

**Can Incomes Policies Reduce Real Wages?
Micro-Evidence from the 1931 Australian Award Wage Cut**

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Abstract

Wages in Australia have long been set by government tribunals. Although the system may create microeconomic inefficiency, it also may facilitate incomes policies, such as the 10 percent wage cut in 1931. This paper uses records from early to mid-career employees of the Union Bank of Australia to examine the effectiveness of the award wage cut. It is shown that bank responded to the cut in the minimum wage scale by increasing the frequency of payments over the minimum rates, and that between 1924-34 tenure-adjusted real wages were essentially constant. Finally, it is hypothesized that the bank maintained a policy of real wage shielding as part of its internal labour market. (JEL N37, E64, J38)

Can Incomes Policies Reduce Real Wages? Micro-Evidence from the 1931 Australian Award Wage Cut

Australian wages have been set by several state and federal tribunals since the 1907 Harvester Decision that firms had to pay “fair and reasonable” wages in order to qualify for tariff protection. This was institutionalized as the federal “Award System” in which tribunals set industry-specific and occupation-specific award rates covering a wide range of employees across Australia. An award set a binding wage floor; however, individual firms were free to pay their workers “over-awards”. Since its establishment, most federal awards have proscribed the “basic wage”, a standard minimum rate for unskilled workers, and perhaps an additional margin for skill. Beginning in 1922 the basic wage was indexed to inflation, although margins for skill were never indexed and were subject to frequent renegotiation. It has long been alleged that the system creates microeconomic inefficiencies because all workers covered under a given award receive the same award rate, regardless of ability or local cost of living.¹ Other authors have argued that this is offset by increased macroeconomic efficiency.² They argue that a centralized system results in greater wage flexibility in times of recession or deflation and that it offers the possibility of trades of wage restraint for employment security or other working conditions.

One of the most heavily debated episodes in the history of the system is whether during the 1930s it played a role in the recovery or prolonged the depression. Because of its dependence on primary exports, the Australian economy suffered severely from the collapse of world trade that began in 1929. In order to promote recovery, the Commonwealth Court of Conciliation and Arbitration (CCCA) cut the real value of the basic wage by 10 percent on February 1, 1931. Contemporaries generally, but not universally, believed that there was a flow-on from the cut in the basic wage to overall wage rates.³ However, recent scholarship has renewed the debate on this question. In their influential work on the Great Depression in Australia, Gregory, Ho, and McDermott (1988a) concluded that the attempt to implement a 10 percent cut was unsuccessful. They showed that the mean all-industry real wage and non-farm real wage did not fall in response to the 10 percent cut to the basic wage. If anything, real

¹Gregory, et. al. (1988b) and Norris and Wooden (1995).

²Gregory, et. al. (1988b) summarizes the views of several 1930s authors. Also see Borland (1997) and Kenyon (1997) in a recent policy forum on Australian unemployment.

wages were higher during the early 1930s than they had been in the 1920s. Moreover, they concluded that wages behaved in a similar manner in Melbourne, Sydney, and Australia as a whole, thus the failure of real wages to fall by 10 percent can not be explained by differences between state and federal awards. More recently, Forster (1990) argued that that the federal courts were able to successfully implement the 10 percent real wage cut to workers on the basic wage. However, this was not fully reflected in the all-industry and non-farm wage series because there were lags in the flow-on effects of the cut, the cut did not apply to margins above the basic rate, and federal awards only covered a fraction of the workforce. He concluded, "Nothing in the court proceedings, in the view of the judges, employers, and employees, lent support to any extreme conclusion regarding the ineffectiveness of [the Court's] decision."⁴

Perhaps one reason why this debate has yet to be settled is that neither Gregory, et. al. (1988a) nor Forster (1990) examined the behavior of individual wages. Gregory, et. al (1988a) drew their evidence primarily from aggregated wage series. Forster (1990) supplemented these broad statistical aggregates with evidence from state wage boards, employers, employees and the judges on the federal courts. The conclusions that can be drawn from aggregated statistical series are limited because these data may be heavily influenced by changes in labor force composition. For example, it is intuitively plausible that firms only retained their best workers during the Great Depression, thus the apparent failure of real wages to drop by 10 percent may simply reflect an increase in average ability of those still employed. Furthermore, it is not possible to precisely control for award rates using these series, thus they cannot be used to directly estimate changes in the pattern of over- and under-award payments.⁵

This paper avoids the problems associated with interpreting short-term movements in aggregated series by examining micro-data from the personnel and payroll records of one firm, the Union Bank of Australia (UBA). The approach has several advantages, but one inevitable disadvantage. Micro-data do not suffer from composition effects because the same individuals appear in the sample prior and

³See Gregory, et. al. (1988a and 1988b) and Forster (1990) for a summary of contemporary views on the issue.

⁴Forster (1990), p. 26.

⁵Schedvin (1970) argues that under-award payments were widespread during the Great Depression. However, he does not present any statistical evidence on legal under-award payments or violations of the law to support this claim. The data presented by Gregory, et. al. (1988a and 1988b) suggest the opposite, firms increasingly paid over-awards in order to offset the effect of the award wage cut.

subsequent to the wage cut. Furthermore, any changes in composition, most notably tenure, can be identified and controlled for using statistical techniques. The payroll records precisely identify the actual wages paid to each individual and allow inference of each employee's award rates and off-award payments. In addition, the data contained in personnel and payroll records is likely to be more accurate than evidence presented before the Commonwealth Court or state wage boards. The accuracy of personnel and payroll data was essential for the bank to efficiently allocate its employees. By contrast, individuals testifying before the courts or wage boards had an incentive to manipulate information to their advantage. The Courts themselves recognized that this was potentially a problem, stating with respect to one of the wage provisions in the 1924 Banking Award, "No evidence was given by disinterested persons or experts".⁶ The cost of such precision is, of course, a loss of generality. The results of this study are necessarily idiosyncratic to the UBA and the extent to which the results apply to other firms can only be determined by further study.

The first Banking Award was in 1921, but covered only New South Wales. The point of departure for this study is the 1924 Commonwealth Banking Award, which created a pay scale for the first 17 years of employment for workers who had no prior experience. Table 1 shows the 1924 and 1931 Banking Award pay scales. The Banking Award was never linked to the basic wage, and unlike the basic wage, it was not linked to the price level. Thus the real value of the award rates declined steadily after 1924. Retail prices declined by about 7.5 percent from 1930 to 1931, thus had each worker been paid exactly the award rate, real wages would have declined by 2.5 percent for the year. However, the earlier decline in the real value of the scale wage due to inflation meant that by 1931 the real value of the award had dropped by almost 7 percent from 1924 levels, a magnitude not dissimilar to the 10 percent drop in the basic wage. The Banking Award stipulated that receiving pay according to the scale was conditional on "good conduct, diligence and efficiency".⁷ This was to be certified by the superintendent, general manager, or chief manager of the bank concerned, thus there existed rules that provided for under-award payments at the discretion of the individual banks.

This paper proceeds as follows. The first section examines the organization of the Union Bank of Australia and its personnel and payroll data. The second section analyzes the wage data to determine

⁶19CAR, p. 295.

whether the 10 percent nominal cut in Banking Award rates affected the actual wages that the UBA paid its employees. It is shown that the 10 percent cut was applied far from universally. The bank increased its use of over-award payments and decreased its use of award and under-award payments to partially offset the reduction in prescribed in the Banking Award. After controlling for years of tenure, nominal wages for a sample of 1917-27 entrants were down by only about 5 percent and real wages actually increased by about 2.5 percent in 1931. The average tenure-adjusted real wage varied little between 1924 and 1934, and regression analysis does not show any relationship between real wages and the real value of award rates. The third section offers an explanation for the failure of wages to decline. It is hypothesized that the UBA maintained constant tenure-adjusted real wages over the business cycle as part of an implicit contract with its workers. The fourth section concludes.

I. Data

By contemporary standards the UBA was fairly small; however, during our sample period, it was one of Australia's largest service industry firms. From the late 19th century it maintained branches in every Australia colony, New Zealand, and London. In 1900 it was Australia's second largest bank with 11.0 percent of the total assets held by the nation's trading paying banks and in 1928 it was the sixth largest with 6.2 percent.⁸ The UBA employed a total of 539 workers in its 84 Australian branches in 1900 and 1,011 workers in 161 Australian branches in 1930.⁹

The primary data employed in this study are the personnel and payroll records of employees who fit three criteria: first, initial hiring between 1917 and 1927; second fewer than two years work experience prior to joining the UBA; and third, still being employed at the bank in 1932. The requirement of fewer than two years outside experience was imposed to ensure that sample employees were covered by the Banking Award. The requirement that individuals had to be present in 1932 was necessitated by the UBA's record keeping procedures.¹⁰ A total of 359 employees met these conditions. A sample record

⁷16CAR, p. 58 and 19CAR, p. 298.

⁸Butlin et. al. (1971), p. 133.

⁹U/218, U/219, U/220, U/221, U/222. These figures exclude employees at the Head Office and the inspection staff.

¹⁰The ANZ Group Archive contains several boxes of personnel records of individuals who were present in 1932 (Z/87/7, Z/87/8, Z/87/9). A small proportion of the records are missing (there is only one individual whose surname begins with K or L), however, this is unlikely to systematically bias the

from an employee who entered in 1922 is shown in Figure 1. The 10 percent award cut is specifically noted on the record. For the purposes of this paper, the most important information contained in the records is the wage data, which is available for each worker's entire career. Following Baker, Gibbs, and Holmstrom (1994a and 1994b) our analysis is based on the annual wage, which is recorded at a single point in time, October 1 of each year.¹¹ Real wages were computed using the retail price deflator PC31 from Vamplew (1987) with 1924 set as the base year. In addition to the 1917-27 entry sample, we utilise the personnel records of 170 employees who entered between 1881 and 1891, had no experience prior to entry, and were still present in 1896.¹²

Because the personnel records provide the date of entry for each employee, it is possible to determine the exact tenure at the time of each wage observation. This information can also be used to infer the appropriate rate from the Banking Award scale in table 1. The Banking Award stated that "automatic increases shall date from the first pay day falling after the completed year of service"¹³, however, the majority of employees who began their employment between October 1 and December 31 received at least the award rate for a completed year of service. Thus for the purpose of this analysis we have assumed that all employees who began in the same year were covered by the same award rate of pay. Off-award payments are calculated as the difference between actual pay and award rates.

II. Was the Wage Cut Successful? Empirics

A. Evidence From Entry Cohorts

As a first pass at examining the effects of the 1931 wage cut, figure 2 shows the average nominal wage of each of the 11 entry cohorts and the sample cross-section of wages between 1917 and 1934.¹⁴ The

results. The fact that individuals who survived to 1932 may be systematically better employees than the cohort of entrants between 1917 and 1927 is of little concern for the purposes of this study because the CCCA intended to reduce each individual's wages with the 1931 cut.

¹¹October 1 was used in preference to December 31 because fewer employees were on short-term assignments covering for workers taking annual leave, and thus reduces the number of short-term wage adjustments in the data.

¹²The records of all employees present in 1887 and all entrants between 1888 and April 1900 have been preserved. (U/271/1, U/271/2, U/271/3). Employees who were not present in 1896 were dropped from the sample in order to ensure comparability with the 1917-1927 entry sample.

¹³16CAR, p. 59 and 19CAR, p. 301.

¹⁴The simplest way to determine the effects of the Banking Award would be to examine the cross-sectional distribution of wages prior and subsequent to 1931. However, cross-sectional data will suffer

individual cohorts' profiles show a slowing down of nominal wage growth beginning in 1931. Members of the more senior cohorts earned the same in nominal terms on average in 1933 as they had in 1930. In addition, the average wage of each cohort reaching a given tenure in 1931 was lower than that of the previous cohort in 1930 or two years previous cohort in 1929. While this suggests that the award cut did have an influence on wages, it does not address whether the CCCA was able to achieve its desired cut in real wages. Figure 3 shows the real wage profiles of the 11 entry cohorts along with the cross-sectional average for the period 1917 to 1934. It is evident from casual inspection of the individual series that 1931 was an unremarkable year in terms of real wage growth. For most of the individual cohorts and for the sample as a whole, real wages continued to grow at rates similar to those exhibited in previous years. If anything, there appears to have been a slight acceleration in real wage growth in 1931. The mean real wage increase in 1931 was larger than the increase in 1930 for 10 out of 11 cohorts, the increase in 1929 for 9 of 11 cohorts, and the increase in 1928 for 8 of 11 cohorts.

Table 2 compares the wages of successive cohorts in 1930 and 1931. The comparison is made between successive cohorts in order to eliminate the effect of increasing tenure on wages; e.g. a 1926 entrant would have reached their fifth year of tenure in 1930, whereas a 1927 entrant would have reached a similar tenure in 1931. As is evident from columns 4 and 5, the later cohorts earned less in nominal terms in 1931 than the earlier cohorts earned in 1930. However, in each case the difference was less than 10 percent and in 7 cases the difference was statistically significant. On average nominal wages in 1931 were only 5.25 percent less than in 1930, implying that the UBA implemented policies that offset almost half of the award wage reduction.¹⁵ Columns 7 and 8 compare real wages in 1930 and 1931. In each case, with the exception of the 1917 and 1918 entrants, the later cohort earned more in 1931 than the earlier cohort earned in 1930. On average this difference was approximately 2.65 percent.

from a composition bias. The nature of the sampling process results in artificially increasing average tenure throughout the sample period and thus in an overestimate of wage growth. The average tenure for the annual cross-sections were as follows: 1917 - .43, 1918 - .98, 1919 - 1.79, 1920 - 2.25, 1921 - 2.46, 1922 - 2.46, 1923 - 2.95, 1924 - 3.42, 1925 - 4.05, 1926 - 4.57, 1927 - 5.25, 1928 - 6.24, 1929 - 7.24, 1930 - 8.24, 1931 - 9.24, 1932 - 10.24, 1933 - 11.24, 1934 - 12.24.

¹⁵The figure of 5.25 percent was computed using a weighted average of the percentage decline for each tenure group. The size of the cohorts differs for each year of entry, thus slightly different results will be obtained depending on whether the 1930 or 1931 number of observations is used as the weight. However, this difference proved to be only 2/100 of a percentage point. The results reported are an average of the two alternative weightings.

B. Changes in Use of Over-Award and Under-Award Payments

The fact that the difference in nominal wages between successive cohorts was well less than 10 percent suggests that the bank increased its use of over-awards or reduced its use of under-awards to partially offset the effect of the cut in the award rate. Examining the behavior of individual wages provides a more direct evidence of this hypothesis. Table 3 shows some summary statistics on the extent and magnitude of over-award and under-award payments in 1930 and 1931. In 1930 the majority of workers (57.23 percent of sample employees) received exactly the award rate. Just over a quarter of workers were paid more than the award rate and 16.22 percent were paid less than the award rate. In 1931, after the 10 percent award reduction, the incidence of both award and under-award payments dropped dramatically. Only 9.42 percent of sample employees received less than the award rate, and the average under-award payment dropped by nearly a half, from £17.80 to £9.63. By contrast the incidence of over-award payments increased more than two and half fold to 69 percent, although the average over-award payment dropped slightly from £32.78 to £26.30.

C. Long-Term Changes in Wages and Off-Award Payments

Tables 2 and 3 only show the short-term changes between 1930 and 1931, and do not offer any insight to the behaviour of wages over the longer period. It is possible to analyse the behaviour of wages over the first 11 years of the Banking Award by creating several fixed weight series using the 1924 scale as the weights. Such series have been created for the following variables:

$$1. \text{NOMAWARD}_i = (\text{AWARD}_{t,i} / \text{AWARD}_{24,i}) * 100$$

$$2. \text{NOMWAGE}_i = (\text{WAGE}_{t,i} / \text{AWARD}_{24,i}) * 100$$

$$3. \text{REALAWARD}_i = ((\text{AWARD}_{t,i} / \text{PRICE}_t) / \text{AWARD}_{24,i}) * 100$$

$$4. \text{REALWAGE}_i = ((\text{WAGE}_{t,i} / \text{PRICE}_t) / \text{AWARD}_{24,i}) * 100$$

$$5. \text{OFFAWARD}_i = ((\text{WAGE}_{t,i} - \text{AWARD}_{t,i}) / \text{AWARD}_{t,i}) * 100$$

$AWARD_{t,i}$ denotes the award rate for an individual, i , at time, t , given their tenure at time t . $AWARD_{24,i}$ denotes what would have been their award rate under the 1924 scale, given their tenure at time t . $WAGE_{t,i}$ denotes the actual nominal wage rate received by individual i at time t . Finally, $PRICE_t$ is the retail price deflator PC31 from Vamplew (1987). By linking current wages or award rates to the 1924 scale, the fixed weight series provides a simple means of controlling for tenure. An individual receives a value of 100 if their current wage (or real wage or award wage) is exactly the rate proscribed under the 1924 Banking Award scale, regardless of their current tenure.

Figure 4 shows the mean values of $NOMAWARD$, $NOMWAGE$, $REALAWARD$, $REALWAGE$, and $OFFAWARD$ between 1924 and 1934. The most striking feature of figure 4 is that $REALWAGE$ varied little over the period. The standard deviation of the annual average of $REALWAGE$ is only 1.27, whereas the standard deviation of the annual averages of $NOMAWARD$, $REALAWARD$, $NOMWAGE$, and $OFFAWARD$ are 5.05, 2.64, 6.20, and 2.62 respectively. Figure 4 implies that the real wage profile was effectively constant over the period. Prior to the depression most employees earned exactly the award rate; whereas after the award cut, over-awards sharply increased. However, as the price level continued to decline, reaching below 90 percent of its 1924 level in 1933, the UBA switched to a policy of more frequent under-award payments.

The causes of individual variation in $REALWAGE$ can be analysed using regression analysis. The data for the regression are pooled observations between 1924 and 1934. If the Banking Award was binding, an $REALWAGE$ should be determined by $REALAWARD$, their age at entry, and their ability.¹⁶ Age at entry should have a positive effect on individual wages because the Banking Award contained provisions relating to the wages paid to workers appointed “late in life” (beyond age 16 or 17), or, alternatively, because the UBA chose to pay higher wages to employees with outside experience or more education. Ability cannot be directly observed. However, in this sort of panel data innate ability can be controlled for indirectly by using a fixed effects model with individual dummies included as independent variables.¹⁷ The regression results are shown in table 4. The coefficient on $REALAWARD$

¹⁶The Banking Award also proscribed a minimum rate for workers required to live away from their usual home. It is not possible to control for this effect in the regression analysis because the records do not identify workers’ usual homes.

¹⁷It is not possible to control for age and ability simultaneously because the fixed effects model only allows the inclusion of independent variables that vary over time.

is insignificant at standard levels in each specification. In other words variation in real wages over time can not be explained by changes in the real value of the award rate. The results for the other variables are as expected. The coefficient on age at entry is positive and strongly significant. The fixed effects specifications have considerably more explanatory power than the ordinary least squares specifications and a number of the individual dummies were statistically significant, indicating that individual ability was an important determinate of wage.

These results consistently support the Gregory, et. al. conclusion that the award cut was not successfully implemented. Had the UBA perfectly followed the award scale throughout, the average value of REALWAGE would have been 6.875 percent lower in 1931 than in 1924. In reality the difference was only 0.583 percent, a figure consistent with Gregory, et. al.'s claim that real wages were essentially given exogenously over the period. The evidence suggests that the UBA maintained a policy of constant real wages and allowed off-awards to adjust to offset changes in the real value of the award rate. This is further evidenced by the fact that the correlation between the annual average of OFFAWARD and the annual average of REALAWARD is a massive -0.898. Similarly, pooling the individual observations of OFFAWARD and REALAWARD between 1924 and 1934 yields a correlation coefficient of -.245.

D. Comparisons to 1894-95

Prior to the passage of the Banking Award, wages were determined by market forces and were set by the individual banks. Between 1889 and 1897 the UBA maintained the following wage schedule: year 1 - £40, year 2 - £60, year 3 - £80, year 4 - £100, year 5 - £120, year 6 - £135, year 7 - £150.¹⁸ The Bank had no explicit rules governing wages after 7 years of tenure; however, Seltzer and Merrett (2000) argue that the very low variance of individual wages suggests the existence of an implicit set of rules. As was later to be the case under the Banking Award, moving up the wage scale was not entitlement. The UBA's rules specifically stated that "[m]erit will be in all cases the first claim to

¹⁸U/87/9. Prior to 1900 number of employees came to the UBA with previous banking experience. These employees typically were paid well more than proscribed under the internal wage scale. Seltzer and Merrett (2000) and Seltzer and Simons (2001).

consideration” for salary increases.¹⁹ However, most junior employees received the proscribed rate for their first 7 years.²⁰ In 1895, after 5 years of rapid deflation, the bank decided to implement an across-the-board 10 percent wage reduction.²¹ The 1881-91 entrants’ personnel records can be used to replicate the analysis of the effects of the 1931 reduction.

Table 5 replicates the analysis shown in table 2. Columns 4-6 of table 5 show the change in nominal wages, adjusted for years of tenure. It can be seen that the wage reduction was fully implemented; the cohort reaching a given level of tenure in 1895 earned on average 13.77 percent less than the previous cohort in 1894. For each of the 10 cases the null hypothesis that the later cohort’s earnings in 1895 were 10 percent less than the earlier cohort’s earnings in 1894 cannot be rejected. Columns 7-9 show the average real wage of successive pairs of entry cohorts in 1894 and 1895. Although there was some deflation during the year, it only partially countered the effects of the wage cut. The cohort reaching a given level of tenure in 1895 earned on average 10.50 percent less in 1895 than the previous cohort in 1894.

III. Speculations: Why was the 1931 Wage Cut Unsuccessful?

The fact that the UBA maintained a policy of constant real wages between 1924 and 1934 is somewhat surprising and counterintuitive. The Great Depression severely effected output and labor markets in Australia; the peak to trough decline in real output was 22.1 percent and the increase in unemployment was 15.55 percentage points.²² A plausible explanation for this extreme form of shielding of wages from the external economy is implicit contracts based on internal labor markets. In order to speculate on the likely motivation for this wage shielding, it is necessary to examine the nature of the UBA’s personnel practices prior to the 1930s. The UBA operated an internal labor market from at least as early as the 1880s.²³ This internal labor market had long insulated employment and wages of employees from external shocks. Shielding took several forms, including the following. The frequency

¹⁹U/195/1, p. 5.

²⁰Seltzer and Simons (2001).

²¹Between 1890 and 1895 prices dropped by 31.3 percent. This contrasts markedly with the period between 1929 and 1931 when prices dropped by only 7.7 percent. Vamplew (1987), PC31. Even at the trough of the business cycle in 1933, prices were only down 15.4 percent from their 1929 peak.

²²Vamplew (1987), series ANA64 and PC31 (output and retail prices) and LAB97 (unemployment).

of terminations changed little with increases in unemployment. Nominal wage cuts were used extremely infrequently; outside of 1895 and 1931-1933 fewer than 1 percent of nominal increments were negative. Real wages were *positively* related to the current unemployment rate and the minimum unemployment rate experienced to that point of a worker's career.²⁴ Nominal wages in the late 19th century were governed by the scale in operation when a worker first entered the UBA, even during the severe deflation of the 1890s after the Bank reduced the scale for new entrants.

Figures 3 and 4 and table 4 suggest an additional form of wage shielding. Individuals could expect a fairly constant annual rate of real wage growth. Furthermore, they could form very accurate expectations of their own future earnings by examining the current earnings of earlier entry cohorts. The observed pattern of similar rates of real wage growth in 1931 as in the years immediately prior and subsequent for the 11 entry cohorts is consistent with this sort of policy. Workers would find such a policy highly desirable because it would make their future real income more predictable. This explanation is also consistent with the UBA's 10 percent wage cut in 1895. The sharpest deflation in Australian history occurred between 1890 and 1894 and this resulted in extremely high real wage growth for UBA employees. Thus, the 1895 cut may have served the purpose of bringing real wage growth back down to the normal rate.

Whether the Bank could offer such a contract would depend on the nature of the employment relationship. A firm can only afford to maintain above-market wages during economic downturns if it can recoup any short-term losses by underpaying its workers during boom periods. However, underpayment during a boom would normally lead to high worker turnover, which would have been unacceptable for a bank because of high search and training costs in the industry.²⁵ Labor economists

²³See Seltzer and Merrett (2000) and Seltzer and Simons (2001) for a discussion of internal labor markets at the UBA.

²⁴Beaudry and DiNardo (1991) offer a theoretical explanation for an expected negative relationship between wages (W) with the current unemployment rate (U_C) and the minimum unemployment rate up to that point in a worker's career (U_M). They argue that a spot market would be characterized by a negative relationship between W and U_C . Firms would be forced to pay market wages, which would be influenced by workers' outside options. They also consider an impure contract model where firms could make credible commitments but workers could not because of costless mobility between jobs. This would be characterized by a negative relationship between W and U_M . Firms would have to match workers outside options during booms, but any wage increments they received at these times would remain during subsequent downturns.

²⁵See Seltzer and Merrett (2000) and Seltzer (2000) on search and training costs in the banking industry.

have identified several impediments to employee mobility; two of which seem particularly relevant to the industry: firm specific human capital and inability of outsiders to observe a worker's marginal product.

The UBA's records provide considerable evidence of specific human capital. A 1926 Sub-Inspector's Report described the tasks performed by each employee at the Melbourne branch.²⁶ Most of the tasks performed by clerical staff involved preparation and checking of various bank records. Younger employees were required to have mastered a number of different record-keeping procedures before they could move up the hierarchy. These tasks were likely to have been specific to the industry, rather than the individual banks. These tasks were learned on the job over a period of several years, and as consequence promotion at the UBA was a slow process. The mean time until first promotion for 1888-1900 entrants was almost 9 years for workers with no prior experience.²⁷ At higher levels of the hierarchy even more specific human capital was required. Tellers had to know their customers in order to speed up transactions and prevent fraud. Accountants had to know their staff members very well in order to optimally assign employees to tasks and ensure that the tasks were performed in accordance with the bank's rules. The most specific skills, however, belonged to the branch manager who was expected to be familiar the Bank's lending rules, local business conditions and property values, and the financial position of the bank's customers.²⁸ Although some of these skills were undoubtedly general to the banking industry, many were highly specific the UBA or even to individual branches. An alternative reason that workers might be unable to command better wages in the external labor market is that it might have been difficult for the external labor market to make inferences about individual worker's productivity.²⁹ Two of the UBA's personnel practices, slow promotion and wage compression, might have resulted in workers of a similar age but different innate abilities being observationally identical to outsiders.

The evidence on turnover is consistent with the existence of impediments to mobility. Quit and total turnover rates were low by historical and contemporary standards, with annual averages of 3.7 and 6.3

²⁶U/93/20, pp. 17-26.

²⁷This figure excludes the 45 percent of employees who were never promoted beyond the level of clerk.

²⁸U/195/1, p. 1.

²⁹See Itoh (1994) on the information extraction problem in the context of Japanese firms.

percent respectively between 1887 and 1899.³⁰ Although quits increased during boom periods (the correlation between GDP growth and quits is .68), the annual rate never exceeded 6.5 even though real GDP growth averaged nearly 9 percent per year between 1896 and 1898. Moreover, the quit rate decreased dramatically after about 5 years tenure, the period of tenure covered by the sample used in this paper. Whereas the quit rate for employees with 5 years tenure was approximately 6 percent, for employees with 14 years tenure it was barely 2 percent. Furthermore, many quits appear to have driven by issues of lifestyle rather than salary. In a number of cases the reason for quitting is given on the personnel record. The majority of quits were for reasons such as leaving the country, taking up farming, going into the family business, going to university, or joining the clergy. There is considerable evidence that it was uncommon for banks to attempt to poach each other's workers.³¹ Finally, employees were more likely to resign if they were promoted in the previous year, which is consistent with signals from the Bank's personnel practices providing information to the external labor market.³²

Although it is beyond the scope of this paper to search for direct evidence of implicit contracts that smoothed real wages over the business cycle at other Australian firms, it should be noted that by the 1930s a large proportion of the Australian workforce were governed by internal labor markets. At least half of all Australian workers were employed in firms that were sufficiently large to support internal labor markets.³³ Large firms existed in a number of industries including: mining, metallurgy, food processing and distribution, textiles, brewing, confectionery, soap, rubber, automobiles, oil, packaging, retailing, sugar, timber, paper, glass, electrical goods, publishing, banking, utilities, public transportation, and communication.³⁴ Several of these industries certainly had extensively internalized their labor markets by this time. All public servants, teachers, and railway workers had published wage scales from the 1890s onwards.³⁵ Sammartino (2001) showed that the Victorian Railways maintained internal labor markets from the 1860s and finds some evidence that wages were shielded from external

³⁰All turnover figures are computed using U/271/1, U/271/1, and U/271/3.

³¹Only 11 of the full sample of 1767 UBA entrants between 1850-1900 and 1917-27 have noted that the individual left to join another Australian bank. This was true throughout the industry. It was noted in the 1924 Banking Award that "it has not been the practice of the banks to give appointments to applicants beyond the age of 16 or 17 years." 19CAR, p. 281. This preference for younger workers precluded poaching from other banks.

³²Seltzer and Simons (2001) show that all else equal promotion in the previous year increased the probability of resignation by about 35 percent.

³³Wright (1995) notes that 6 percent of Australian firms employed half the workforce.

³⁴Merrett (1997).

³⁵Seltzer (2001), p. 578.

shocks. Wright (1995) noted that many large firms were moving toward replacing managerial discretion with more formal personnel policies. Dunningham (1937) claimed that in the 1930s employment in most non-rural industries was permanent and that employment in mining was becoming less intermittent.³⁶ Permanent hiring was sufficiently prevalent that by 1920 the awards set higher wage standards for workers who were hired on a non-weekly benefit.³⁷ The administrative requirements of the Award System almost certainly necessitated the sort of book-keeping practices that are also necessary to maintain internal labor markets.³⁸ Whether these firms also shielded their workers from the external labor market by increasing their use of over-award payments in 1931 is an important topic for further research.

IV. Conclusions

This paper uses the personnel records of one firm, the Union Bank of Australia, to examine the impact of the 1931 Australian incomes policy that attempted to cut wages by 10 percent. Recent scholars generally agree that economy-wide real wages did not fall by 10 percent, the level desired by policy makers. However, there has been an extended academic debate about why this occurred. Forster (1990) argues that the federal courts were able to successfully implement a 10 percent real wage cut for most workers under federal jurisdiction. However, federal coverage was incomplete and state awards and margins over the basic rate did not drop by a similar amount. Other scholars such as Gregory, Ho and Dermott (1988a and 1988b) have argued that the real wages of workers covered by the federal awards failed to drop 10 percent, and in fact behaved much the same way as workers not covered by these awards. Gregory et. al. (1988a) conclude that real wages during the Great Depression were given largely exogenously.

Previous quantitative research has been limited to the examination of aggregate wage series, which are subject to composition changes and can not precisely control for the award rates. This paper uses microdata from one firm, the Union Bank of Australia, to more precisely analyze the effect of the 1931 award wage cut. The Banking Award only specified a nominal wage cut of 10 per cent, while prices

³⁶Dunningham (1937), p. 12, 23.

³⁷Anderson (1929).

fell by nearly 8 percent for the year. The evidence presented in this paper indicates that even the 10 percent nominal cut was not reflected in the wages that the UBA paid its workers. After controlling for years of tenure, nominal wages declined by just over 5 percent. Real wages for the year increased by about 2.65, one of the largest annual increases between 1924 and 1934. The bank increased its use of over-award payments to more than offset the award reduction. In the following years the bank cut nominal wages further and increased its use of under-award payments as the price level continued to drop. However, over the period 1924-34 real wages remained roughly constant, varying only within a 3 percent band. Regression analysis shows no relationship between the real values of the award rate and of the wages paid to individual workers between 1924 and 1934. Finally, this paper speculates that the UBA cut wages by well less than the 10 percent specified in the award because it sought to maintain constant real wages over time as part of its implicit contract with its workers.

³⁸Jacoby (1985) argues that the administrative requirements of the New Deal were an important precondition for the internalization of labor markets in the United States.

Bibliography

- George Anderson, Fixation of Wages in Australia, Melbourne: MacMillan & Co. Ltd, 1929.
- The Australia New Zealand Banking Group, Male Staff Record Cards, 1932-1970, ANZ Group Archive, Melbourne, VIC (Z/87/7, Z/87/8, Z/87/9).
- George Baker, Michael Gibbs, and Bengt Holmstrom, "The Internal Economics of the Firm: Evidence from Personnel Data", Quarterly Journal of Economics, 109 (4), 1994: 881 - 919.
- George Baker, Michael Gibbs, and Bengt Holmstrom, "The Wage Policy of a Firm", Quarterly Journal of Economics, 109 (4), 1994: 921 - 55.
- P. Beaudry and J. DiNardo, "The Effect of Implicit Contracts on the Movement of Wages Over the Business Cycle: Evidence from Micro Data", Journal of Political Economy, 99 (4), 1991: 665-88.
- Jeff Borland, "Unemployment in Australia-Prospects and Policies: An Overview", Australian Economic Review, 30 (4): 391-404.
- S. J Butlin, A. R. Hall, R. C. White, Australian Banking and Monetary Statistics, 1817-1945, Reserve Bank of Australia, Occasional Paper No. 4A, Sydney, 1971.
- Commonwealth Arbitration Record, 16, "The Bank Officials Association and the Bank of Australasia and Others", 1922.
- Commonwealth Arbitration Record, 19, "The Bank Officials Association and the Bank of Australasia and Others", 1924.
- J. M Dunningham, Report upon Employment and Unemployment in the State of New South Wales, Sydney: Government Printer, 1937.
- Colin Forster, "Wages and Wage Policy: Australia in the Depression, 1929-34", Australian Economic History Review, 30 (1): 1990, 23-42.
- R. G. Gregory, V. Ho and L. McDermott, "Sharing the Burden: The Australian Labour Market During the 1930s", in R. G. Gregory and N. G. Butlin (eds), Recovery from the Depression: Australia and the World Economy in the 1930s, Cambridge University Press, 1988.
- R. G. Gregory, V. Ho and L. McDermott, "The Australian and US Labour Market in the 1930s" in B. Eichengreen and T. Hatton, eds., Interwar Unemployment in International Perspective, Kluwer Academic Publishers, 1988: 397-430.
- Hideshi Itoh, "Japanese Human Resource Management from the Viewpoint of Incentive Theory", in Masahiko Aoki and Ronald Dore, The Japanese Firm: Sources of Competitive Strength, Oxford University Press, 1994: 233 - 64.
- Sanford Jacoby, Employing Bureaucracy: Managers, Unions, and the Transformation of Work in American Industry, 1900-1945, New York: Columbia University Press, 1985.
- Peter Kenyon, "Infrastructure Spending and Unemployment: Government Responsibility for Growth and Jobs", Australian Economic Review, 30 (4): 421-32.
- David Merrett, "Australian Firms by Employment", mimeo, University of Melbourne, 1997.
- Keith Norris and Mark Wooden, "The Changing Australian Labour Market: An Overview" in Norris and Wooden, eds., The Changing Australian Labour Market, Economic Planning and Advisory Council, Commission Paper 11, 1996: 1-14.

André Sammartino, Human Resource Management Practices and Labour Market Structures in the Victorian Railways 1864-1921, Ph.D. Dissertation, University of Melbourne, 2001.

C. B. Schedvin, Australia and the Great Depression, Sydney: Sydney University Press, 1970.

Andrew Seltzer, "Controlling and Motivating the Workforce: Evidence from the Banking Industry in the Late 19th and Early 20th Centuries", Australian Economic History Review, vol. 40, no 3 (November 2000), pp. 219-38.

Andrew Seltzer and David Merrett, "Personnel Practices at the Union Bank of Australia: Panel Evidence from the 1887-1900 Entry Cohorts", Journal of Labor Economics, vol. 18, no. 4 (October 2000), pp. 573-613.

Andrew Seltzer and Kenneth Simmons, "Salaries and Career Opportunities in the Banking Industry: Evidence from the Personnel Records of the Union Bank of Australia", Explorations in Economic History, vol. 38 (April 2001), pp. 195-224

The Union Bank of Australia Limited, Instructions to be Observed by Officers, ANZ Group Archive, Melbourne, VIC (U/195/1).

The Union Bank of Australia Limited, Register of Officers, ANZ Group Archive, Melbourne, VIC (U/271/1, U/271/2, U/271/3).

The Union Bank of Australia Limited, "Memoranda for Candidates for Junior Appointments in the Colonial Service of the Bank", 1889, ANZ Group Archive, Melbourne, VIC (U/87/9).

The Union Bank of Australia Limited, Melbourne Branch, Sub-Inspector's Report, 1927, ANZ Group Archive, Melbourne, VIC (U/93/20).

The Union Bank of Australia Limited, Annual Report, Victoria and Tasmania, 1900-30, ANZ Group Archive, Melbourne, VIC (U/218).

The Union Bank of Australia Limited, Annual Report, New South Wales, 1900-30, ANZ Group Archive, Melbourne, VIC (U/219).

The Union Bank of Australia Limited, Annual Report, Queensland, 1900-30, ANZ Group Archive, Melbourne, VIC (U/220).

The Union Bank of Australia Limited, Annual Report, South Australia, 1900-30, ANZ Group Archive, Melbourne, VIC (U/221).

The Union Bank of Australia Limited, Annual Report, Western Australia, 1900-30, ANZ Group Archive, Melbourne, VIC (U/222).

Wray Vamplew, ed. Australians Historical Statistics, New South Wales: Fairfax, Syme & Weldon Associates, 1987.

Christopher Wright, Australian Studies in Labour Relations, Melbourne: Oxford University Press, 1995.

Figure 2
Average Annual Nominal Wages by Entry Cohort, 1917-1934

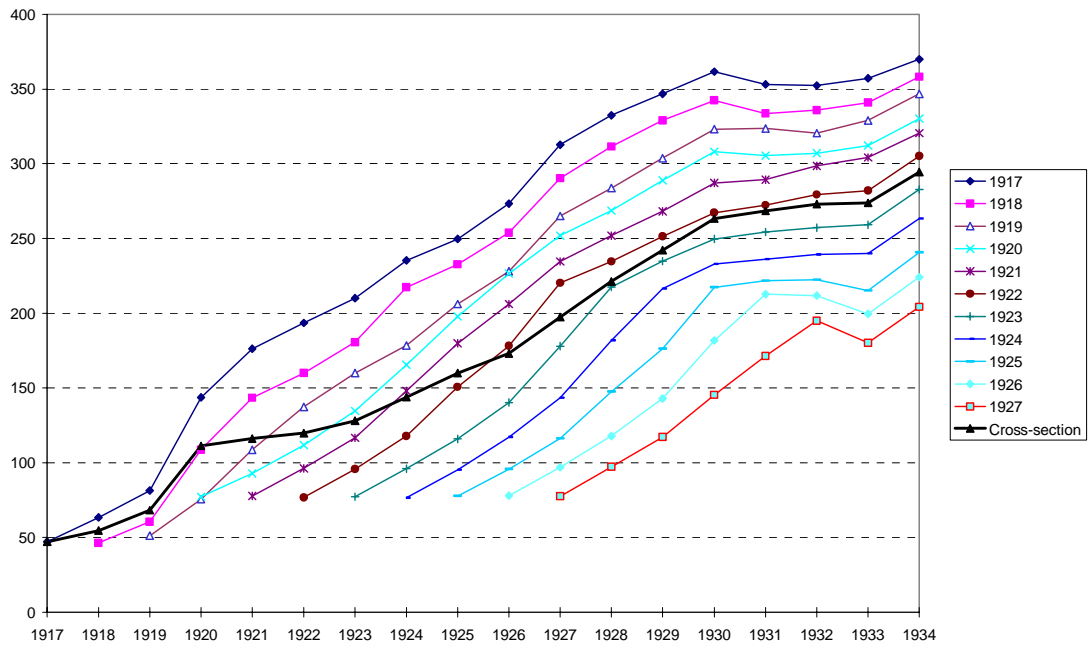


Figure 3
Average Annual Real Wages by Entry Cohort, 1917-1934

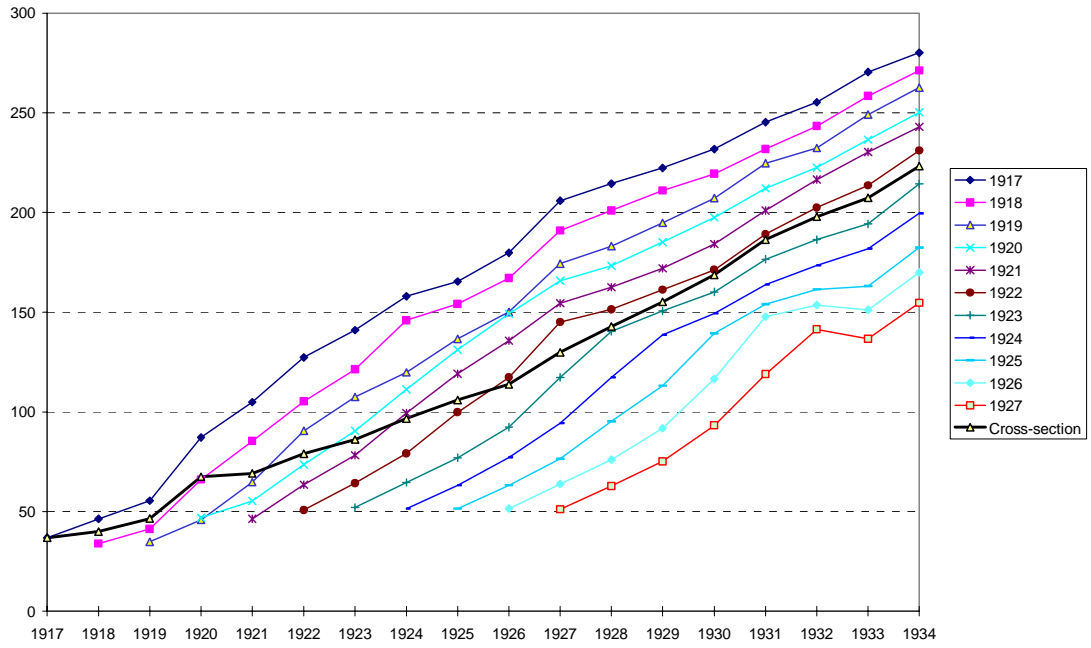


Figure 4
Average Values of Four Fixed Weight Series, 1924-34

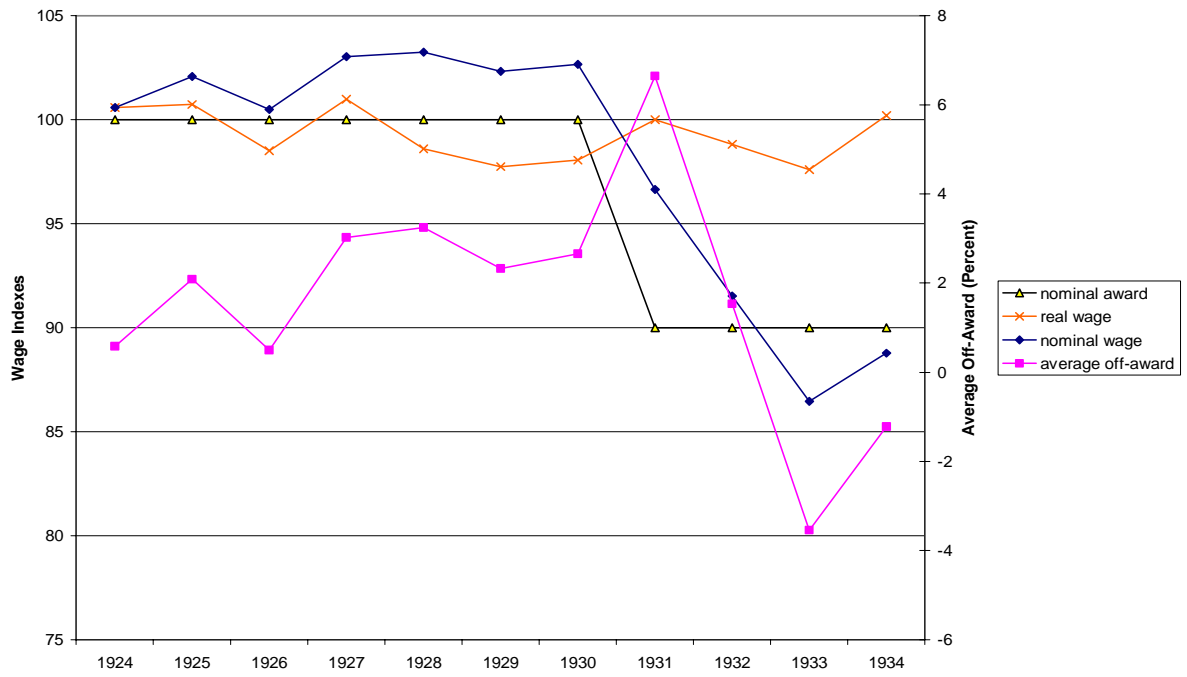


Table 1
Pay Scale Under the 1924 and 1931 Banking Awards

Tenure	1924 Scale	1931 Scale
1	75.00	67.50
2	95.00	85.50
3	115.00	103.50
4	140.00	126.00
5	160.00	144.00
6	220.00	198.00
7	232.00	208.80
8	247.00	222.30
9	262.00	235.80
10	282.00	253.80
11	302.00	271.80
12	322.00	289.80
13	337.00	303.30
14	352.00	316.80
15	367.00	330.30
16	382.00	343.80
17	392.00	352.80
18	402.00	361.80

Source: 19CAR, p. 288.

Table 2
Nominal and Real Wages, 1930 and 1931

Tenure	Obs. 30	Obs. 31	Nominal 30	Nominal 31	% Diff.	Real 30	Real 31	% Diff.
5	35	20	181.9	171.4	-5.77	173.73	177.31	2.06
6	29	35	217.3	212.8	-2.07##	207.56	220.22	6.10**
7	37	29	232.9	221.7	-4.81##	222.46	229.46	3.15*
8	45	37	249.8	236.0	-5.52##	238.55	244.21	2.37
9	49	45	267.2	254.3	-4.83##	255.24	263.13	3.09**
10	56	49	287.2	272.3	-5.19##	274.31	281.76	2.72*
11	19	56	308.2	289.4	-6.10#	294.42	299.49	1.72
12	8	19	323.1	305.5	-5.45	308.58	316.03	2.41
13	31	8	342.3	323.6	-5.46#	326.91	334.80	2.42
14	30	31	361.6	333.7	-7.72	345.38	345.23	-0.04

= Significantly different from -10 at the 5% level (nominal wages only).

= Significantly different from -10 at the 1% level (nominal wages only).

* = Significantly different from zero at the 5% level (real wages only).

** = Significantly different from zero at the 1% level (real wages only).

Table 3
Over-Awards and Under-Awards, 1930 and 1931

Year	Tenure	Award Rate	% On Award	% Over Award	% Under Award	Average Over-Award	Average Under-Award
1930	5	140.00	54.29	42.86	2.86	51.33	5.00
	6	160.00	68.97	20.69	10.34	1.00	28.00
	7	220.00	62.16	18.92	18.92	23.00	18.29
	8	232.00	62.22	17.78	20.00	33.00	15.56
	9	247.00	63.27	22.45	14.29	34.36	17.43
	10	262.00	46.43	28.57	25.00	34.50	18.57
	11	282.00	52.63	26.32	21.05	38.00	18.00
	12	302.00	50.00	25.00	25.00	25.50	21.00
	13	322.00	54.84	29.03	16.13	26.00	14.00
	14	337.00	53.33	36.67	10.00	31.27	18.67
	Total		57.23	26.55	16.22	32.78	17.80
1931	5	126.00	25.00	70.00	5.00	39.36	4.00
	6	144.00	22.86	74.29	2.86	20.98	27.00
	7	198.00	24.14	65.52	10.34	21.25	9.47
	8	208.80	29.73	59.46	10.81	25.50	13.85
	9	222.30	17.78	71.11	11.11	26.79	5.40
	10	235.80	24.49	67.35	8.16	28.98	12.55
	11	253.80	25.00	62.50	12.50	29.89	8.40
	12	271.80	26.32	63.16	10.53	27.82	18.00
	13	289.80	12.50	75.00	12.50	27.62	3.30
	14	303.30	0.00	90.32	9.68	19.59	2.80
	Total		21.58	69.00	9.42	26.30	9.63

Table 4
The Determinates of Real Wages

	(1)	(2)	(3)	(4)	(5)	(6)
Independent Variable	REAL- WAGE	REAL- WAGE	REAL- WAGE	LN(REAL -WAGE)	LN(REAL -WAGE)	LN(REAL -WAGE)
REALAWARD	0.0727 (1.188)	0.0172 (0.241)	0.0729 (1.322)			
Age at Entry		1.817* (9.445)				
LN(REALAWARD)				0.0518 (0.916)	-0.027 (0.414)	0.0511 (1.017)
LN(Age at Entry)					0.263* (8.614)	
Constant	92.109* (15.396)	67.227* (8.768)	90.455* (15.127)	4.356* (16.814)	3.977* (12.696)	4.346* (18.775)
Model Specification	OLS	OLS	Fixed Effects	OLS	OLS	Fixed Effects
Adjusted R ²	.000	.025*	.194*	.000	.021*	.215*
Sample Size	3772	3772	3772	3772	3772	3772

Notes: absolute value of the t-statistic in parentheses
* = significant at the one-percent level

Table 5
Nominal and Real Wages, 1894 and 1895

Tenure	Obs. 94	Obs. 95	Nominal 94	Nominal 95	% diff	Real 94	Real 95	% diff
5	21	25	111.90	101.34	-9.44	203.34	191.14	-6.00
6	19	21	134.47	114.88	-14.57	244.35	216.68	-11.32**
7	34	19	148.68	130.76	-12.05	270.15	246.62	-8.71**
8	20	34	160.75	136.84	-14.87	292.10	258.08	-11.65**
9	15	20	173.33	146.10	-15.71	314.96	275.56	-12.51**
10	10	15	202.00	157.80	-21.88	367.05	297.63	-18.91**
11	8	10	197.50	179.00	-9.37	358.87	337.60	-5.92
12	14	8	190.36	177.63	-6.69	345.89	335.01	-3.14
13	14	14	217.86	176.07	-19.18	395.86	332.09	-16.11*
14	10	14	222.50	199.14	-10.50	404.30	375.60	-7.10

= Significantly different from -10 at the 5% level (nominal wages only).

= Significantly different from -10 at the 1% level (nominal wages only).

* = Significantly different from zero at the 5% level (real wages only).

** = Significantly different from zero at the 1% level (real wages only).