# Impact of Wage Records Anomalies on Turnover Rate Inflation

The content of this brief paper replies to concerns surrounding the impact of anomalies, associated with the use of Wage Records, on the inflation of Turnover Rate calculation. Research and Planning assessed the impact of UI account changes (due to employer ownership transition) and Wage Records quality issues (particularly employer accounts that are missing quarters of data). The results (from the attached table) suggest that the impact of both, account changes and missing data, are relatively small. Our analysis indicates that taken, together, these two problems inflate (the column designated "Difference" on the attached table) Turnover Rates from .3 percent to 2.5 percent. Given the identified marginal import – which we need to share with our users – it is suggested that analysis of the issue serve as the focus of future research and we have made some suggestions in that regard. For the time being, it is our recommendation to pursue Interstate comparability by April of 2002 by following the methodology outlined in our previous working paper.

Description of the attached table elements:

**Valid** – No reason to suspect error.

**Missing Quarter –** The employers listed under the heading of "Missing Quarter Error" were missing a quarter of data (all employees were exits). In some situations it appears likely that the employer was delinquent in reporting to UI, while for others, in particular small businesses, the missing data appears to be a legitimate UI filing.

Future Solution – As missing quarters of data are identified, for specific employers, it is possible to remove the associated error by eliminating Exits or substituting an estimate based on the employer's historic activity for these employer accounts in Turnover Rate calculations that include the quarters of data.

**Possible Account Change** – This group contains two types of account changes. The first is unique to Wyoming's UI tax system and is designated as a three digit account change. The second, which is more familiar to other states, is an entire UI account change.

Three digit account change - Using Wyoming's UI tax system 3 digit extensions I isolated the employers that had a change occur. For example, if the UI account number was 7777777777 in 1995q1 and there was an ownership change, the new account becomes 777777769 in 1995q2. This procedure, which involves adding 2 to the last digit and subtracting 1 from the second to last digit, accounts for the majority of the predecessor / successor account changes in Wyoming's ES-202.

Entire UI account change - These are specified only when a business or part of a business is given a completely different UI account. Three examples are, a business is sold and all Wage Records begin reporting under a new UI account, a business spins off a new firm and a significant share of the Wage Records appear in the new account, or an existing business sells a portion of itself to an existing UI account and a significant amount of Wage Record shift from the old account to the other business. The account changes are possible and not certain due to problems in tracking predecessor / successor accounts using the ES-202. It appears that employer accounts in Wage Records do not reflect the change until several quarters subsequent to the actual change as recorded in the ES-202. Therefore, for the purpose of the attached table, to overestimate the impact of UI account changes, employer accounts that listed a complete UI account change (at any time since 1990) were flagged, as possible changes, for every quarter the account appeared in Wage Records.

Conclusions:

In reviewing the attached table, focusing on the Exit Rates calculated for Total Exits (all exits including assumed error) and Exit Rates with Missing Quarters and Account Changes removed from the numerator, it is apparent that both of these issues have a relatively small impact on the calculation of Wyoming's turnover rates.

In fact, the largest difference occurs in 1999q4, as shown in the column designated "Difference." This is explained by the fact that the UI tax system switched from manual input to a heavy reliance on an imaging system in 2000q1 thus failing to capture the Wage Records for a large number of employers and increasing

the exits in 1999q4. Perhaps the conclusions drawn from the attached table should include a commitment to better methods of error detection in the WR downloads as the majority of the error associated with Turnover calculation is related to missing data and not UI account changes. Wyoming currently has a very acceptable method for insuring the quality of our WR downloads, but that is a subject of a future working paper.

Impact of Wage Records Anomalies on Turnover Rate Calculation

| | Valid | (MQ) Employer had a Missing Quarter | (AC) Employer had a Possible Account Change | Total Exits | Total Exits Minus MQ and AC | Total Transactions WR | Exit Rate Total Exits | Exit Rate Minus Error and Account Changes | Difference |
|---|---|---|---|---|---|---|---|---|---|
| 1992q1 | 33,660 | 590 | 110 | 34,360 | 33,660 | 208,936 | 16.4% | 16.1% | 0.3% |
| 1992q2 | 49,253 | 1,822 | 388 | 51,463 | 49,253 | 239,817 | 21.5% | 20.5% | 0.9% |
| 1992q3 | 62,159 | 4,107 | 1,516 | 67,782 | 62,159 | 248,592 | 27.3% | 25.0% | 2.3% |
| 1992q4 | 51,549 | 2,616 | 347 | 54,512 | 51,549 | 230,088 | 23.7% | 22.4% | 1.3% |
| 1993q1 | 33,464 | 891 | 423 | 34,778 | 33,464 | 214,109 | 16.2% | 15.6% | 0.6% |
| 1993q2 | 49,330 | 699 | 475 | 50,504 | 49,330 | 247,149 | 20.4% | 20.0% | 0.5% |
| 1993q3 | 64,940 | 2,485 | 743 | 68,168 | 64,940 | 259,728 | 26.2% | 25.0% | 1.2% |
| 1993q4 | 51,608 | 2,683 | 781 | 55,072 | 51,608 | 239,894 | 23.0% | 21.5% | 1.4% |
| 1994q1 | 34,025 | 590 | 979 | 35,594 | 34,025 | 221,666 | 16.1% | 15.3% | 0.7% |
| 1994q2 | 51,658 | 1,188 | 501 | 53,347 | 51,658 | 256,180 | 20.8% | 20.2% | 0.7% |
| 1994q3 | 70,043 | 1,897 | 660 | 72,600 | 70,043 | 270,227 | 26.9% | 25.9% | 0.9% |
| 1994q4 | 54,686 | 2,906 | 1,321 | 58,913 | 54,686 | 248,926 | 23.7% | 22.0% | 1.7% |
| 1995q1 | 37,378 | 788 | 983 | 39,149 | 37,378 | 229,069 | 17.1% | 16.3% | 0.8% |
| 1995q2 | 56,332 | 1,349 | 2,034 | 59,715 | 56,332 | 263,146 | 22.7% | 21.4% | 1.3% |
| 1995q3 | 68,970 | 2,823 | 951 | 72,744 | 68,970 | 267,773 | 27.2% | 25.8% | 1.4% |
| 1995q4 | 53,620 | 5,222 | 858 | 59,700 | 53,620 | 243,696 | 24.5% | 22.0% | 2.5% |
| 1996q1 | 36,053 | 1,982 | 433 | 38,468 | 36,053 | 221,734 | 17.3% | 16.3% | 1.1% |
| 1996q2 | 52,394 | 1,748 | 1,447 | 55,589 | 52,394 | 257,524 | 21.6% | 20.3% | 1.2% |
| 1996q3 | 68,956 | 3,426 | 1,327 | 73,709 | 68,956 | 269,556 | 27.3% | 25.6% | 1.8% |
| 1996q4 | 55,697 | 4,604 | 1,913 | 62,214 | 55,697 | 246,655 | 25.2% | 22.6% | 2.6% |
| 1997q1 | 36,163 | 1,879 | 1,665 | 39,707 | 36,163 | 226,982 | 17.5% | 15.9% | 1.6% |
| 1997q2 | 53,077 | 1,990 | 749 | 55,816 | 53,077 | 261,914 | 21.3% | 20.3% | 1.0% |
| 1997q3 | 71,291 | 2,757 | 1,603 | 75,651 | 71,291 | 275,550 | 27.5% | 25.9% | 1.6% |
| 1997q4 | 55,899 | 3,954 | 2,072 | 61,925 | 55,899 | 253,612 | 24.4% | 22.0% | 2.4% |
| 1998q1 | 40,120 | 1,534 | 1,211 | 42,865 | 40,120 | 234,884 | 18.2% | 17.1% | 1.2% |
| 1998q2 | 59,834 | 1,240 | 922 | 61,996 | 59,834 | 270,410 | 22.9% | 22.1% | 0.8% |
| 1998q3 | 73,912 | 3,489 | 1,196 | 78,597 | 73,912 | 278,195 | 28.3% | 26.6% | 1.7% |
| 1998q4 | 61,369 | 6,950 | 3,395 | 71,714 | 61,369 | 255,636 | 28.1% | 24.0% | 4.0% |
| 1999q1 | 42,336 | 2,872 | 1,905 | 47,113 | 42,336 | 232,730 | 20.2% | 18.2% | 2.1% |
| 1999q2 | 64,263 | 1,742 | 2,257 | 68,262 | 64,263 | 270,608 | 25.2% | 23.7% | 1.5% |
| 1999q3 | 76,742 | 2,765 | 1,256 | 80,763 | 76,742 | 281,045 | 28.7% | 27.3% | 1.4% |
| 1999q4 | 61,334 | 3,217 | 1,503 | 66,054 | 61,334 | 264,403 | 25.0% | 23.2% | 1.8% |
| 2000q1 | 47,793 | 2,697 | 2,296 | 52,786 | 47,793 | 250,808 | 21.0% | 19.1% | 2.0% |
| 2000q2 | 63,315 | 1,498 | 522 | 65,335 | 63,315 | 278,553 | 23.5% | 22.7% | 0.7% |
| 2000q3 | 77,243 | 2,352 | 1,877 | 81,472 | 77,243 | 289,361 | 28.2% | 26.7% | 1.5% |
| 2000q4 | 64,292 | 4,480 | 1,203 | 69,975 | 64,292 | 267,726 | 26.1% | 24.0% | 2.1% |