Commuting Pattern Data Model Methodology and County-Level Output Tables

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Introduction

The purpose of the commuting pattern project is to ***estimate*** worker and wage flows between counties and to study flow patterns using a variety of demographic and economic variables such as industry, sex, tenure, age, residency status and state of origin. This document contains general information regarding the methods used to build the commuting pattern data model. The commuting pattern data model consists of several components as follows:

1. Wage records file[1]
2. Wyoming Department of Transportation (WYDOT) Driver License file
3. Department of Employment employer master file[2]
4. Other administrative datasets as deemed necessary

The goal of the model is to link where people live to where they work using administrative datasets.

Determination of Residence Location

Residence location is determined from the WYDOT driver license file. Each time a person renews or applies for a Wyoming driver license, a new record is created in the file. Some individuals may not have updated their license data for several years or left the state. In these cases, residence location is interpolated between known data points and extrapolated before the first data point and after the last data point in the file. Residence locations are assigned by processing drivers' physical addresses through Residency Assignment Software (RAS). RAS, sponsored by the Department of Labor's Bureau of Labor Statistics, processes each physical address supplied on the file and assigns each record a state and county code in addition to latitude and longitude coordinates. People who list Post Office (PO) boxes as a physical address do not receive latitude and longitude assignments; however, a county code is assigned to those records. Social Security Numbers (SSNs) are removed from the file prior to shipment to ensure confidentiality. SSNs are then used to re-link the WYDOT driver license file to wage records following RAS processing.

Determination of Work Location

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[1] Wage Records is an administrative database. Each employer in the State who has employees covered under Unemployment Insurance, by law, must submit quarterly tax reports to the State showing each employee's Social Security Number (SSN) and wages earned in the quarter. Wage Records has a two-quarter time lag (e.g., wage information for first quarter 2001 employees is generally not available until third quarter 2001). For more information, see Wayne M. Gosar, "Insurance Wage Record Summary: A New Way to Look at Wyoming," *Wyoming Labor Force Trends*, May 1995, pp. 4-8.

[2] For a definition of the data contained in the employer master file, see http://www.bls.gov/qcew/cewover.htm

Many Wyoming businesses operate at multiple locations and break their employment and wages paid by each location. While the employer master file contains detailed information on business units (if reported), the wage records file does not; it only tells us which company employed the workers. In these cases, the commuting pattern data model assigns workers using statistical techniques to the most likely employer location based on distance, county of employer unit and county of residence, among other variables. Since latitude and longitude coordinates for employer physical addresses are contained in the master file, we can calculate distances between residence and likely work locations. In cases where two locations have an equal probability of assignment, a random sorting variable is used to break ties. The random variable is most often used when latitude and longitude coordinates could not be assigned to employer physical addresses.

Results

The results of the model are shown in the accompanying tables. For each county, estimates of inflowing and out flowing commuters are shown on a quarterly basis. Workers commuting between counties are identified as "Intercounty Commuters". In the same manner, the average wages for workers in those categories are also shown. The third component of commuting flows is people who work and live in the same county, who are identified as "Intracounty Commuters".

Limitations

The commuting data model is not without its limitations. First, persons with PO boxes for physical addresses may actually live a considerable distance from the PO locations. Second, people who move and fail to update their records also introduce noise into the system. Third, people with out-of-state driver licenses but working in Wyoming are reported has having an "Unknown" residence location. Fourth, persons commuting from Wyoming to another state for work are not included in the model.

County-Level Commuting Pattern Data Tables have been removed.