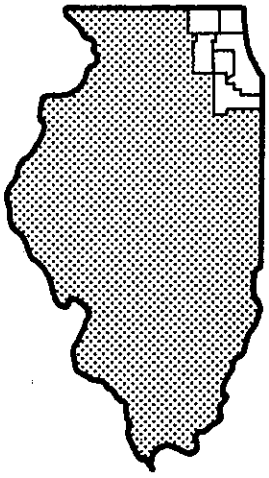
DATA BULLETIN

SPATIAL DISTRIBUTION OF EMPLOYMENT IN NORTHEASTERN ILLINOIS, 1980

81-5

northeastern illinois planning commission
400 West Madison Street Chicago, Illinois 60606 (312) 454-0400



Northeastern Illinois is diverse in its land use and complex in its political structure. It has some of the most productive farms on earth—also one of the world's greatest cities. It contains 3,714 square miles of land and 38 square miles of water. It is home to 7 million people, organized in more than 1,250 units of government.

In 1957, following a decade of rapid urbanization in the Chicago suburban area, the Illinois General Assembly created the Northeastern Illinois Planning Commission (NIPC) to conduct comprehensive planning for the six-county greater Chicago region.

The Commission is directed to meet the problems of metropolitan growth. It has three statutory charges: conduct research and collect data for planning; assist local government; and prepare comprehensive plans and policies to guide the development of the counties of Cook, DuPage, Kane, Lake, McHenry and Will.

By necessity, regional planning deals with general development policies not local land use detail. NIPC supports and coordinates county and municipal planning. The Commission has advisory powers only and relies upon voluntary compliance with its plans and policies.

northeastern illinois planning commission

400 West Madison Street Chicago, Illinois 60606 (312)454-0400

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NIPC Data Bulletin 81-5

SPATIAL DISTRIBUTION OF EMPLOYMENT IN NORTHEASTERN ILLINOIS, 1980

December, 1981

The preparation of the employment estimates reported herein was aided by the voluntary assistance of hundreds of employers who provided information on the locations and number of persons employed at establishments throughout northeastern Illinois. Additional data were obtained through a joint purchase agreement with Chicago's Economic Development Commission and Mayor's Office of Employment and Training. The work was funded in part through a grant from the Regional Transportation Authority; in part through a grant from the U. S. Department of Transportation, Urban Mass Transportation Administration, under the Mass Transportation Act of 1964 as amended; in part through a grant from the Illinois Department of Transportation; and in part through funds contributed by local governments and private organizations in northeastern Illinois.

INTRODUCTION

The Northeastern Illinois Planning Commission has prepared geographically-detailed estimates of 1980 employment in 11 industry categories. These figures are needed for highly specific uses in the modeling and forecasting of regional systems. Inasmuch as they may also be useful for other purposes, a summary of the estimates is presented in Tables 1C and 1T of this Data Bulletin. Map 1 displays the estimates at the square mile level. A discussion of the sources and limitations of the estimates follows. Some of the many alternative sources of employment data are then described. Finally, NIPC's 1980 estimates are compared with somewhat similar estimates prepared for 1970 and 1974, and reasons for discrepancies are considered.

Since the purpose of this Data Bulletin is to disseminate information as soon as practicable after its compilation, no analysis has been included. Such work will be undertaken by NIPC in conjunction with forecasting and economic development efforts.

METHODS AND LIMITATIONS

A simplified picture of the process through which these employment estimates were developed may be seen in Figure 1. The following paragraphs very briefly describe the process, and point out the limitations inherent in the methods and sources used.

The basic approach of the employment estimating process is to identify the establishments where people work, determine the location of and number of people working in each, and then aggregate this information to appropriate geographic and industry group units. To conserve resources, only establishments with ten or more employees were used in the preparation of the estimates. Thus, at less than half the cost of a complete survey, establishments with more than 80% of total employment were inventoried. Adjustments were then made to account for the remaining workers. While the resulting estimates are less accurate than would be those resulting from a complete survey, the errors are generally small and tend to balance out when areas with substantial employment are aggregated.

Review of Preliminary List

The first step in the estimating process, then, was to develop a preliminary list of establishments having ten or more employees. This preliminary list was developed from secondary sources, chiefly a commercial data base.

The preliminary establishment list was then reviewed by NIPC staff for completeness and correctness. Several types of problems were found through this review. The commercial data base contained many duplicate (and triplicate) records, where the same establishment was listed more than once. In some cases, the number of employees shown was obviously incorrect. In the case of employers

Table 1C: ESTIMATED MARCH, 1980 NONAGRICULTURAL WAGE AND SALARY EMPLOYMENT IN NORTHEASTERN ILLINOIS COUNTIES BY INDUSTRY CATEGORY

	1 C&M	2 MFG	3 TCUW	4 RETL	5 FIRE	6 SIM	7 HLTH	8 FGOV	9 SGOV	10 LGOV	11 LGED	12 TOTAL
TOTAL	122,400	832,700	446,200	513,900	219,100	455,400	196,400	68,400	45,500	163,600	202,800	3,266,400
Cook County	89,350	633,750	366,850	386,750	189,700	372,150	153,900	60,400	40,450	138,300	146,800	2,578,700
Chicago	35,900	322,850	196,550	191,950	142,500	252,900	93,500	46,000	37,500	100,150	86,650	1,506,450
Suburban	53,350	310,900	170,300	194,800	47,200	119,200	60,400	14,400	2,900	38,150	60,150	1,072,250
DuPage County	14,600	59,700	46,200	52,300	12,700	43,350	16,600	1,400	1,050	8,550	17,800	274,200
Kane County	4,100	45,050	8,750	21,200	6,050	11,600	9,300	650	1,200	3,650	10,600	122,100
Lake County	6,700	48,650	11,150	30,700	6,200	16,500	9,050	5,050	800	5,900	13,750	154,500
McHenry County	2,650	18,900	2,900	7,450	1,450	3,200	2,150	250	100	1,550	4,050	44,700
Will County	5,000	26,600	10,350	15,500	3,000	8,650	5,350	700	1,900	4,300	9,800	91,150

NOTE: Rows and columns may not add due to rounding. Category descriptions are in Table A.

SOURCE: NIPC Employment Estimates. See text for definitions and limitations.

TABLE 1T: ESTIMATED MARCH, 1980 NONAGRICULTURAL WAGE AND SALARY EMPLOYMENT IN NORTHEASTERN ILLINOIS TOWNSHIPS, BY INDUSTRY CATEGORY

	1 C&M	2 MFG	3 TCUW	4 RETL	5 FIRE	6 SIM	7 HLTH	8 FGOV	9 SGOV	10 LGOV	11 LGED	TOTAL
COOK COUNTY TOWNSHIPS												
BARRINGTON	100	150	400	500	100	800	-	-	-	50	100	2200
BERWYN	350	300	500	2550	600	900	2200	100	-	100	750	8350
BLOOM	800	11750	3350	6100	700	1450	2900	200	-	1150	3000	31350
BREMEN	1250	2600	1550	6750	600	1750	1750	300	600	4450	2850	24400
CALUMET	550	3400	900	1250	450	500	1750	-	-	50	300	9150
CHICAGO	35900	322850	196550	191950	142500	252900	93500	46000	37500	100150	86650	1506500
CICERO	1900	19300	6250	1900	750	2650	600	50	-	600	1150	35100
ELK GROVE	7500	28350	26650	8100	1850	7600	2000	200	100	1600	2350	86350
EVANSTON	400	4150	2400	5050	6150	11400	5600	300	-	3250	1700	40350
HANOVER	300	2600	500	2500	1100	700	100	100	50	1000	1700	10600
LEMONT	400	350	450	450	50	350	-	-	-	50	200	2350
LEYDEN	2250	49700	18000	13850	1350	7900	1450	2950	-	1300	4500	103250
LYONS	2500	23700	11250	6150	1550	4250	2600	200	50	1350	2550	56050
MAINE	3050	11500	14900	14450	4300	11000	8750	1400	-	1050	3450	73850
NEW TRIER	1400	1300	750	3850	950	2600	150	200	50	1400	1800	14450
NILES	4350	44450	14150	14450	4200	7850	2700	450	100	1900	2200	96800
NORTHFIELD	4150	11950	6150	8950	3900	8050	3050	550	50	1050	2200	50050
NORWOOD PARK	100	3800	750	2150	950	1500	250	100	-	250	450	10250
OAK PARK	500	450	1200	3550	1150	4650	3350	300	-	1200	1650	17900
ORLAND	600	1150	200	4800	350	1450	-	150	-	200	1050	9900
PALATINE	1900	12400	2350	4800	950	6200	200	200	-	850	2650	32450
PALOS	1050	750	2350	1800	650	2150	1950	250	-	300	1300	12500
PROVISO	4850	21750	14550	12250	2450	11300	2300	4750	400	3550	3200	81350
RICH	350	1450	200	6550	850	1050	1200	150	-	850	2400	15050
RIVER FOREST	100	450	300	1400	850	900	-	-	-	1950	150	6150
RIVERSIDE	150	-	1100	1850	50	650	-	50	-	150	500	4500
SCHAUMBURG	1900	5450	4400	13950	3350	3050	950	200	1150	1400	2950	38750
STICKNEY	300	16800	10550	1950	100	1250	200	-	-	1800	1050	33950
THORNTON	3900	12600	11050	16150	1900	6150	3400	550	150	1850	4650	62450
WHEELING	3550	12250	5800	12600	2650	4250	3300	450	50	1650	3750	50300
WORTH	3050	6050	7400	14400	2350	4900	7750	300	150	1850	3650	51900
DUPAGE COUNTY TOWNSHIPS												
ADDISON	4250	25350	14400	9800	950	4800	750	150	50	750	1950	63150
BLOOMINGDALE	2150	5700	2850	2700	500	2200	1650	50	-	650	2150	20600
DOWNERS GROVE	1750	5850	4250	7850	1650	7750	4500	250	-	950	3200	38050
LISLE	850	7450	1750	4650	500	6000	150	150	-	300	1300	23050
MILTON	950	2600	3050	5850	1300	3450	1700	300	-	3600	4400	27150
NAPERVILLE	750	1400	3650	3850	1750	1850	1350	-	50	800	850	16350
WAYNE	450	2150	700	250	-	650	250	-	-	50	200	4650
WINFIELD	700	2000	2650	1350	150	1750	2400	50	100	200	800	12100
YORK	2750	7200	12900	16050	5950	14900	3900	400	900	1250	3000	69150

	1 C&M	2 MFG	3 TCUW	4 RETL	5 FIRE	6 SIM	7 HLTH	8 FGOV	9 SGOV	10 LGOV	11 LGED	TOTAL
KANE COUNTY TOWNSHIPS												
AURORA	1700	19900	4000	6350	2700	3550	4200	300	200	950	3400	47250
BATAVIA	300	1900	300	600	200	600	100	50	-	300	600	4850
BIG ROCK	-	100	50	-	50	-	-	-	-	-	100	250
BLACKBERRY	-	500	50	150	50	-	-	-	-	-	50	800
BURLINGTON	-	50	-	-	50	-	50	-	-	-	50	200
CAMPTON	100	-	50	50	-	50	-	-	-	100	150	400
DUNDEE	300	4400	850	3300	350	2050	-	50	-	300	2050	13700
ELGIN	1150	8500	1750	6200	1550	2600	3650	200	350	700	2050	28700
GENEVA	200	4600	800	900	700	300	800	50	-	1100	500	9850
HAMPSHIRE	-	400	-	350	-	150	-	-	-	-	150	1050
KANEVILLE	-	-	50	-	-	50	-	-	-	-	150	250
PLATO	50	50	-	-	-	150	-	-	-	-	250	450
RUTLAND	-	100	100	-	-	50	-	-	-	-	-	250
SAINT CHARLES	300	4300	900	3200	450	900	500	50	650	250	1100	12600
SUGAR GROVE	-	150	-	50	50	900	-	-	-	-	50	1150
VIRGIL	-	50	-	50	-	200	-	-	-	-	50	400
LAKE COUNTY TOWNSHIPS												
ANTIOCH	300	1600	150	800	100	100	-	50	-	-	600	3650
AVON	250	1550	100	2300	100	650	50	50	50	150	1900	7200
CUBA	300	1250	650	2550	50	500	-	50	-	100	450	5950
DEERFIELD	300	1100	550	3500	200	1800	1550	1400	-	700	1000	12050
ELA	250	2050	200	1400	3900	1700	650	50	-	100	350	10700
FREMONT	50	750	150	100	-	150	-	-	-	50	550	1800
GRANT	450	3000	50	1050	50	50	50	50	-	100	400	5250
LAKE VILLA	50	100	100	300	-	300	-	50	-	50	200	1050
LIBERTYVILLE	650	7200	1300	4050	300	1950	200	100	50	1150	1050	18050
NEWPORT	200	-	-	150	-	-	-	-	-	-	50	400
SHIELDS	450	10900	1100	1600	300	1650	1250	2950	-	550	850	21550
VERNON	450	1350	150	1200	50	1600	350	-	-	100	600	5850
WARREN	450	4100	1000	1600	150	1650	-	-	50	150	1000	10150
WAUCONDA	300	350	150	500	50	300	100	-	50	50	400	2150
WAUKEGAN	950	7600	3500	5650	550	1950	3550	200	200	2250	2350	28800
WEST DEERFIELD	750	5000	950	2800	300	1700	250	50	350	200	950	13400
ZION	550	900	950	1150	100	350	1100	50	50	250	1050	6500

	1 C&M	2 MFG	3 TCUW	4 RETL	5 FIRE	6 SIM	7 HLTH	8 FGOV	9 SGOV	10 LGOV	11 LGED	TOTAL
MCHENRY COUNTY TOWNSHIPS												
ALDEN	-	50	-	-	-	-	-	-	-	-	-	50
ALGONQUIN	550	5400	550	3050	650	500	-	50	-	300	1200	12200
BURTON	-	-	-	50	-	-	-	-	-	-	50	100
CHEMUNG	50	800	150	250	50	100	100	-	-	50	200	1800
CORAL	-	400	-	-	-	-	-	-	-	-	50	450
DORR	100	2400	500	1250	200	1350	700	50	50	100	750	7450
DUNHAM	-	50	-	200	-	-	-	-	-	-	-	250
GRAFTON	50	1200	350	100	-	100	-	-	-	-	150	1900
GREENWOOD	-	50	50	50	-	50	-	-	50	800	150	1100
HARTLAND	-	200	-	50	-	100	-	-	-	100	-	400
HEBRON	-	650	-	50	-	100	-	-	-	-	50	850
MCHENRY	1250	1550	150	1200	250	350	1100	50	-	100	850	6750
MARENGO	150	1900	50	300	50	150	50	-	-	-	200	2900
NUNDA	350	2600	1050	700	150	350	250	50	-	150	200	5850
RICHMOND	200	1700	50	300	-	150	-	-	-	-	100	2500
RILEY	-	-	-	-	-	-	-	-	-	-	50	50
SENECA	-	-	-	-	-	-	-	-	-	-	50	50
WILL COUNTY TOWNSHIPS												
CHANNAHON	350	1500	250	150	-	50	-	-	-	50	150	2500
CRETE	300	300	50	350	50	500	-	50	-	150	500	2250
CUSTER	-	-	-	-	-	-	-	-	-	-	-	-
DUPAGE	-	2350	450	1800	650	350	50	50	50	800	1250	7800
FLORENCE	-	-	-	-	-	-	-	-	-	-	-	-
FRANKFORT	450	1450	600	950	100	100	50	50	-	-	550	4250
GREEN GARDEN	50	-	-	-	-	-	-	-	-	-	-	150
HOMER	200	-	-	50	-	-	-	-	-	-	300	600
JACKSON	-	-	150	-	-	-	-	-	-	-	50	200
JOLIET	1850	12750	5800	5800	1300	4000	5050	400	1350	2650	2550	43500
LOCKPORT	250	2450	1050	1400	200	900	-	100	350	200	1000	7900
MANHATTAN	50	-	-	50	-	-	-	-	-	-	50	150
MONEE	-	1650	200	300	100	1050	-	-	-	200	200	3700
NEW LENOX	150	200	200	400	100	150	-	-	100	50	550	1900
PEOTONE	-	400	-	100	-	-	50	-	-	-	150	750
PLAINFIELD	150	800	650	2200	100	150	-	-	-	50	450	4550
REED	-	-	50	100	-	100	-	-	-	-	150	400
TROY	850	1650	650	1200	350	1150	50	50	-	200	1450	7550
WASHINGTON	50	150	50	150	-	-	-	-	-	-	100	550
WESLEY	50	-	-	-	-	-	-	-	-	-	50	100
WHEATLAND	150	150	100	-	-	-	-	-	-	50	50	500
WILL	-	-	-	50	-	-	-	-	-	-	-	100
WILMINGTON	50	800	50	450	50	-	150	-	-	-	200	1750
WILTON	-	-	-	-	-	-	-	-	-	-	-	-

NOTE: "-" indicates less than 26 employees. Estimates are subject to important limitations described in the text. Industry group categories are defined in Table A.

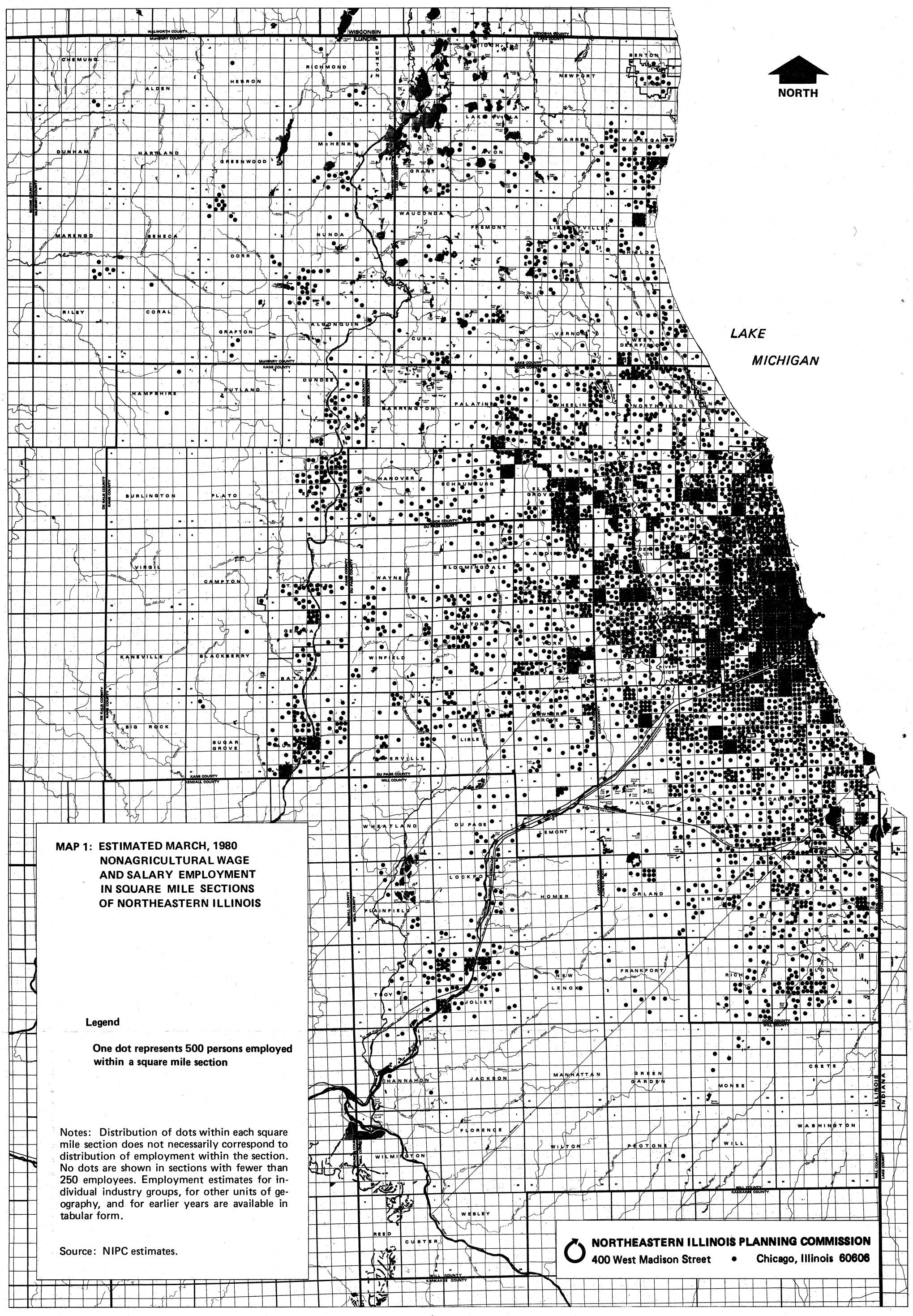
SOURCE: NIPC estimates.

Table A: COMPARISON OF INDUSTRY CATEGORIES

1980 Category		Equivalent 1970	Equivalent 1972,1974	1972 SIC Equivalent[1]
(-)	agriculture	1	1	01,02,08
1	construction & mining	2,3	2,3	10-17
2	manufacturing	4,5	4,5	20-39
3	transportation, communication, utilities and wholesale trade	6,7,8	6,7,8	40-51
4	retail trade	9	9	52-59
5	finance, insurance and real estate	10	10	60-67
6	services, institutions and miscellaneous	11(part);12	11,12	07,09,70-79, 81-89,99
7	health services	11(part)	17	80
8	federal government	13	13	n/a
9	state government	14	14	n/a
10	local government (except education)	15(part)	15	n/a
11	local gov't (educ.)	15(part)	18	n/a
(-)	self employed, domestic help, unpaid family worker	16	16	n/a

(-) category excluded from 1980 estimates

[1]All government employment is coded in categories 8 through 11. All private employment is coded in categories 1 through 7.



MAP 1: ESTIMATED MARCH, 1980 NONAGRICULTURAL WAGE AND SALARY EMPLOYMENT IN SQUARE MILE SECTIONS OF NORTHEASTERN ILLINOIS

Legend

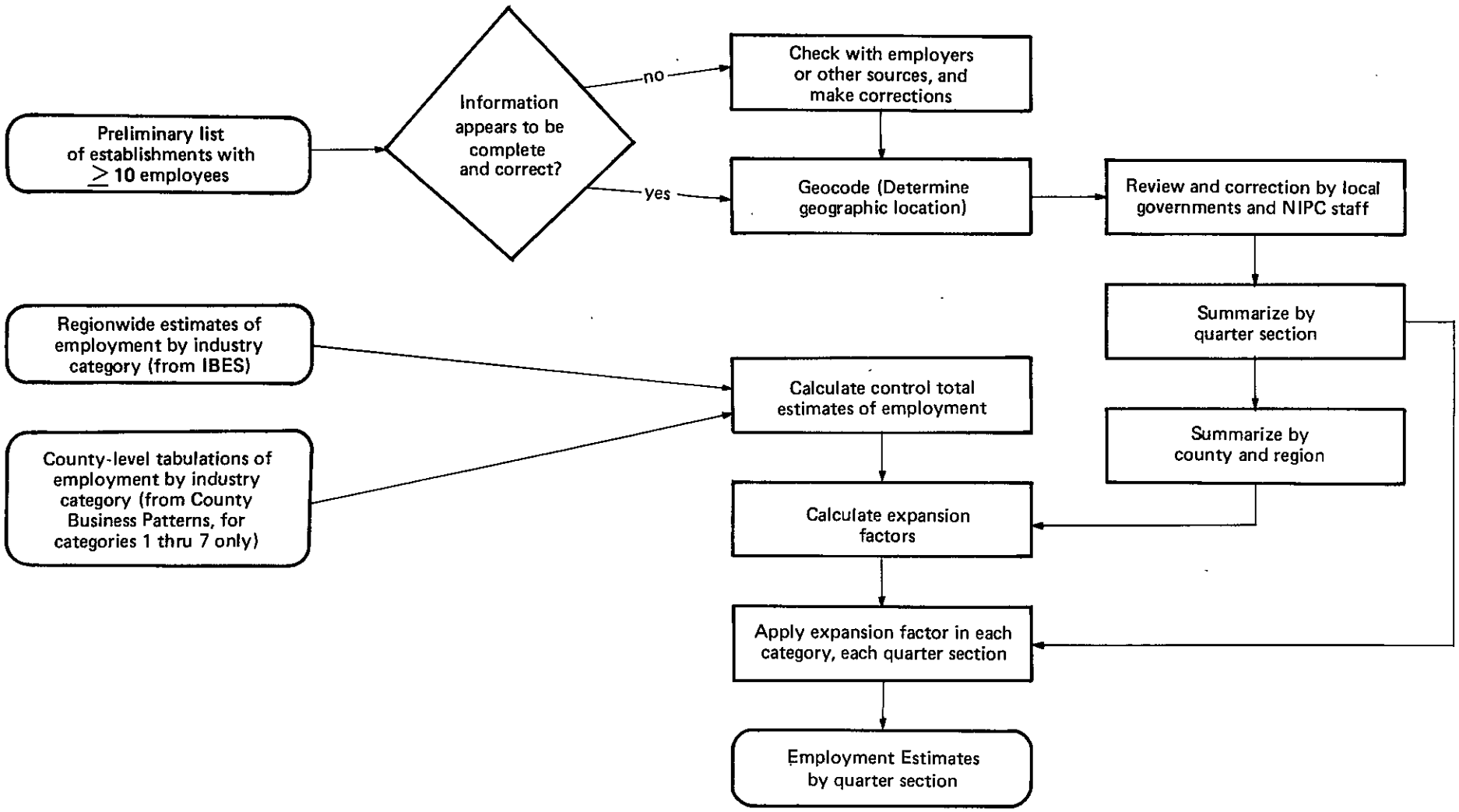
One dot represents 500 persons employed within a square mile section

Notes: Distribution of dots within each square mile section does not necessarily correspond to distribution of employment within the section. No dots are shown in sections with fewer than 250 employees. Employment estimates for individual industry groups, for other units of geography, and for earlier years are available in tabular form.

Source: NIPC estimates.

NORTHEASTERN ILLINOIS PLANNING COMMISSION
400 West Madison Street • Chicago, Illinois 60606

FIGURE 1: 1980 EMPLOYMENT ESTIMATING PROCESS



NORTHEASTERN ILLINOIS PLANNING COMMISSION

with many establishments (retail chains and utilities, for example), only some of the establishments were shown and there was often no way to know whether the number of employees listed applied only to the particular address shown or to some larger unit of the employer. Some important establishments, particularly in government and the railroad industry, were missing.

Correction and Supplementary Resources

For each case where one of the above problems was identified. appropriate action was taken. In some cases, such as the elimination of certain duplicate records, no additional information was needed to determine the correct resolution of the problem. But in most cases, other sources had to be consulted. Most frequently, this required that individual employers be contacted and asked to supply the needed information. (Since errors were known to exist on the preliminary list, every establishment indicated as having more than 250 employees was confirmed against another source if possible. Confirmation was sought directly from the employer unless another source, such as a published directory, showed employment within 15% of the amount on the preliminary list.)

The Illinois Office of Education supplied information on the number of persons employed at individual public schools. For most noneducational government establishments, employment information was sought directly from the employing unit of government.

Employer responses, which were entirely voluntary with assurance of confidentiality, were gratifying but not complete. For the more important employers, repeated inquiries were made if necessary. However, some employers were unable or unwilling to provide the information requested. In such cases, information from the preliminary list or from directories, if not obviously incorrect, was used. Establishments not represented in these sources, if no supplementary information was supplied by the employer, are not represented in the employment estimates. The resulting errors could be substantial in small areas but tend to balance out over larger areas.

The process of correction to the establishment list actually continued throughout the estimating process, whenever errors were found or new information was obtained. But after the bulk of the correction work had been completed, the geocoding process began.

Geocoding

The objective of the geocoding process was to assign each establishment to a specific quarter section. For most establishments, this was done by machine, using geographic reference files relating street address to census block, and census block to quarter section. The reference files used are known to have some errors. In addition, even if the files are entirely correct, blocks which cross quarter section boundaries are assigned to one quarter section; an establishment in such a block may actually be in a

quarter section other than that to which the block was assigned. A supplementary file, relating street addresses directly to quarter sections, was also used to geocode some establishments. This file had not received a complete review but is believed to be highly reliable.

Many establishments could not be geocoded using the geographic reference files and were manually assigned to quarter sections. This process was conducted with great care and errors are believed to be minimal.

Local Review and Final Corrections

Once the quarter section location of most establishments had been determined, local governments were invited to review a list of establishments in their respective areas, to identify omissions or other errors. A total of 94 municipalities and five counties requested establishment lists and conducted reviews at varying levels of detail. Table B lists the participating governments.

After the local review corrections were made and the manual geocoding was completed, NIPC staff conducted a complete review of the entire establishment list. The purpose of this review was to rectify any errors which might have slipped through the earlier steps. Once these corrections had been accomplished, the establishment records were aggregated to quarter section, township, county, and region, so that expansion factors could be calculated and applied.

Control Totals

Control totals were obtained by a method external to the establishment list. At the regional level, employment estimates are prepared by the Illinois Bureau of Employment Security, according to a method prescribed by the U. S. Bureau of Labor Statistics. These estimates are readily aggregated to the 11 industry categories used for NIPC's estimates. Controls at the county levels were also obtained for the nongovernmental categories, 1 through 7. These were calculated by distributing the regional figures to counties in proportion to statistics published by the U. S. Census Bureau in County Business Patterns. Because the 1980 county level figures have not yet been issued, 1979 figures were used for this distribution. This tends to introduce error within each county proportional to the difference between 1980 and 1979 employment in that county.

Expansion factors were calculated for each category in each county, except that in the governmental categories, 8 through 11, regionwide expansion factors were used. An expansion factor is simply the ratio of the estimated total employment to the sum of employment in establishments on the establishment list. Multiplying the employment in each quarter section, in each industry category, by the appropriate expansion factor accounts for establishments with fewer than ten employees, as well as helping to adjust for any omissions or other errors which may remain on the establishment list.

TABLE B: LOCAL GOVERNMENTS PARTICIPATING IN REVIEW OF THE 1980 EMPLOYMENT ESTIMATES

ALGONQUIN
ANTIOCH
ARLINGTON HEIGHTS
AURORA
BARRINGTON
BLOOMINGDALE
BLUE ISLAND
BOLINGBROOK
BUFFALO GROVE
CAROL STREAM
CARY
CHANNAHON
CHICAGO
CLARENDON HILLS
CRETE
CRYSTAL LAKE
DEERFIELD
DES PLAINES
DIXMOOR
DOWNERS GROVE
ELBURN
ELK GROVE VILLAGE
ELMWOOD PARK
EVERGREEN PARK
FOREST PARK
FOX LAKE
GILBERTS
GLEN ELLYN
GLENCOE
GLENVIEW
GOLF
GRAYSLAKE
GURNEE
HANOVER PARK
HARVARD
HAZEL CREST
HEBRON
HILLSIDE
HINSDALE
HOFFMAN ESTATES
HUNTLEY
JOLIET
KILDEER
LAGRANGE
LAKE ZURICH
LAKEMOOR
LINDENHURST

DUPAGE COUNTY
KANE COUNTY
LAKE COUNTY

MARENGO
MCHENRY
MONEE
MONTGOMERY
MORTON GROVE
MOUNT PROSPECT
NAPERVILLE
NEW LENOX
NILES
NORTH RIVERSIDE
NORTHBROOK
OAK FOREST
OAK PARK
OAKWOOD HILLS
ORLAND PARK
PALATINE
PALOS PARK
PARK FOREST
PHOENIX
PLAINFIELD
POSEN
PRAIRIE GROVE
PROSPECT HEIGHTS
RIVER GROVE
RIVERDALE
RIVERWOODS
ROLLING MEADOWS
ROSELLE
ROUND LAKE BEACH
SCHAUMBURG
SHOREWOOD
SLEEPY HOLLOW
SOUTH HOLLAND
ST. CHARLES
SUMMIT
TOWER LAKES
VERNON HILLS
WAUKEGAN
WAYNE
WEST CHICAGO
WEST DUNDEE
WHEELING
WILMETTE
WILMINGTON
WOOD DALE
WOODSTOCK
ZION

MCHENRY COUNTY
WILL COUNTY

OTHER SOURCES OF EMPLOYMENT DATA

The estimates summarized in this data bulletin were prepared to meet the need for geographically detailed 1980 employment data. Employment data may also be obtained from a number of other sources, and these may be more useful for many applications.

Illinois Bureau of Employment Security

The Illinois Bureau of Employment Security (IBES) publishes monthly estimates of northeastern Illinois employment in LMI Trends (formerly Labor Area Trends). Only figures for the region as a whole are presented. These figures are comparable to those used as control totals in the NIPC estimates (but because of post-publication revisions by IBES, the published numbers are not identical to the control totals). Industry group detail is somewhat greater than the 11 categories used by NIPC. Publication delay is about three months.

IBES also produces Where Workers Work, an annual series which shows geographic detail at the level of Chicago zip codes and major suburban muncipalities. It shows only employment covered by unemployment compensation (approximately 95% of nongovernmental wage and salary employment) and is published "on an unedited basis," meaning that there may be important errors in the data. The most common type of error may be "central office bias" (described below), which does not seriously affect the validity of this series for determining general employment trends. Industry detail is comparable to LMI Trends, although some cells are suppressed to protect confidentiality. Publication delay is two to three years.

U. S. Census Bureau

The U. S. Census Bureau publishes County Business Patterns, an annual report showing private sector employment by county. Compared to Where Workers Work, more industry detail is shown but geographic detail does not go below the county level. Occasional errors have been found in this series. Publication delay is about two years.

The Census Bureau also conducts a group of economic censuses every five years. Most industry classifications, including local government, are covered in considerable detail, and information for counties and major municipalities is reported. For local governmental and manufacturing employment, annual surveys are also conducted. For both the economic censuses and the annual surveys, publication delay is about three years.

All of the preceding, like NIPC's estimates, provide establishment-based data which count the number of jobs held rather than the number of persons holding jobs. The difference results from people who hold two or more jobs. (Nationwide, about 5% of all nonagricultural employees are multiple jobholders.) Regionwide

estimates of the number of persons holding jobs are prepared by IBES for the purpose of estimating unemployment rates. Detailed statistics on the number and characteristics of persons holding jobs will be reported in the 1980 Census, results of which are expected in 1982.

COMPARISON TO EARLIER ESTIMATES

Geographically-detailed employment estimates for 1970, 1972, and 1974 were prepared by NIPC in earlier years. Due to methodological and definitional differences, these estimates are not fully comparable to the 1980 estimates. In addition to the random errors in any estimating process, there are three important reasons for the lack of comparability.

Omitted and Consolidated Categories

Although earlier estimates were based on 16 (in 1970) or 18 (in 1972 and 1974) categories, it has become apparent that use of such a large number of categories implied a level of accuracy which actually did not exist. As shown in Table A, nine former categories were merged into four for the 1980 estimates, and two categories were dropped entirely.

The two omitted categories were agricultural employees (former category 1) and self employed and domestic workers (former category 16). Data concerning the geographic distribution of these workers are very sparse. For northeastern Illinois as a whole, the Illinois Bureau of Employment Security estimates approximately the following numbers:[1]

domestic	24,000
nonagricultural self employed	194,000
agricultural	16,000

In earlier estimates, agricultural employment was distributed in proportion to acreage of vacant & agricultural land. If it is imperative to produce quarter section estimates of 1980 agricultural employment, one could use a similar approach. Based on 1.108 million acres of agricultural land inventoried in NIPC's 1975 land use survey, one agricultural worker would be assigned for each 67.5 acres of agricultural land.

Earlier estimates of self employed and domestic workers distributed these people in proportion to the sum of employment in other categories. Using a similar approach for 1980, one could assign 0.0667 self employed and domestic workers for each nonagricultural

[1]All estimates apply to workers not covered by unemployment compensation and have been rounded. These definitions differ technically from the NIPC categories; the differences are unmeasurable, but small.

Table 2C: COMPARISON OF ESTIMATED NONAGRICULTURAL WAGE AND SALARY EMPLOYMENT IN NORTHEASTERN ILLINOIS COUNTIES FOR 1970, 1974 AND 1980

	1970	1974	1980
TOTAL	2,967,300	3,045,150	3,265,350
Cook County	2,525,350	2,480,250	2,578,700
Chicago	1,752,400	1,594,800	1,506,500
Suburban Cook	772,950	885,450	1,072,250
DuPage County	134,050	200,050	274,200
Kane County	95,100	112,450	122,100
Lake County	105,450	134,800	154,500
McHenry County	31,850	40,500	44,700
Will County	75,500	77,100	91,150

Table 2T: COMPARISON OF ESTIMATED NONAGRICULTURAL WAGE AND SALARY EMPLOYMENT IN NORTHEASTERN ILLINOIS TOWNSHIPS FOR 1970, 1974 AND 1980

	1970	1974	1980
COOK COUNTY TOWNSHIPS			
Barrington	1,100	2,050	2,200
Berwyn	----[1]	9,000	8,350
Bloom	28,750	29,100	31,350
Bremen	10,950	13,150	24,400
Calumet	10,000	9,550	9,150
Chicago	1,752,400	1,594,800	1,506,500
Cicero	69,000[1]	51,600	35,100
Elk Grove	34,450	43,950	86,350
Evanston	44,700	39,000	40,350
Hanover	4,050	4,850	10,500
Lemont	1,150	2,100	2,350
Leyden	87,350[2]	100,550	103,250
Lyons	43,950	46,100	56,050
Maine	48,850	62,700	73,850
New Trier	10,800	12,300	14,450
Niles	108,200	97,600	96,800
Northfield	19,650	32,100	50,050
Norwood Park	----[2]	13,250	10,250
Oak Park	----[1]	13,450	17,900
Orland	2,650	3,350	9,900
Palatine	14,150	20,150	32,450
Palos	4,100	6,150	12,500
Proviso	81,000[3]	76,300	81,350
Rich	7,200	12,000	15,050
River Forest	----[3]	5,800	6,150
Riverside	----[3]	3,000	4,500
Schaumburg	4,450	16,300	38,750
Stickney	34,950	33,850	33,950
Thornton	39,050	53,900	62,450
Wheeling	22,550	30,050	50,300
Worth	40,000	42,250	51,900
DUPAGE COUNTY TOWNSHIPS			
Addison	27,750	40,250	63,150
Bloomingdale	8,200	11,200	20,600
Chicago	----	----	----
Downers Grove	20,750	31,800	38,050
Lisle	12,350	17,500	23,050
Milton	17,650	24,350	27,150
Naperville	6,550	6,700	16,350
Wayne	1,650	2,250	4,650
Winfield	7,000	8,850	12,100
York	32,150	57,150	69,150

TOWNSHIPS

KANE COUNTY TOWNSHIPS

Aurora	36,850	47,000	47,250
Batavia	11,050[4]	4,850	4,850
Big Rock	250	50	250
Blackberry	2,250	650	800
Burlington	200	150	200
Campton	300	100	400
Dundee	5,850	9,900	13,700
Elgin	25,700	31,450	28,700
Geneva	----[4]	7,700	9,850
Hampshire	950	1,100	1,050
Kaneville	150	200	250
Plato	1,150	200	450
Rutland	650	100	250
St. Charles	8,250	8,400	12,600
Sugar Grove	1,150	500	1,150
Virgil	500	150	400

LAKE COUNTY TOWNSHIPS

Antioch	2,250	3,500	3,650
Avon	3,800	4,450	7,200
Cuba	5,500	6,050	5,950
Deerfield	16,750[5]	11,700	12,050
Ela	2,100	6,050	10 700
Fremont	1,250	1,150	1,800
Grant	1,050	3,150	5,250
Lake Villa	400	750	1,050
Libertyville	9,950	18,500	18,000
Newport	600	300	400
Shields	15,400	14,600	21,550
Vernon	1,800	3,350	5,850
Warren	3,250	9,150	10,150
Wauconda	800	1,350	2,150
Waukegan	36,150	36,900	28,800
West Deerfield	----[5]	8,700	13,400
Zion/Benton	4,300	5,150	6,500

MCHENRY COUNTY TOWNSHIPS

Alden	50	----	----
Algonquin	7,650	10,450	12,200
Burton	----[6]	100	100
Chemung	1,700	2,150	1,800
Coral	350	400	450
Dorr	4,700	4,750	7,450
Dunham	2,200	2,600	250
Grafton	1,650	2,100	1,900
Greenwood	300	100	1,100

TOWNSHIPS			
Hartland	200	150	400
Hebron	300	650	850
McHenry	4,850	6,400	6,750
Marengo	2,100	3,150	2,900
Nunda	4,300	5,550	5,850
Richmond	1,600	1,900	2,500
Riley	50	50	50
Seneca	50	----	50
WILL COUNTY TOWNSHIPS			
Channahon	1,250	1,800	2,500
Crete	1,400	1,400	2,250
Custer	300[7]	150	----
DuPage	2,500	3,550	7,800
Florence	100	----	----
Frankfort	1,400	3,400	4,250
Green Garden	100	----	150
Homer	400	50	600
Jackson	8,950	50	200
Joliet	41,600	44,850	43,500
Lockport	8,250	8,350	7,900
Manhattan	100	150	150
Monee	850	2,650	3,700
New Lenox	1,450	1,950	1,900
Peotone	1,000	1,100	750
Plainfield	2,200	2,750	4,600
Reed	300	300	400
Troy	1,250	2,100	7,550
Washington	500	650	550
Wesley	----[7]	----	100
Wheatland	150	200	500
Will	50	----	100
Wilmington	1,300	1,650	1,750
Wilton	50	----	----

[1]Data for Cicero, Berwyn and Oak Park Townships were combined as Cicero.
[2]Data for Leyden and Norwood Park Townships were combined as Leyden.
[3]Data for Proviso Riverside and River Forest Townships were combined as Proviso.
[4]Data for Geneva and Batavia Townships were combined as Batavia.
[5]Data for Deerfield and West Deerfield Townships were combined as Deerfield.
[6]Data for Richmond and Burton Townships were combined as Richmond.
[7]Data for Custer and Wesley Townships were combined as Custer.
---- Less than 26

Note: Estimation techniques are subject to error and types of error can differ in the different years. Therefore, inter-year comparisons may not be valid indicators of trends.

Source: NIPC Estimates

wage and salary employee.

In Tables 2C and 2T, the 1970 and 1974 figures have been adjusted by subtracting category 1 and category 16 employment. But the earlier figures are still not comparable to the 1980 numbers due to the different methods used.

Central Office Bias

The primary data source for the earlier employment estimates was the Illinois Bureau of Employment Security's "ES-202" file of employers paying into the unemployment compensation insurance fund. Although it has some advantages over the data sources used in 1980, the "202" file suffers from an important source of error not present on the alternative sources. It sometimes mislocates employees of a small firm or branch, incorrectly placing them at a headquarters and accounting office location. Since a disproportionate number of headquarters and accounting offices are in the Chicago central area, this may tend to overstate central area employment, while slightly understating employment elsewhere. With the 1980 change to a different estimating method, this error disappears.

As Table 3 illustrates, use of just the NIPC estimates would lead to unsupported implications of substantial job losses in Chicago. Actually, central area employment has changed little since 1974, though there appears to have been some decline in employment elsewhere in Chicago.

For Chicago as a whole, Where Workers Work shows a loss of about 127,000 workers between 1974 and 1978. NIPC's estimates show a drop of about 135,000 over the period 1974-1980. Yet regionwide employment, which changed little between 1974 and 1978, increased significantly between 1978 and 1980. It is likely that Chicago shared in that gain, and that the 1980 edition of Where Workers Work will show some growth in Chicago's employment since 1978. Due to the inconsistencies noted above, the Where Workers Work figure is probably the more reliable indicator of trends.

Taking just the central area of Chicago, Where Workers Work shows a decline of about 10,000 employment between 1974 and 1979, while NIPC's 1980 estimate is about 37,000 less than the 1974 figure. With the increase in regional employment between 1979 and 1980, it is probable that the 1980 edition of Where Workers Work will show central area employment to be nearly the same as in 1974.

Accuracy of Establishment Employment Counts

Since the data on the "202" files are compiled for taxation purposes, they are likely to represent exact amounts. Such other

Table 3: COMPARISON OF NIPC ESTIMATES AND "WHERE WORKERS WORK" COUNTS FOR CHICAGO CITYWIDE AND CENTRAL AREA PRIVATE SECTOR WAGE & SALARY EMPLOYMENT

Year	Chicago Citywide Employment		Chicago Central Area Employment		Regional Total Employment
	WWW	NIPC	WWW	NIPC	
1974	1,355,939	1,370,950	500,420	490,350	2,608,300
1978	1,229,174	----	478,582	----	2,631,100
1979	----	----	490,400	----	2,748,800
1980	----	1,236,150	----	453,750	2,786,100

Sources:

U. S. Bureau of Labor Statistics; Employment and Earnings, Volume 21 No. 11, May 1975.
Illinois Bureau of Employment Security; Labor Area Trends: Chicago SMSA, April 1979 and April 1980.
Illinois Bureau of Employment Security; Where Workers Work, Chicago SMSA, 1978.
NIPC estimates.
Unpublished data from Illinois Bureau of Employment of Employment Security.

Note: "Chicago Central Area" defined as zip codes 60601 through 60607, 60610, 60611, 60654 (WWW), or public land survey sections 3 (southwest quarter), 9, 10, 15, and 16 (NIPC).

sources as commercial data bases and directories, by contrast, ordinarily do not require exact counts and in most cases do not require documentation of the numbers reported. As a result, their employment counts tend to be rounded to the nearest ten or hundred, and there can be no confirmation that they are always correct even within the limits of the rounding error.

Any errors which may result from these limitations are assumed to be distributed randomly. Since estimates are adjusted to conform to independent control totals, such errors would balance out over large areas. But for areas having small numbers of establishments, they could be a cause of considerable discrepancy between the estimates for 1980 and those for earlier years.

NIPC EMPLOYMENT ESTIMATES FOR OTHER GEOGRAPHIC UNITS

Although the data shown in this report are for minor civil divisions (townships), the basic data files contain information for individual quarter sections averaging about 160 acres. This level of geographic detail permits reasonably good estimates of employment in areas as small as a few square miles. Copies of the quarter section file for 1970, 1972, 1974, or 1980 can be provided at retrieval cost.

It is also possible to provide estimates of employment in specific census tracts, municipalities, or other areas. However, this can require extensive recoding of the original establishment list and could therefore be quite costly, depending on the specific geographic area of interest and the level of precision required.

For further information, contact the NIPC Research Services Department.

UPDATES AND REVISIONS TO EMPLOYMENT ESTIMATES

In order to produce timely estimates, it was necessary to calculate control totals based on preliminary data. When final control totals become available, the estimates should be revised to reflect any changes. (It is expected that the impact of the changes will not be great, but could amount to several percent difference in some cells.) It is anticipated that these revisions will be made late in calendar year 1982. At the same time, it will be possible to correct any errors which may be found in the estimates. Documented evidence of specific errors should be brought to the attention of NIPC's Research Services Department.