980	1985	1986	1987	1988	1989	1990	1991
Births	14.8	15.0	15.5	14.8	14.4	13.3	12.7	12.2
Deaths	11.3	12.1	11.1	11.4	11.6	11.6	12.1	12.9
Natural growth	3.5	2.9	4.4	3.4	2.8	1.7	0.6	-0.7

Table B-2

Ukraine: Population Structure, 1989

	Thousand Persons	Percent
Total	51,906	100.0
Ukrainians	37,419	72.1
Russians	11,356	21.9
Jews	486	0.9
Byelorussians	440	0.8
Moldavians	325	0.6
Bulgarians	234	0.5
Poles	219	0.4
Other	1,427	2.8

Note: Age dependency is the percent of the population that is younger and older than the working ages: males 16 to 59, females 16 to 54.

Table B-3
Ukraine: Average Monthly Wages and Salaries by
Branch of the Economy, Selected Years

	1980	1985	1986	1987	1988	1989	1990	1991
All branches	155.1	173.9	179.0	185.0	199.8	217.7	248.4	474.0
Industry	176.9	201.5	206.2	211.0	228.2	249.1	277.7	548.4
Agriculture	136.3	162.8	172.8	180.0	193.5	214.5	259.6	436.3
Construction	175.7	207.1	214.6	224.0	251.4	273.7	308.9	579.8
Construction assembly	180.1	214.4	221.8	228.8	251.7	269.0	308.8	590.7
Transportation	168.2	186.1	193.7	202.3	218.3	231.1	258.2	507.0
Railroad	158.1	184.3	193.0	207.7	220.3	230.9	259.8	586.9
Water	187.3	203.9	215.3	220.9	246.0	262.0	279.1	481.5
Urban	162.5	174.8	177.8	185.2	207.6	223.8	269.2	542.1
Automobile	171.5	186.2	193.3	199.8	215.9	228.9	254.5	463.6
Communications	134.8	143.9	148.2	158.5	176.3	194.2	217.8	479.4
Trade and public dining	125.4	133.8	136.7	137.5	147.6	168.9	214.1	393.3
Information-processing services	119.6	131.5	144.9	149.6	169.6	203.0	222.5	399.0
Housing-communal economy	123.3	134.2	137.2	141.5	153.0	162.5	185.8	369.9
Health, physical, and social services	115.3	121.4	123.3	129.9	135.4	144.1	163.1	339.4
Education	130.2	141.6	146.2	157.4	160.6	163.2	176.3	348.7
Culture	102.7	107.9	108.8	111.9	116.9	122.6	143.2	297.7
Art	129.1	140.7	141.6	144.0	148.3	155.9	176.6	351.6
Science	164.0	183.0	187.9	198.7	228.9	284.9	314.1	469.4
Credit and social security	147.8	168.9	181.5	182.9	195.9	214.3	366.2	755.5
Government administrative services	144.4	152.8	160.9	170.5	183.7	211.2	305.3	455.3

Table B-4
Ukraine: Production of Selected Industrial Products,
Selected Years

	1980	1985	1986	1987	1988	1989	1990	1991
Energy								
Electric power (<i>billion kWh</i>)	236.0	272.0	272.7	281.5	297.2	295.3	298.5	278.7
Oil (<i>incl. gas condensate</i>) (<i>million metric tons</i>)	7.5	5.8	5.7	5.6	5.4	5.4	5.3	4.9
Natural gas (<i>billion cu m</i>)	56.7	42.9	39.7	35.6	32.4	30.8	28.1	24.0
Coal (<i>million metric tons</i>)	197.1	189.0	193.1	192.0	191.7	180.2	164.8	135.6
Minerals and metals								
Ferrous ores (<i>million metric tons</i>)	125.5	120.0	119.8	117.9	116.0	109.8	105.0	85.5
Cast iron (<i>million metric tons</i>)	46.5	47.1	48.6	47.4	47.4	46.5	44.9	36.6
Steel (<i>million metric tons</i>)	53.7	55.0	56.6	56.3	56.5	54.8	52.6	45.0
Rolled ferrous metal (<i>million metric tons</i>)	42.3	45.1	46.9	46.9	47.8	47.2	45.4	37.3
Steel tubes (<i>million metric tons</i>)	6.3	6.7	6.9	7.0	7.1	6.9	6.5	5.6
Machinery								
Precision instruments (<i>million rubles</i>)	1,157.4	1,156.2	1,236.5	1,267.6	1,386.9	1,445.8	1,465.5	NA
Metal-cutting equipment (<i>1,000 units</i>)	32.9	31.1	28.1	28.1	29.0	32.2	37.0	NA
Metal-cutting equipment with numeric programming control (<i>1,000 units</i>)	1.3	2.2	2.7	2.8	2.8	3.2	3.2	2.6
Stamping and pressing equipment (<i>1,000 units</i>)	8.4	9.9	10.4	9.7	10.2	10.7	10.9	10.8
Coal-cleaning equipment (<i>units</i>)	1,252.0	1,027.0	967.0	796.0	867.0	877.0	847.0	NA
Tractors (<i>1,000 units</i>)	135.6	135.9	140.0	130.9	130.7	115.9	106.2	90.1
Tractor plows (<i>1,000 units</i>)	105.7	103.3	106.7	99.3	98.0	98.6	89.2	NA
Chemicals								
Mineral fertilizers (<i>million metric tons</i>)	4.1	5.1	5.5	5.7	5.6	5.1	4.8	4.2
Sulfuric acid (<i>million metric tons</i>)	4.5	4.1	4.1	4.2	4.3	4.3	5.0	4.1
Calcinated soda (<i>million metric tons</i>)	1.1	1.2	1.2	1.3	1.3	1.3	1.1	1.1
Caustic soda (<i>1,000 metric tons</i>)	396.4	499.8	492.2	488.8	494.3	471.6	444.5	442.7
Chemical fibers and knits (<i>1,000 metric tons</i>)	161.2	164.8	177.3	187.9	192.1	191.4	179.2	136.0
Synthetic resins and plastics (<i>1,000 metric tons</i>)	509.9	721.8	780.9	797.3	829.1	839.6	826.5	NA
Soaps and detergents (<i>1,000 metric tons</i>)	362.1	394.2	402.3	408.3	428.7	460.0	478.8	408.4
Forestry products								
Timber production (<i>million cu m</i>)	10.0	10.8	11.1	11.1	10.9	10.6	10.5	NA
Sawn timber (<i>million cu m</i>)	7.1	7.6	8.0	7.6	8.5	5.3	7.4	6.0
Plywood (<i>1,000 cu m</i>)	173.3	190.0	203.7	188.6	192.4	187.6	169.1	NA
Cellulose (<i>1,000 metric tons</i>)	105.1	105.3	109.8	108.6	104.8	107.2	104.0	89.7
Paper (<i>1,000 metric tons</i>)	209.0	299.2	309.0	320.4	342.8	352.9	369.2	353.0
Cardboard (<i>1,000 metric tons</i>)	347.5	519.6	554.2	549.0	567.0	543.3	542.8	463.3
Construction materials								
Cement (<i>million metric tons</i>)	21.6	22.4	23.1	23.2	23.5	23.4	22.7	21.7
Soft roofing materials (<i>million sq m</i>)	294.0	303.0	298.0	300.0	302.0	300.0	282.0	NA
Construction bricks (<i>million units</i>)	9,051.0	8,952.0	9,271.0	9,451.0	10,006.0	10,425.0	10,481.0	10,100.0
Gypsum (<i>1,000 metric tons</i>)	881.0	963.0	987.0	1,007.0	1,030.0	1,034.0	1,014.0	NA
Asbesto-cement sheets (<i>million</i>)	1,170.0	1,361.0	1,387.0	1,401.0	1,431.0	1,467.0	1,463.0	1,484.0

Table B-4
Ukraine: Production of Selected Industrial Products,
Selected Years (continued)

	1980	1985	1986	1987	1988	1989	1990	1991
Processed foods								
Meat, industrial production (<i>1,000 metric tons</i>)	2,074.2	2,357.0	2,518.9	2,614.8	2,730.8	2,792.6	2,762.1	2,428.0
Bread and bread products (<i>1,000 metric tons</i>)	7,375.0	7,348.0	7,362.0	6,834.0	6,580.0	6,611.0	6,701.0	NA
Butter (<i>1,000 metric tons</i>)	335.5	390.2	406.8	421.2	440.4	440.8	444.1	376
Vegetable oil (<i>1,000 metric tons</i>)	941.0	846.0	876.0	971.0	1,047.0	1,078.0	1,070.4	995.0
Macaroni products (<i>1,000 metric tons</i>)	308.6	329.8	332.4	343.5	352.5	360.1	360.4	364.0
Margarine (<i>1,000 metric tons</i>)	263.9	275.6	294.8	318.2	308.1	318.4	288.5	267.0
Canned foods (<i>billion cans</i>)	3.5	4.0	4.7	4.8	4.8	4.9	4.8	4.2
Granulated sugar (<i>1,000 metric tons</i>)	5,302.3	6,246.5	6,659.9	7,579.1	6,130.9	7,013.8	6,791.0	4,704.0
Confectionery goods (<i>1,000 metric tons</i>)	802.4	923.5	950.6	991.6	1,033.4	1,074.6	1,111.2	1,023.0
Soft goods								
Cotton fabric (<i>million sq m</i>)	481.0	534.0	539.0	557.0	558.0	567.0	565.0	504.7
Wool fabric (<i>million sq m</i>)	75.0	67.0	66.0	68.0	71.0	74.0	72.0	66.8
Linen fabric (<i>million sq m</i>)	82.0	96.0	100.0	100.0	103.0	105.0	98.0	80.2
Silk fabric (<i>million sq m</i>)	258.0	283.0	289.0	294.0	300.0	300.0	283.0	236.9
Stocking-hosiery goods (<i>million pairs</i>)	353.7	387.8	398.2	405.3	414.5	428.2	443.1	390.0
Knitted goods (<i>million units</i>)	293.7	319.6	327.6	334.5	346.5	354.7	351.0	299.0
Shoes, all types (<i>million pairs</i>)	177.2	185.7	186.9	186.8	190.6	193.7	196.4	179.0
Consumer durables								
Radios (<i>1,000 units</i>)	315.0	291.0	299.0	395.0	432.0	574.0	777.0	880.0
Televisions (<i>1,000 units</i>)	2,526.0	3,067.0	3,178.0	3,110.0	3,434.0	3,572.0	3,774.0	3,617.0
Refrigerators and freezers (<i>1,000 units</i>)	702.0	743.0	752.0	745.0	843.0	882.0	903.0	873.0
Electric vacuum cleaners (<i>1,000 units</i>)	686.0	789.0	815.0	864.0	904.0	905.0	1,073.0	1,044.0
Washing machines (<i>1,000 units</i>)	273.0	372.0	390.0	457.0	533.0	651.0	788.0	824.0
Bikes (<i>1,000 units</i>)	739.0	880.0	913.0	875.0	891.0	838.0	800.0	812.0
Motorcycles and mopeds (<i>1,000 units</i>)	325.0	204.0	225.0	244.0	253.0	248.0	236.0	NA

Table B-5
Ukraine, France, and Poland: Comparison of Production
of Selected Industrial Products, Selected Years

	Ukraine			France			Poland		
	1980	1985	1989	1980	1985	1989	1980	1985	1989
Primary energy									
Electric power (<i>billion kWh</i>)	236	272	295	258	NA	406	122	NA	145
Oil (incl. gas condensate) (<i>million metric tons</i>)	7	6	5	1	NA	3	0	NA	0
Natural gas (<i>billion cu m</i>)	57	43	31	7	NA	3	6	NA	5
Coal (<i>million metric tons</i>)	197	189	180	21	NA	14	230	NA	249
Minerals and metals									
Cast iron (<i>million metric tons</i>)	47	47	47	19	15	15	12	9	9
Steel (<i>million metric tons</i>)	54	55	55	23	19	19	20	16	15
Steel tubes (<i>million metric tons</i>)	6	7	7	2	2	2	1	1	1
Machinery									
Metal-cutting equipment with numeric programming control (<i>1,000 units</i>)	1	2	3	1	1	NA	NA	NA	NA
Tractors (<i>1,000 units</i>)	136	136	116	39	NA	25	58	NA	49
Chemicals									
Mineral fertilizers (<i>million metric tons</i>)	4	5	5	5	NA	4	2	NA	3
Sulfuric acid (<i>million metric tons</i>)	5	4	4	5	NA	4	3	NA	3
Chemical fibers and knits (<i>1,000 metric tons</i>)	161	165	191	285	NA	242	256	NA	238
Synthetic resins and plastics (<i>1,000 metric tons</i>)	510	722	840	3,100	NA	4,200	600	NA	800
Soaps and detergents (<i>1,000 metric tons</i>)	362	394	460	851	NA	1,317	311	NA	370
Forestry products									
Timber production (<i>million cu m</i>)	10	11	11	39	39	45	21	23	21
Sawn timber (<i>million cu m</i>)	7	8	5	9	9	10	7	6	5
Plywood (<i>1,000 cu m</i>)	173	190	188	527	489	497	131	112	NA
Cellulose (<i>1,000 metric tons</i>)	105	105	107	1,396	1,513	1,745	526	595	583
Paper (<i>1,000 metric tons</i>)	209	299	353	4,600	NA	6,361	1,000	NA	1,200
Cardboard (<i>1,000 metric tons</i>)	348	520	543	500	500	600	200	200	200
Construction materials									
Cement (<i>million metric tons</i>)	22	22	23	29	NA	26	18	NA	17
Processed foods									
Bread and bread products (<i>1,000 metric tons</i>)	7,375	7,348	6,611	NA	NA	NA	3,523	NA	3,642
Vegetable oil (<i>1,000 metric tons</i>)	941	846	1,078	554	NA	NA	187	NA	275
Margarine (<i>1,000 metric tons</i>)	264	276	318	165	NA	NA	185	NA	223
Canned foods (<i>billion cans</i>)	3	4	5	6	NA	NA	2	NA	2
Granulated sugar (<i>1,000 metric tons</i>)	5,302	6,247	7,014	3,913	NA	3,671	1,067	NA	1,712
Confectionery goods (<i>1,000 metric tons</i>)	802	924	1,075	824	898	NA	NA	NA	NA
Soft goods									
Cotton fabric (<i>million sq m</i>)	481	534	567	873	NA	720	960	NA	807

Table B-5
Ukraine, France, and Poland: Comparison of Production
of Selected Industrial Products, Selected Years (continued)

	Ukraine			France			Poland		
	1980	1985	1989	1980	1985	1989	1980	1985	1989
Wool fabric (<i>million sq m</i>)	75	67	74	154	NA	111	182	NA	147
Silk fabric (<i>million sq m</i>)	258	283	300	411	NA	595	184	NA	149
Stocking-hosiery goods (<i>million pairs</i>)	354	388	428	493	NA	550	162	NA	130
Knitted goods (<i>million units</i>)	294	320	355	326	NA	242	437	NA	431
Shoes, all types (<i>million pairs</i>)	177	186	194	190	NA	170	141	NA	144
Consumer durables									
Radios (<i>1,000 units</i>)	315	291	574	2,141	NA	NA	2,695	NA	2,514
Televisions (<i>1,000 units</i>)	2,526	3,067	3,572	1,928	NA	NA	900	NA	763
Refrigerators and freezers (<i>1,000 units</i>)	702	743	882	1,081	NA	1,000	694	NA	516
Electric vacuum cleaners (<i>1,000 units</i>)	686	789	905	1,636	NA	2,100	961	NA	1,086
Washing machines (<i>1,000 units</i>)	273	372	651	1,955	NA	1,600	809	NA	811
Bikes (<i>1,000 units</i>)	739	880	838	2,704	NA	1,280	1,250	NA	1,065
Motorcycles and mopeds (<i>1,000 units</i>)	325	204	248	616	NA	320	220	NA	94

Table B-6 *Billion ton-kilometers*
Freight Traffic in Ukraine by Mode,
Selected Years

	1985	1988	1989	1990
Total	985.6	1,078.7	1,066.9	1,039.3
Rail	497.9	504.7	497.3	474.0
Trucking	71.8	75.3	76.6	79.7
River	12.2	11.0	11.9	11.9
Sea	248.3	293.4	281.4	265.6
Air	0.2	0.2	0.1	0.1
Pipelines	155.2	194.1	199.6	208.0

Table B-7
Ukraine: Capital Investment, by Sector of the Economy,
Selected Years

Million rubles

	1980	1985	1986	1987	1988	1989	1990
Total	21,325	25,114	27,620	28,318	29,448	30,533	30,070
Industry	8,285	9,660	10,522	10,085	10,785	11,014	9,711
Agriculture	4,489	4,686	5,116	5,054	5,604	6,152	6,530
Construction	643	622	674	852	943	1,042	1,383
Transportation and communication	2,201	2,693	2,834	3,561	3,416	2,959	2,516
Housing	2,823	3,883	4,478	4,567	4,786	4,880	5,028
Other	2,884	3,570	3,996	4,199	3,914	4,486	4,902

Table B-8
Ukraine: Trade in Domestic Prices, 1990

Million rubles

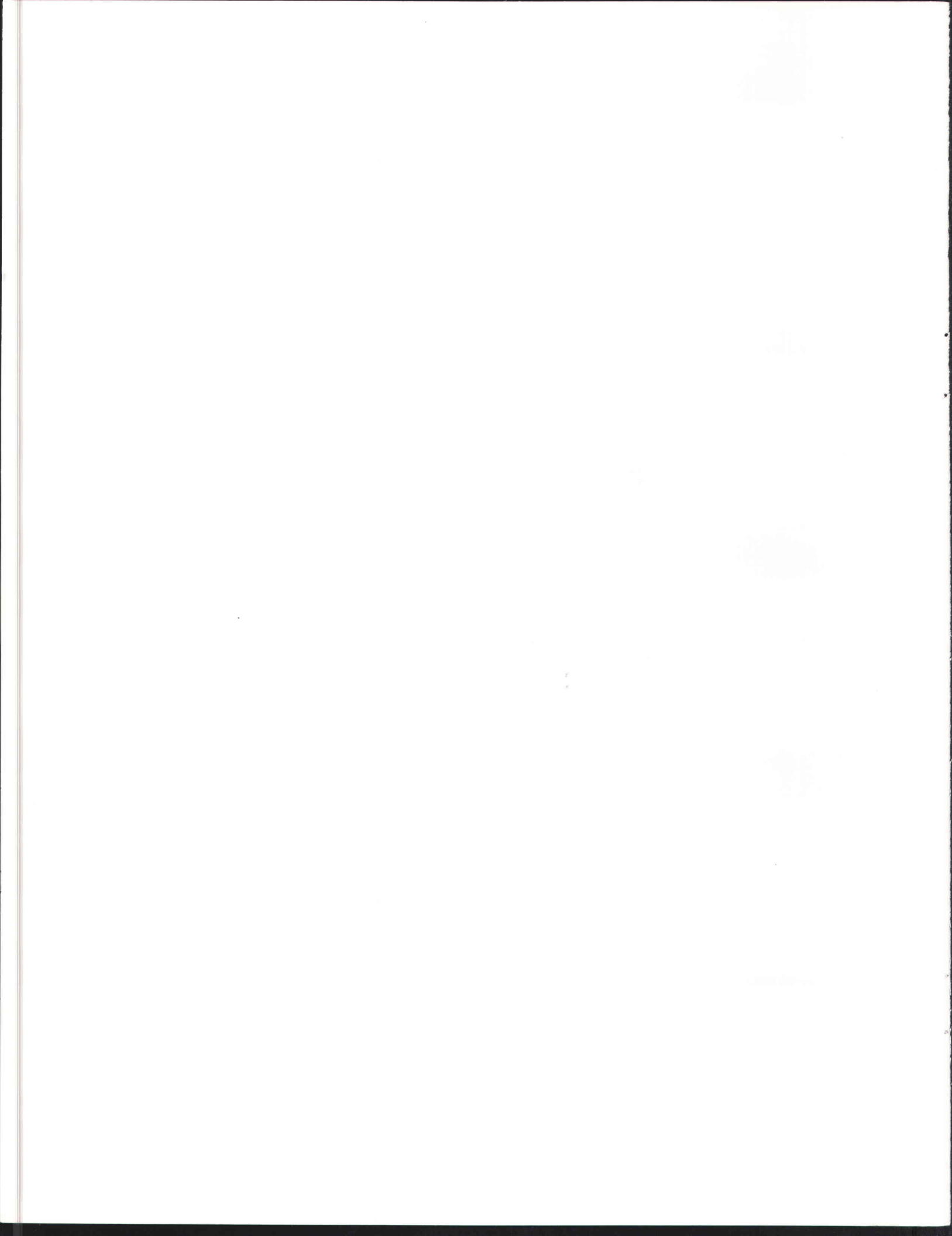
	Interrepublic Trade		International Trade		Total Foreign Trade	
	Exports	Imports	Exports	Imports	Exports	Imports
Total	38,319.0	38,989.0	7,287.0	15,071.0	45,606.0	54,059.0
Industry	36,473.6	37,504.6	7,058.4	14,152.3	43,532.0	51,656.9
Power	166.7	188.7	513.0	0.0	679.7	188.7
Oil and gas	337.5	3,796.8	301.1	78.2	638.6	3,875.0
Coal	237.1	312.9	454.7	59.5	691.8	372.4
Other fuel	0.0	2.1	0.0	0.0	0.0	2.1
Ferrous metals	6,062.6	2,453.5	1,556.7	225.9	7,619.3	2,679.4
Nonferrous metals	869.3	2,018.9	44.6	117.1	913.9	2,136.0
Chemical and petrochemical	3,051.4	4,366.6	871.6	1,344.5	3,923.0	5,711.1
Machinery	15,500.4	13,719.9	2,380.7	5,024.7	17,881.0	18,744.6
Forestry products	369.0	1,459.4	60.2	396.5	429.2	1,855.9
Construction materials	616.3	413.9	26.1	85.3	642.4	499.2
Soft goods	2,160.8	5,598.3	165.1	4,139.9	2,325.9	9,738.2
Processed foods	6,126.8	1,770.4	531.9	2,275.2	6,658.7	4,045.6
Other industries	975.7	1,403.2	152.7	405.5	1,128.5	1,808.7
Agriculture	1,528.8	499.9	122.3	902.0	1,651.1	1,401.9
Other	316.9	984.1	106.5	16.4	423.4	1,000.5

Note: Because of rounding, components may not add to totals shown.

Table B-9
Ukraine: Trade in Foreign Trade Prices, 1990

Million rubles

	Interrepublic Trade		International Trade		Total Foreign Trade	
	Exports	Imports	Exports	Imports	Exports	Imports
Total	35,968.5	42,468.3	7,828.5	9,301.3	43,797.0	51,769.6
Industry	34,886.4	41,146.5	7,695.9	8,856.9	42,582.3	50,003.4
Power	250.1	283.1	769.5	0.0	1,019.6	283.1
Oil and gas	767.3	10,775.8	605.2	88.9	1,372.5	10,864.7
Coal	221.7	292.6	425.1	85.6	646.8	378.2
Other fuel	0.0	1.5	0.0	0.0	0.0	1.5
Ferrous metals	7,336.4	2,836.0	1,702.3	299.6	9,038.7	3,135.6
Nonferrous metals	1,448.0	3,366.5	74.4	117.9	1,522.4	3,484.4
Chemicals and petrochemicals	2,614.0	3,610.3	672.5	998.4	3,286.5	4,608.7
Machinery	17,344.4	15,177.7	2,970.1	4,270.5	20,314.5	19,448.2
Forestry products	261.5	1,072.3	34.8	252.2	296.3	1,324.5
Construction materials	560.0	418.9	26.7	50.7	586.7	469.6
Soft goods	690.3	1,811.8	63.1	1,044.7	753.4	2,856.5
Processed foods	2,800.8	681.3	224.5	1,525.5	3,025.3	2,206.8
Other industries	591.9	818.7	127.7	122.9	719.6	941.6
Agriculture	723.5	238.1	27.2	431.2	750.7	669.3
Other	358.6	1,083.7	105.4	13.2	464.0	1,096.9



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