

QA of work location (wpost) problem

Issue/area of concern

The Annual Survey of Hours and Earnings (ASHE) records an employee's home and workplace location. This is of great potential value in assessing the role of geographical location in labour market analysis and in estimating geographical impacts of policy. There is concern about the accuracy of the work location variable as the underlying survey question is pre-filled by Office for National Statistics (ONS) with the registered Pay-As-You-Earn (PAYE) address of an employer. Employers are required to check and correct the address if inaccurate, creating the potential for measurement error if this checking and correcting is non-random.

Findings

We tested the hypothesis that there is measurement error in the ASHE work location variable, leading to possible errors in employee work location for multi-site organisations. This is likely to be a problem for multi-site companies who must complete forms for each individual. Single-site businesses and employers who supplied payroll records electronically to ONS in bulk (rather than completing a survey form) provided comparison groups.

Comparing ASHE work locations to workplace locations recorded for the employer in the Business Structure Database (BSD), multi-site enterprises completing the paper survey showed a higher proportion of ASHE employees working at the head office location than organisations with a single site and/or completing electronic responses. Analysis of commuting distances also supported the hypothesis: we find considerably longer commuting distances for employees working at enterprises returning survey forms, as compared with those making bulk submissions electronically. These differences are also positively associated with the number of sites, private sector employers, and certain industries.

Changes made to data

A number of new variables have been created for this analysis and are available for future use by researchers. They are based on Census Output Areas (the smallest geographical unit in both ASHE and the BSD), including: total number of employees by enterprise (num_ent_emp), head office marker (head_office), number and proportions employed at head office (HO_emp and HO_prop_emp), and straight-line distance from employee home (hpost) to work location (wpost), using easting and northing point coordinates (diff_en). However, at present, there is no information on whether the workplace location has been checked.

Recommendations to researchers

There are various short-term measures one can use to reduce the potential for unrepresentative descriptive statistics or model estimates arising because of workplace measurement errors. These include creating sub-samples and checking whether results are robust to including two new control variables in regressions - a dummy for whether the survey questionnaire was sent to an employer and the number of local units (plants/workplaces) in the enterprise. It is likely that descriptive statistics are more sensitive to workplace location errors than regression analysis.

The WED team is investigating whether it is possible to identify whether employers have edited the 'work location' field; this would enable some additional measure of quality assessment.

Details of QA

Authors: Damian Whittard, Felix Ritchie, Van Phan, Arusha McKenzie, Lucy Stoke, John Forth, Alex Bryson and Carl Singleton

QA Code file: HQ analysis, P:\Working\code\qa_03_HQ-analysis_v06.do

Variable creation code: can be found in the main ASHE creation code - This version: November 2021