Residency Adjustment for
Place-of-Work Nonagricultural Wage and Salary Employment

LAUS Research Report
Bureau of Labor Statistics
March 2004, Revised December 2004

Introduction

The Local Area Unemployment Statistics (LAUS) program develops labor force estimates for around 7,000 areas each month. The areas include all States, the District of Columbia, metropolitan and small labor market areas, counties, cities with a population of 25,000 or more, and all cities and towns in New England regardless of population. The underlying concepts and definitions of all labor force data developed from the LAUS program are consistent with those of the Current Population Survey (CPS).

Monthly LAUS estimates for all States, the District of Columbia, New York City, Los Angeles-Long Beach, and the respective balances of New York and California, are produced using estimating equations based on time series and regression techniques.

Estimates for substate labor market areas (other than New York City and Los Angeles-Long Beach) are produced using a standard methodology called the "Handbook" method. This method uses data from several sources, including the CPS, the Current Employment Statistics program (CES), the Quarterly Census of Employment and Wages (QCEW) program, State Unemployment Insurance (UI) systems, and the decennial census.

The establishment-based figures on nonagricultural wage and salary jobs by place of work are the only current, geographically comprehensive employment numbers at the substate level. The establishment series differs from the CPS in that the CPS counts employed persons only once, includes persons on unpaid absences, and counts persons where they reside rather than where they work. Of the three major differences between the establishment and household series, the place-of-work/place-of-residence distinction, or the commuting factor, is by far the most important.

The Current Procedure

The current procedure was developed in 1975, modified in 1994, and updated with new decennial census data each decade. Residency adjustment ratios are developed for each labor market area in a State, as follows: The estimate of employed residents from the long-form survey associated with the decennial enumeration for an area is divided by that area's March-April average nonfarm wage and salary estimate. Each month, the ratio is applied to the current job count for the area, resulting in resident nonfarm wage and salary employment estimate for the area.

For example, the resident employed estimate for a labor market area, LMA-1, was 3,000 in the decennial census. The nonfarm wage and salary estimate for LMA-1 was 3,150 in March and 3,050 in April. The average March-April nonfarm employment estimate is 3,100 (3,150 plus 3,050 divided by 2). The residency adjustment ratio is then 0.967741935 (3,000/3,100). This ratio is then applied to each month's current nonfarm wage and salary employment estimate to derive the employment by place-of-residence estimate. The May nonfarm employment estimate is 3,100, the estimate of resident employed is 3,000 (3,100 times 0.967741935 = 2,999.9999)

The adjustment method performs well for labor market areas where nearly all employed residents hold jobs within the estimating area and there is no significant commuting outside the area for employment purposes. As with any census-based procedure, it assumes no change in the relationship between employed residents and jobs in the intercensal period. Also, because residency-based employment is a function of the current job count of the estimating area only, employment growth outside the labor market area providing jobs for area residents is not considered in this method.

A basic problem with the current census-based approach of adjusting for residency is the limited geographic scope and static nature of the approach. Current residency-based employment is defined as a function of the census relationship of persons to jobs and the current job count in the estimating area. Recognizing that labor market areas often are not defined to the point where commuting is zero, and that, in the intercensal period, job growth can and does occur in the areas surrounding the estimating area, a new approach to developing resident employment was considered.

The Proposed Dynamic Approach to Residency Adjustment

The LAUS initiative, funded in Fiscal Year 2001, provided resources for improvements in LAUS methodology and estimation procedures. The impetus for this residency adjustment research is the concern that the current method can produce an incorrect estimate of resident employment. The LAUS substate estimating system can be revised to accommodate this more complicated adjustment procedure. In addition, the introduction of metropolitan divisions in the redefinition of metropolitan areas by the Office of Management and Budget presented unique estimating issues that could be resolved using the more dynamic residency adjustment method.

The proposed method postulates that resident employment in a given area is a function not only of the relationship between employed residents and jobs in that area, but also the commuting of area residents to, and the job counts of, other areas within commuting distance. The procedure is more dynamic than the current method insofar as employment changes in commuting areas can affect resident employment, although the commuting ratios themselves are fixed for the intercensal period.

Commuting ratios were developed using 2000 Census employment data containing place of residence cross-tabulated by place of work. The data provided information on county-to-county commuting flows. To determine significant commuting patterns for a given labor market area, ratios between the census employment by place of residence by place of work and the March-

April 2000 average employment by place of work were developed for each labor market area and for all other areas to which at least 100 of the estimating area's residents commuted. (In New England, this threshold was lowered to 50 residents.)

In other words, employed residents of area "A" who worked in area "A" were related to the nonfarm job count in area "A". Residents of area "A" who worked in area "B" were related to the job count in area "B", and so on for all areas to which at least 100 employed residents commuted to work. Each month, the appropriate ratio is applied to the current nonfarm job count for the area, and the sum of each estimate is the total resident employment estimate for LAUS purposes.

Dynamic Residency Ratios for Labor Market Area $(LMA)_1$

Ratio 1: Employed residents LMA_1 working in LMA_1 / Nonfarm employment 3-4/00 LMA_1

Ratio 2: Employed residents LMA_1 working in LMA_2 / Nonfarm employment 3-4/00 LMA_2

Ratio n: Employed residents LMA_1 working in LMA_n / Nonfarm employment 3-4/00 LMA_n

Monthly Employment Estimation $(LMA)_1$

Ratio 1 X nonfarm employment LMA_1 current month

+

Ratio 2 X nonfarm employment LMA_2 current month

+

Ratio n X nonfarm employment LMA_n current month

=Resident employed in LMA_n current month

The following is an example of how the dynamic commuting approach works for a metropolitan area. There are 154,687 employed residents in the Atlantic City metropolitan area. Of these, 138,254 work in Atlantic City, 4,067 work in the Vineland metropolitan area, 10,806 in Philadelphia, 920 in Monmouth, 396 in Trenton, and 284 in Wilmington. The March-April average nonagricultural wage and salary estimate for each area is listed below:

Atlantic City—170,900
Vineland—59,050
Philadelphia—2,227,650
Monmouth—328,350
Trenton—199,650
Wilmington—275,450

Dividing the census employed residents by the appropriate nonagricultural wage and salary estimate yields the ratios that appear in Column I below. That ratio is applied to the monthly wage and salary (place of work) estimate for the relevant area to produce the place of residence employed estimate for each area. The sum of the place of residence estimates yields the total resident employed estimate for Atlantic City.

		Month 1		Month 2	
Atlantic City residents Who work in …	Ratio I	Place of work II	Place of residence (I * II)	Place of work III	Place of residence (I * III)
Atlantic City	0.8089760	182,200	147,400	182,500	147,600
Vineland	0.0688738	59,700	4,100	59,500	4,100
Philadelphia	0.0048508	2,372,900	11,500	2,383,500	11,600
Monmouth	0.0028018	294,800	800	391,500	1,100
Trenton	0.0019834	217,800	400	219,300	400
Wilmington	0.0010310	309,600	300	308,500	300
Atlantic City resident employed			164,500		165,100

The following specific issues associated with using the current single-ratio approach to residency adjustment are detailed in the attached appendices, along with results using the dynamic residency ratios.

Appendix 1: Bedroom communities
Appendix 2: Areas with rapid employment growth
Appendix 3: Metropolitan Divisions

Construction of the residency adjustment ratios using 2000 Census data. Adjustment ratios were developed for each labor market area following the procedure described above. Files of 2000 Census commuting data by State and county of work were obtained and place-of-work totals were developed for residents of each county. Counties were then aggregated into metropolitan statistical areas, metropolitan divisions, and micropolitan areas according to the 2000-based definitions developed by OMB. The remainders of the areas in each State are listed as single-county areas. (Some of these single-county areas will be aggregated when the final small labor market area definitions are implemented.)

For each area, a ratio was developed first for the residents of the area who worked in that area. Then, separate ratios were developed for each area to which at least 100 residents commuted to work. (In New England, the threshold was 50 workers.) Ratios were developed by dividing the

resident employed by the March-April 2000 nonagricultural wage and salary estimate of the area to which the workers commuted for employment. Where appropriate, the CES estimate for the area was used. QCEW data were used in the cases where either no CES data were available, or where counties had to be added or subtracted from the CES estimate to match the 2000-based area definition. (In the case of multi-county metropolitan or micropolitan areas, if the commuting level reached 100 for one of the counties in the area, commuting to the other counties in the area were then included.)

A residency ratio was also developed using our current single-ratio approach so that two methods could be compared by State staff in their evaluation of the dynamic approach.

Research Results Using the Dynamic Residency Ratios (DRR). As documented in Appendices 1-3, the DRR approach was evaluated using 1990 Census data to estimate 2001 employment and comparing the estimate to employment developed using the current method. In all cases, the proposed approach yielded better estimates.

How the dynamic approach will work in the LAUS State System. The LAUS State System (LSS) will be modified to accept the multiple residency adjustment ratios for each area. National office staff will provide the residency ratios for each area and indicate the nonfarm wage and salary inputs that are required for each ratio. These ratios will be in place for the entire intercensal period. The LSS system will associate the relevant monthly area employment data to the appropriate area (or areas) for adjustment purposes.

Each month, State staff will provide their employment estimates for the intrastate areas as currently. The system will perform the appropriate multiplication (ratio times wage/salary estimate), sum the results of each adjustment, and produce the total resident employment for each area. There are some situations where the commuting areas include counties in neighboring States. In some of these cases, exchange arrangements already exist between the States to secure the interstate employment data. Where no arrangements currently exist, States will need to develop exchange arrangements so that the appropriate wage and salary estimate can be entered into LSS.

Modifications to the DRR procedure. Following initial review of the proposed methodology, two modifications have been made to the procedure. First, the number of ratios for each area has been limited to five – one for employment in the area itself and four commuting ratios. Second, the total number of employed residents accounted for by the commuting data is set equal to the area's total resident employed, and the commuting ratios are then appropriately scaled. This ensures complete coverage of resident employment across all labor market areas in the country.

Appendix 1: Issues with the current approach to residency adjustment—bedroom communities.

The first situation is the case where most of the employed residents work outside of the estimating area. These areas are often called "bedroom communities." One such example is Dawson County, Georgia. In the 1990 Census, Dawson County reported 4,719 residents employed. The nonagricultural wage and salary employment in Dawson for March-April 1990 was approximately 1,330, yielding a census/nonagricultural wage and salary ratio of 3.56. Each month, the nonagricultural wage and salary estimate for Dawson County was multiplied by 3.56 to produce the estimate of resident employed for LAUS purposes.

If the employment situation had remained stable in Dawson County over the entire intercensal period, the ratio established would have performed adequately throughout the decade.

However, the employment picture did not remain stable over time. During the mid-1990s, employment opportunities increased in Dawson County and the level of nonagricultural wage and salary employment rose steadily from about 2,500 in 1996, to about 4,700 in 2000. For each increase in the jobs count in Dawson, however, the residency adjustment mechanism multiplied that number by 3.56 to produce the level of resident employment for LAUS. The employment overstatement lasted for several years (1996 until 2001) before the problem was identified and addressed. The solution required reconstructing the residency ratios for each year back to 1996, requiring multiple corrections to the Dawson labor force estimates. (The current residency adjustment ratio for Dawson County is 1.55.)

If the more dynamic approach to residency adjustment had been applied in Dawson County in 1990, no corrective action would have been required. According to the 1990 Census, 1,480 Dawson County residents worked in Dawson County and 2,444 commuted to one of the counties that made up the Atlanta metropolitan area. The March-April 1990 nonfarm wage and salary estimate for Dawson was about 1,335; Atlanta was 1,518,050. The commuting-based residency ratio for Dawson residents working in Dawson is 1.108 (1,480 divided by 1,335). The ratio for Dawson residents working in Atlanta is 0.001609 (2,444 divided by 1,518,050.

Table 1 illustrates the current and dynamic approaches for Dawson County. The dynamic estimates for Dawson in 1990 are somewhat below those indicated for the current approach. Some Dawson residents worked in areas other than Dawson County and the Atlanta metropolitan area. Also, the total resident employed in Dawson (4,719) is higher than the sum of the resident employed in the commuting data file (4,608). During 1996, the resident employment using the commuting approach is between 5,500 and 6,200 while the current approach yields employment estimates between 8,000 and 10,000. Further, in 2001, the employment developed using the commuting data remained in the 7,000-8,000 range, while the estimates using the single-ratio method exceeded 15,000 for the first half of the year.

Revisions to the Dawson residency adjustment, incorporated in 2002, reduced the employment estimates to between 5,500 and 6,500 for 2001. In 1996, the correction yielded employment estimates between 7,500 and 9,000.

Table 1. Estimating residency-based employment: Dawson County, Georgia 1990, 1996, 2001

1990		January		February		March		April		May		June	
		Employment		Employment		Employment		Employment		Employment		Employment	
Dawson	Ratio	Work	Residence	Work	Residence	Work	Residence	Work	Residence	Work	Residence	Work	Residence
residents	I	II	(I * II)	II	(I * II)	II	(I * II)	II	(I * II)	II	(I * II)	II	(I * II)
working in..													
Dawson	**1.108**	1,324	1,466.5	1,314.9	1,456.9	1341.9	1,486.8	1,328	1,471.4	1,348	1,493.6	1,364	1,511.4
Atlanta	**0.001609**	1,498,700	2,411.4	1,505,100	2,421.7	1,519,500	2444.9	1,516,600	2,440.2	1,526,000	2,455.3	1,541,100	2,479.6
Resident employed:													
Commutation			3,878		3,878.6		3,931.6		3,911.6		3,949		3,991
Current	**3.56**	1,324	4,712	1,314.9	4,681	1341.9	4,777	1,328.4	4,729	1,348	4,799	1,364	4,856
1996		January		February		March		April		May		June	
Area	Ratio	P of Work	POR	P of Work	POR	P of Work	POR	P of Work	POR	P of Work	POR	P of Work	POR
	I	II	(I * II)	II	(I * II)	II	(I * II)	II	(I * II)	II	(I * II)	II	(I * II)
Dawson	**1.108**	2,338	2590.5	2,353	2,607.1	2,405	2,664.7	2,461	2,726.8	2,541	2,815.4	2,624	2,907.4
Atlanta	**0.001609**	1,832,200	2948.0	1,853,200	2981.8	1,871,400	3,011.1	1,881,700	3,027.7	1,903,100	3,062.1	1,924,000	3,095.7
Resident employed:													
Commutation			5,538.5		5,588.9		5,675.8		5,754.4		5,877.5		6,003.1
Current	**3.56**	2,338	8,323.3		8,376		8,562		8,760		9,046		9,341
2001													
Dawson	**1.108**	4,211	4,665.8	4,254	4,713.4	4,282	4,744.5	4,274	4,735.6	4,270	4,731.2	4,280	4,742.2
Atlanta	**0.001609**	2,172,500	3,495.6	2,183,600.0	3,513.4	2,198,600.0	3,537.5	2,201,200	3,541.7	2,203,500.0	3,545.4	2,207,300	3,551.5
Resident employed:													
Commutation			8,161.3		8,226.8		8,282		8,277.3		8,276.6		8,293.8
Current	**3.56**	4,211	14,991.2	4,254	15,144.2	4,282	15,244	4,274	15,215.4	4,270	15,201.2	4,280	15,236.8

Table 1. Estimating residency-based employment: Dawson County, Georgia 1990, 1996, 2001

1990		July		August		September		October		November		December	
		Employment		Employment		Employment		Employment		Employment		Employment	
Dawson	Ratio	Work	Residence	Work	Residence	Work	Residence	Work	Residence	Work	Residence	Work	Residence
residents	I	II	(I * II)	II	(I * II)	II	(I * II)	II	(I * II)	II	(I * II)	II	(I * II)
working in..													
Dawson	**1.108**	1,418.3	1,571.4	1,394.1	1,544.7	1,447.5	1,603.8	1,503.7	1,666	1,515.4	1,679.1	1,496.3	1,658
Atlanta	**0.001609**	1,535,200	2,470.1	1,542,300	2,481.6	1,543,400	2,483.3	1,532,600	2,466	1,541,700	2480.6	1,543,300	2,483.2
Resident employed:													
Commutation			4,041.6		4,026.2		4,087.1		4,132		4,159.7		4,141.1
Current	**3.56**	1,418.3	5,049	1394.1	4,963	1,447.5	5,153	1,503.7	5,353	1,515.4	5,395	1,496.3	5,327
1996		July		August		September		October		November		December	
Area	Ratio	P of Work	POR	P of Work	POR	P of Work	POR	P of Work	POR	P of Work	POR	P of Work	POR
	I	II	(I * II)	II	(I * II)	II	(I * II)	II	(I * II)	II	(I * II)	II	(I * II)
Dawson	**1.108**	2,695	2,986.1	2,758	3,055.9	2,760	3,058.1	2,809	3,112.4	2,889	3,201	2,783	3,083.6
Atlanta	**0.001609**	1,951,500	3,140	1,914,800	3,080.9	1,907,600	3,069.3	1,916,800	3,084.1	1,933,500	3,111	1,948,800	3,135.6
Resident employed:													
Commutation			6,126		6,136.8		6,127.4		6,196.5		6,312		6,219.2
Current	**3.56**		9,594		9,817		9,825		9,996		10,285		9,909
2001													
Dawson	**1.108**	3,549	3,932.3	3,524	3,904.6	3,525	3,905.7	3,521	3,901.3	3,503	3,881.3	3,508	3,886.9
Atlanta	**0.001609**	2,183,600	3,513.4	2,199,300	3,538.7	2,190,900	3,525.2	2,187,100	3,519	2,188,200	3,520.8	2,188,900	3,521.9
Resident employed:													
Commutation			7,445.7		7,443.3		7,430.9		7,420.3		7,402.1		7,408.8
Current	**3.56**	3,549	12,634.4	3,524	12,545.4	3,525	12,549	3,521	12,534.8	3,503	12,470.7	3,508	12,488.5

Appendix 2. Issues with the current approach to residency adjustment—areas with rapid employment growth.

The second issue with the current residency adjustment approach is the residency adjustment for areas that experience significant employment growth during the intercensal periods. The current residency adjustment approach will show employment growth – the current ratio applied to a larger number of wage and salary jobs will result in larger LAUS resident employment for the area. Neither the current nor the proposed approach provides a mechanism to adjust the ratio automatically when conditions change. It would be logical to assume that more residents of an area would work in that area when new jobs are created, bringing that area's census/nonagricultural wage and salary ratio closer to 1.0. The weakness with the current approach in this situation relates to the surrounding areas. The current method does not account for residents of nearby areas taking advantage of the newly created jobs in the growth area.

For example, the growth of the gambling industry and its related tourist establishments (restaurants, hotels, etc.) in Atlantic City, New Jersey illustrates the above points. The residency adjustment ratio for the Atlantic City metropolitan area (Atlantic and Cape May counties) performed very well during the intercensal period. Using the 1990 Census commuting data, the current method and the proposed one produce fairly similar employment estimates for the metropolitan area. The proposed approach has the most benefit in the areas surrounding the Atlantic City metropolitan area. Residents of those counties who commute to the growing numbers of jobs in Atlantic City are not adequately counted in the current method. The Vineland metropolitan area is a good example. There are more employed residents than nonagricultural wage and salary jobs in the area. Using 1990 Census commuting data, its residency adjustment ratio is about 1.03. About 10 percent of the employed residents commute to Atlantic City for employment. Using a residency adjustment approach that relates these residents to the employment growth in Atlantic City provides a more realistic picture of the resident employed in Vineland. The growth in employment in the Atlantic City metropolitan area from 1990 forward is appropriately reflected in growth in Vineland using the more dynamic residency adjustment.

Appendix 3. Issues with the current approach to residency adjustment—metropolitan divisions.

The Office of Management and Budget (OMB) announced an initial update to statistical area definitions based on new standards and the results of the 2000 Census on June 6, 2003. This was superseded on February 18, 2004, by a re-issuance of the initial bulletin that reflected, among other things, a re-application of the standards using population estimates for 2001 and 2002.

In addition to defining metropolitan statistical areas, OMB also designated a number of significant sub-divisions of the largest metropolitan areas. Termed "Metropolitan Divisions," these areas consist of a county or group of counties within a Metropolitan Statistical Area that has a population core of at least 2.5 million. A Metropolitan Division is most generally comparable in concept, and equivalent to, the now obsolete Primary Metropolitan Statistical Area. According to OMB, while a Metropolitan Division is a subdivision of a larger Metropolitan Statistical Area, it often functions as a distinct social, economic, and cultural area with the larger region. Metropolitan Divisions retain their separate statistical identities.

Eleven Metropolitan Statistical Areas include 34 Metropolitan Divisions. They are:

- Los Angeles-Long Beach-Santa Ana (Los Angeles-Long Beach-Glendale and Santa Ana-Anaheim-Irvine)
- San Francisco-Oakland-Fremont (Oakland-Fremont-Hayward and San Francisco-San Mateo-Redwood City)
- Philadelphia-Camden-Wilmington (Wilmington, Camden, Philadelphia)
- Washington-Arlington-Alexandria (Washington-Arlington-Alexandria and Bethesda-Frederick-Gaithersburg)
- Miami-Fort Lauderdale-Miami Beach (Fort Lauderdale-Pompano Beach-Deerfield Beach, Miami-Miami Beach-Kendall, and West Palm Beach-Boca Raton-Boynton Beach)
- Chicago-Naperville-Joliet (Chicago-Naperville-Joliet, Lake County-Kenosha County, and Gary)
- Detroit-Warren-Livonia (Detroit-Livonia-Dearborn and Warren-Farmington Hills-Troy)
- Boston-Cambridge-Quincy (Boston-Cambridge-Quincy, Brockton-Bridgewater-Easton, Framingham, Haverhill-North Andover-Amesbury, Lawrence-Methuen-Salem, Lowell-Billerica-Chelmsford, Lynn-Peabody-Salem, Nashua, and Taunton-Norton-Raynham)
- New York-Newark-Edison (Edison, Newark-Union, and New York-Wayne-White Plains)
- Dallas-Fort Worth-Arlington (Dallas-Plano-Irving and Fort Worth-Arlington)
- Seattle-Tacoma-Bellevue (Seattle-Bellevue-Everett and Tacoma)

These eleven Metropolitan Statistical Areas are areas containing a recognized population nucleus and adjacent communities that have a high degree of integration with that nucleus. Metropolitan Divisions are component areas with no constraints on commuting. To produce separate estimates of resident employment for the Divisions within these metropolitan areas it is necessary to take the commuting pattern between the Divisions into account. The use of one ratio adjustment for each Division based on its own resident employed and the nonagricultural

wage and salary jobs within the Division alone ignores the OMB-defined commuting practices among the Divisions.

The use of a dynamic residency adjustment method is absolutely necessary for the development of separate employment estimates for metropolitan divisions.

The example of the three MDs in the Miami-Fort Lauderdale-Miami Beach Metropolitan Statistical Area illustrates the importance of using the commuting data to develop resident employment estimates at the MD level.

There are 709,696 total employed residents in Fort Lauderdale, according to the 2000 Census. Of these, 75 percent work in Fort Lauderdale, 15 percent in Miami, and 7 percent in West Palm Beach. The remaining residents work in other nearby areas, including Orlando and Tampa. There were fewer nonagricultural wage and salary jobs in Fort Lauderdale (673,800) than resident employed at the time of the 2000 Census. If we followed our single residency adjustment approach, the ratio for Fort Lauderdale would be 1.05327 (709,696/673,800). Since this adjustment is based solely on the jobs total in Fort Lauderdale, it ignores job growth in Miami, where a large number of residents commute for work.

Table 2 illustrates the two approaches to residency adjustment for the Fort Lauderdale MD. Please note that the resultant resident employment using the more dynamic approach invariably leads to somewhat lower levels of employment than the single factor approach yields. This is due to that fact that the single factor approach utilizes the total census resident employment as the numerator while the dynamic approach uses the actual counts of residents working in the relevant areas. The total census counts include individuals who indicate work places far from their resident county. Nearly 1,500 residents of Fort Lauderdale had work locations outside the United States, according to the 2000 Census commuting data files. Another 1,000 had work locations in States far removed from Florida (California, Colorado, and Illinois, are among the examples). Thus, the total census resident employment is most likely an overstatement of the actual resident employment level in the area. Also, since the employment estimates for substate areas will continue to be controlled to the State employment totals via the LAUS additivity adjustment, we feel that these employment differences will not impact the overall picture of labor force activity in the area.

Table 2. Estimating residency-based employment using 2000 Census commutation ratios: Fort Lauderdale, FL

Year 1		January		February		March		April	
Fort Lauderdale	Ratio	P of Work	POR	P of Work	POR	P of Work	POR	P of Work	POR
residents	I	II	(I * II)	II	(I * II)	II	(I * II)	II	(I * II)
working in									
Ft. Lauderdale	0.808677	616	498.1	621.0	502.2	626	506.2	623	503.8
Miami	0.10997	949.2	104.4	955.9	105.1	963.7	106.0	960.8	105.7
West Palm	0.103144	430.1	44.4	434.9	44.9	438.3	45.2	436.3	45.0
Orlando	0.000815	770.6	0.6	779.4	0.6	785.3	0.6	876.9	0.7
Tampa	0.000428	1038.3	0.4	1049.8	0.4	1059.4	0.5	1062	0.5
Proposed:									
Ft. Lauderdale			648.0		653.3		658.5		655.6
Current:									
Ft. Lauderdale	1.05327	616	648.8	621.0	654.1	626	659.3	623	656.2
Year 2		January		February		March		April	
Fort Lauderdale									
residents	Ratio	P of Work	POR	P of Work	POR	P of Work	POR	P of Work	POR
working in	I	II	(I * II)	II	(I * II)	II	(I * II)	II	(I * II)
Ft. Lauderdale	0.808677	634.1	512.8	638.9	516.7	644.2	520.9	635.8	514.2
Miami	0.10997	966.1	106.2	970.8	106.8	978.8	107.6	969.6	106.6
West Palm	0.103144	454.6	46.9	459.6	47.4	463.8	47.8	455.5	47.0
Orlando	0.000815	813.3	0.7	823.6	0.7	830.7	0.7	829.9	0.7
Tampa	0.000428	1,094.5	0.5	1,108.2	0.5	1,112.3	0.5	1,108.3	0.5
Proposed:									
Ft. Lauderdale			667.0		672.0		677.6		668.9
Current:									
Ft. Lauderdale	1.05327	634.1	667.9	638.9	672.9	644.2	678.5	635.8	669.7
Year 3		January		February		March		April	
Fort Lauderdale									
residents	Ratio	P of Work	POR	P of Work	POR	P of Work	POR	P of Work	POR
working in	I	II	(I * II)	II	(I * II)	II	(I * II)	II	(I * II)
Ft. Lauderdale	0.808677	647.1	523.3	653.8	528.7	657.8	531.9	649.4	525.2
Miami	0.10997	974.2	107.1	982.5	108.0	987.3	108.6	982.2	108.0
West Palm	0.103144	465.9	48.1	471.6	48.6	474.2	48.9	469.4	48.4
Orlando	0.000815	847.3	0.7	860.0	0.7	867.1	0.7	873.3	0.7
Tampa	0.000428	1,122.8	0.5	1,139.1	0.5	1,147.6	0.5	1,146.3	0.5
Proposed:									
Ft. Lauderdale			679.7		686.6		690.6		682.8
Current:									
Ft. Lauderdale	1.05327	647.1	681.6	653.8	688.6	657.8	692.8	649.4	684.0

Table 2. Estimating residency-based employment using 2000 Census commutation ratios: Fort Lauderdale, FL

Year 1		May		June		July		August	
Fort Lauderdale residents working in	Ratio I	P of Work II	POR (I * II)	P of Work II	POR (I * II)	P of Work II	POR (I * II)	P of Work II	POR (I * II)
Ft. Lauderdale	0.808677	625.8	506.1	626.9	507.0	615	497.3	618.1	499.8
Miami	0.10997	964.3	106.0	962.7	105.9	946.9	104.1	949.1	104.4
West Palm	0.103144	435.4	44.9	433.6	44.7	426.2	44.0	428.8	44.2
Orlando	0.000815	792.1	0.6	795.1	0.6	783.4	0.6	789.8	0.6
Tampa	0.000428	1063.3	0.5	1064.5	0.5	1057.2	0.5	1062.6	0.5
Proposed:									
Ft. Lauderdale			658.1		658.7		646.5		649.5
Current:									
Ft. Lauderdale	1.05327	625.8	659.1	626.9	660.3	615	647.8	618.1	651.0
Year 2		May		June		July		August	
Fort Lauderdale residents working in	Ratio I	P of Work II	POR (I * II)	P of Work II	POR (I * II)	P of Work II	POR (I * II)	P of Work II	POR (I * II)
Ft. Lauderdale	0.808677	635.7	514.1	637.4	515.5	627.1	507.1	628.5	508.3
Miami	0.10997	972.8	107.0	973.2	107.0	959.8	105.5	958.6	105.4
West Palm	0.103144	455.6	47.0	454.5	46.9	443.5	45.7	444.8	45.9
Orlando	0.000815	831.7	0.7	837.0	0.7	829.6	0.7	831.2	0.7
Tampa	0.000428	1,112.7	0.5	1,116.5	0.5	1,100.6	0.5	1,101.7	0.5
Proposed:									
Ft. Lauderdale			669.2		670.5		659.6		660.7
Current:									
Ft. Lauderdale	1.05327	635.7	669.6	637.4	671.4	627.1	660.5	628.5	662.0
Year 3		May		June		July		August	
Fort Lauderdale residents working in	Ratio I	P of Work II	POR (I * II)	P of Work II	POR (I * II)	P of Work II	POR (I * II)	P of Work II	POR (I * II)
Ft. Lauderdale	0.808677	651.6	526.9	653	528.1	639.5	517.1	640.1	517.6
Miami	0.10997	983.4	108.1	986.5	108.5	971.5	106.8	971.8	106.9
West Palm	0.103144	468.4	48.3	467.3	48.2	456.6	47.1	457.5	47.2
Orlando	0.000815	875.7	0.7	884.3	0.7	869.8	0.7	871.0	0.7
Tampa	0.000428	1,150.7	0.5	1,154.6	0.5	1,135.2	0.5	1,136.0	0.5
Proposed:									
Ft. Lauderdale			684.6		686.0		672.3		672.9
Current:									
Ft. Lauderdale	1.05327	651.6	686.3	653	687.8	639.5	673.6	640.1	674.2

Table 2. Estimating residency-based employment using 2000 Census commutation ratios: Fort Lauderdale, FL

Year 1		September		October		November		December	
Fort Lauderdale	Ratio	P of Work	POR	P of Work	POR	P of Work	POR	P of Work	POR
residents	I	II	(I * II)	II	(I * II)	II	(I * II)	II	(I * II)
working in									
Ft. Lauderdale	0.808677	629.8	509.3	630.2	509.6	636.7	514.9	645.7	522.2
Miami	0.10997	964.6	106.1	964.5	106.1	974.4	107.2	983.9	108.2
West Palm	0.103144	436.8	45.1	444.5	45.8	452.7	46.7	461.7	47.6
Orlando	0.000815	807	0.7	807.4	0.7	814.5	0.7	826.1	0.7
Tampa	0.000428	1078.7	0.5	1086.6	0.5	1097.1	0.5	1108.1	0.5
Proposed:									
Ft. Lauderdale			661.6		662.7		669.9		679.1
Current:									
Ft. Lauderdale	1.05327	629.8	663.3	630.2	663.8	636.7	670.6	645.7	680.1
Year 2		September		October		November		December	
Fort Lauderdale									
residents	Ratio	P of Work	POR	P of Work	POR	P of Work	POR	P of Work	POR
working in	I	II	(I * II)	II	(I * II)	II	(I * II)	II	(I * II)
Ft. Lauderdale	0.808677	638.2	516.1	644.5	521.2	649.9	525.6	659.5	533.3
Miami	0.10997	974.4	107.2	985.2	108.3	994.5	109.4	1006.2	110.7
West Palm	0.103144	452.2	46.6	459.7	47.4	467.7	48.2	475.9	49.1
Orlando	0.000815	847.3	0.7	853.3	0.7	859.4	0.7	867.2	0.7
Tampa	0.000428	1,114.0	0.5	1,126.9	0.5	1,137.5	0.5	1,145.0	0.5
Proposed:									
Ft. Lauderdale			671.1		678.1		684.4		694.3
Current:									
Ft. Lauderdale	1.05327	638.2	672.2	644.5	678.8	649.9	684.5	659.5	694.6
Year 3		September		October		November		December	
Fort Lauderdale									
residents	Ratio	P of Work	POR	P of Work	POR	P of Work	POR	P of Work	POR
working in	I	II	(I * II)	II	(I * II)	II	(I * II)	II	(I * II)
Ft. Lauderdale	0.808677	647.9	523.9	654.2	529.0	662.4	535.7	674.9	545.8
Miami	0.10997	988.2	108.7	993.4	109.2	1005.7	110.6	1018.2	112.0
West Palm	0.103144	463.9	47.8	470.5	48.5	479.1	49.4	488.0	50.3
Orlando	0.000815	884.3	0.7	886.7	0.7	895.3	0.7	904.0	0.7
Tampa	0.000428	1,149.3	0.5	1,162.0	0.5	1,174.5	0.5	1,184.1	0.5
Proposed:									
Ft. Lauderdale			681.7		688.0		696.9		709.3
Current:									
Ft. Lauderdale	1.05327	647.9	682.4	654.2	689.0	662.4	697.7	674.9	710.9