

Takeovers and Implicit Contracts during the First Great Merger Wave: Evidence from the Australian Banking Industry

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Abstract

It has been argued that hostile takeovers redistribute wealth from workers to shareholders by enabling the acquiring firm to revoke implicit contracts. This paper uses micro-data from personnel records to examine the consequences of the Union Bank of Australia's 1892 takeover of the Bank of South Australia (BSA). The evidence confirms that older workers at the BSA were harmed. I show that they faced a high probability of losing their jobs following the merger, lost specific human capital due to the closure of branches, faced a flatter salary profile over the remainder of their career, and received a reduced pension.

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The industrial consolidations of the “first great merger wave” of the 1890s have generated considerable debate among economic historians on the consequences of monopolization on consumer welfare and the regulatory response of government.¹ However, consumers were not the only stakeholders who were potentially adversely affected by the process of consolidation. If workers possessed specific human capital or were tied to their employer through long-term implicit contracts, mergers could have substantially reduced their lifetime incomes by allowing acquiring firms to renegotiate existing contracts. Recent research on the railroads and the banking industry suggest that there existed an environment of non-spot labor market arrangements, suggesting that it may have been possible for firms to forcefully transfer wealth from workers to employers through acquisitions.²

This paper examines the consequences of mergers for workers in the acquired firm during the first great merger wave using the case study of the takeover of the Bank of South Australia (BSA) by the Union Bank of Australia (UBA) in 1892.³ The banking industry is an excellent subject for the study of the labor market effects of mergers for several reasons. First, although caution should be taken when drawing inferences from a single case study, it is clear that the merger itself was unexceptional for the industry. Second, the banking industry developed sophisticated internal labor markets well before the 1890s. In other papers I have shown that contracts deviated substantially from what would be expected in a spot labor market.⁴ Third, there is extremely high quality personnel data from the banking industry that enables a more comprehensive analysis of the consequences of mergers for personnel practices than has heretofore been possible.

The approach that I use to analyze the consequences of the merger for the BSA’s workers is similar in spirit to a series of studies beginning with a seminal article by Andei Schliefer and Lawrence Summers.⁵ They argue that the gains to shareholders from hostile takeovers may be due to redistribution from employees to shareholders, rather than to increased productivity. Managers in the acquired firm may have previously promised workers lifetime employment with deferred compensation, whereby young workers are paid less than their productivity and older workers are paid more than their productivity in manner described by Edward Lazear.⁶ Following the hostile takeover, the new management is able to renege on late-career salary overpayments that had been promised by the acquired firm. This renege may take the form of dismissing older employees, flattening of tenure-salary profiles, or pension cuts. A popularized version of this view of hostile takeovers was the premise for the Hollywood film Wall Street, where the villain acquires an airplane manufacturer in order to replace its American plant with a Mexican plant staffed by low-wage labor

¹For example see Lamoreaux, The Great Merger Movement.

²See Hamilton and MacKinnon, “Long-Term Employment Relationships”; Sammartino, Human Resource Management; and Howlett, “Evidence” on internal labor markets at railroads. See Seltzer and Merrett, “Personnel Practices”; Seltzer and Simons, “Salaries and Career Opportunities” on internal labor markets at banks.

³Because the USA was dominated by unit banks, the first great merger wave largely bypassed the industry. However, in branch banking countries, such as Australia and the United Kingdom banking mergers, which had been fairly common at an even earlier time, began to increase following the depression of the 1890s.

⁴Seltzer and Merrett, “Personnel Practices”; Seltzer and Simons, “Salaries and Career Opportunities”.

⁵Schliefer and Summers, “Hostile Takeovers”.

⁶Lazear, “Why?”.

and to raid the workers' pension fund. Subsequent empirical studies have generally confirmed that following hostile takeovers there is an above-normal turnover rate among older workers at the acquired firm, a flattening of the wage profiles of retained workers from the acquired firm, and an above normal rate of reversion of pension fund surpluses.⁷

One drawback of these studies is that the takeovers being studied are relatively recent, and thus have on-going effects on many of the workers at the acquired firms. Another drawback is that these studies focus on firm-level averages, rather than the employment outcomes of individual workers. The historical nature of this study and the comprehensiveness of the data enable me to avoid both these shortfalls. The basic empirical approach to this study is to compare employment, wage, and pension outcomes of 1) BSA employees at the BSA prior to 1892 2) former BSA employees at the UBA from 1892, and 3) direct entrants to the UBA before and after 1892. In addition to the possibility that implicit contracts were not honored following the merger, I also consider whether some of the human capital possessed by the BSA's workers was specific to the BSA and thus was not fully transferable after the merger. I assume that specific capital was increasing in seniority, and, critically, that some human capital was specific to the individual branch (for example, knowledge of the local economy or of customers). This implies that senior BSA employees in branches that were closed or merged into existing UBA branches following the takeover would have lost more specific human capital than other employees.

II. Data

The primary data used in this study are the employment records of the BSA and UBA. The UBA records are drawn from 3 salary books which contain the entire career histories of all workers present at the bank in 1887 and all entrants to March 1900.⁸ The BSA data is from a series of annual cross-sections of all employees in 1864-1874 and 1879-1891.⁹ The records provide an unusually rich source of data which have several advantages over the data used in other studies. First, because all workers in the sample retired by 1945, the Australia New Zealand Banking Group has imposed minimal restrictions on disclosure of information, with only the names of individuals remaining confidential. Second, the data set contains the entire career histories of most employees at the two firms both prior and subsequent to their merger, including the pensions received upon retirement. Third, the data cover the complete career histories of these workers, including the pensions received after retirement, and thus does not omit on-going effects of the merger as in contemporary studies.

The BSA and UBA records differ somewhat in coverage. Both sets of records contain the date of entry; age; and annual position, branch of employment, and salary. In addition to the personnel records, the ANZ Group Archive contains a large volume of materials that describe the business and personnel practices of the UBA. Among the record groups utilized by this paper are the rules of the Guarantee and Provident Fund

⁷See Bhagat, Shliefer and Vishny, "Hostile Takeovers" on the exit rate of senior workers; Bertrand and Mullainathan, "Is there Discretion?" and Gokhale, Groshen, and Neumark, "Do Hostile Takeovers?" on wage growth and ; Ippolito and James, "LBO's"; and Pontiff, Shleifer and Weisbach, "Reversions" on pension fund reversions.

⁸U/271, U/205, Z/87.

⁹SA/20/1.

(U/277), the Annual Reports of the UBA's branches (U/218, U/219, U/220, U/221, U/222, U/223), the salary scales for junior employees (U/258/1, U/315/1), the Letters From Inspector & General Manager (U/258/1), and the Instructions to be Observed by Officers (U/195/1). Unfortunately, records for the BSA are far less comprehensive although the Agreement between the UBA and BSA (U/298/1) outlines the fate of the BSA's assets and the Reports on Officers (U/288/1) provides interesting information about the BSA's staff, including the pension fund.

III. Results

To examine salary profiles before the merger, I have used pooled cross-sectional time-series data to run a series of regressions on the natural log of real wages at the two organizations. The independent variables in the regressions are TOWN (1907 location population between 10,000 and 50,000), CITY (1907 location population between 50,000 and 500,000), METRO (1907 location population over 500,000) INFLATION, UNEMPLOYMENT, YEAR=1891, ENTAGE (age at entry), ENTAGE², TENURE, TENURE², TENURE³, TENURE⁴, BREMP (employees at the branch).¹⁰ A second specification also includes dummy variables for position (TELLER, ACCOUNTANT/TELLER, ACCOUNTANT, AGENT, MANAGER, BREMP*MANAGER, INSPECTOR, HEAD OFFICE). A third specification contains individual fixed effects and thus excludes the time-invariant independent variables (ENTAGE, ENTAGE²).

The regression results are shown in table 1. The results broadly confirm that personnel practices at the UBA and BSA were very similar prior to 1891. The fixed effects specifications suggest that the position variables are largely capturing the effects of omitted ability, and only at the level of manager or higher did positions carry a salary premium. The estimates suggest that BSA manager earned about 14 percent more than otherwise similar clerks, and UBA managers earned between 3 and 12 percent more depending on branch size. The results of greatest interest to this study concern the slopes of the tenure/salary profiles prior to the merger. Figure 1 shows the estimated profiles for two hypothetical employees. In the specification with position controls, the estimated profiles are virtually identical, while in the specification without controls the BSA profile is slightly steeper than the UBA profile. The coefficients on the tenure variables are very similar in the OLS and fixed effects specifications, suggesting that the continuous increases in real salaries was due to deferred compensation rather than an artefact of higher exit rates by lower ability employees.¹¹

To examine the short-run implications of the merger for salaries I have run a regression on the change in the natural log of real salary between December 1891 and October 1892. The independent variables used in the regression are TENURE, TENURE², BRGONE*TENURE (BRGONE equals 1 if the branch was closed or

¹⁰The UBA regressions also include dummy variables for colonies.

¹¹Seltzer and Merrett (2000) provide further evidence that the slope of the salary profiles reflects deferred compensation rather than selective exits. In order to reduce the potential effects of selective exits we 1) estimated profiles using cross-sectional data and 2) estimated profiles using only employees who remained at the bank for at least 30 years. In each case the pattern of late-career increases in salaries is very similar to those reported in this paper.

merged into an existing UBA branch following the merger), RURAL, ENTAGE, and $\ln[RS_{1891}]$ (natural log of real salary in 1891). If the UBA did not honour existing implicit contracts, one would expect that senior and highly paid BSA employees would be likely to suffer a pay cut. Similarly, senior employees at branches that were closed by the UBA were likely to suffer the largest loss of specific skills and thus take a pay cut.

About a quarter of BSA employees did not come over to the UBA, thus there is potentially exists a problem of selection bias. For example, employees who would have taken relatively large pay cuts may have been less likely to have gone over to the UBA following the merger. To control for this possibility, salaries have been estimated using the Heckman two-stage process with individuals leaving at the time of the merger treated as censored cases. In this model salaries are estimated as $W = X + U$ if $Z + \mu \geq 0$ and are treated as unobserved $Z + \mu < 0$, where Z is a vector of characteristics that determine whether the employee goes to the UBA. The first stage of the estimation procedure uses a probit regression to determine who goes to the UBA. The second stage estimates salaries using the non-selection hazard (inverse mills ratio) from the probit, $f(z)/[1 - f(Z)]$, as a selection correction. The independent variables used in the selection equation are CLOSE BRANCH (branch closed following the merger), MERGE BRANCH (branch merged into existing UBA branch following the merger), CLERK, and OVER45.

Table 2 shows selection corrected estimates of the change in log salary in the year following the merger. In the selection regression only OVER45 is statistically significant; older BSA workers were less likely to go over to the UBA. It is likely that these workers retired or were forced to resign or retire at the time of the merger. The results of the salary regression are strongly consistent with the view that the merger led to loss of specific human capital and renegotiation of contracts. The coefficients on BRGONE*TENURE, and $\ln(RS_{1891})$ have the expected signs and are statistically significant and quantitatively large. The results also imply that lengthy tenure at the BSA alone did not imply a large salary cut; only when it was coupled with a high BSA salary or the closure of their branch did long-tenured BSA employees take a large pay cut immediately following the merger.

To examine the longer-term consequences of the merger, I have run a set of pooled OLS regressions on the natural log of real annual salaries. The independent variables are the same as in table 2 with exceptions of adding BSA MANAGER, YEARSBSA (years worked at the BSA), YEARSBSA², TENURE*YEARS BSA, TENURE*YEARSBSA², YEARS BSA*BRANCH CLOSED, YEARS BSA*NEW BRANCH. The results of the regressions are shown in table 3. The results generally suggest that existing implicit contracts were not fully honoured following the merger. The UBA compensated service at the BSA at a lower rate than service at the UBA. The coefficient on TENURE*YEARS BSA is significantly less than zero, suggesting that older BSA employees had lower returns to tenure at the UBA, as would be the case if the UBA did not honour the BSA's implicit contracts. These effects can be illustrated by constructing predicted salary profiles from the regression results. Figure 2 shows the predicted profiles for four hypothetical employees. It can be seen that the profile of an 1891 entrant to the BSA is very similar to the profile of an 1892 direct entrant to the UBA. However, these profiles differ from the profiles of 1881 entrants to the BSA in two important ways. First, the 1881 BSA entrants took a sizeable pay

cut at the time of the merger. Secondly, they reached their maximum salary at about 20 years after they started at the BSA, after which time their salary remained roughly constant. On the other hand direct entrants to the UBA experienced substantial late-career salary growth. One possible explanation for this difference is that the older BSA employees were systematically of lower quality in some unobservable dimension. However, contrary to this hypothesis, former BSA employees advanced further and remained longer at the UBA on average than did direct entrants.

Finally, the UBA records contain information on the pension received by each worker which can be compared to the pension formula from the Guarantee and Provident Fund Rules, to determine the consequences of the merger for workers after retirement. The basic pension formula for UBA employees was $N/160 * AVGSAL$, where N is the number of half-years employed at the UBA and AVGSAL is the average salary over the final 10 years of the career. Former BSA employees received a UBA pension based only on the years served at the UBA, though they retained rights to the BSA pension fund based on their salary at the time of the merger. However, BSA pensions were capped at £200 which resulted in a substantial decrease for some existing BSA pensioners who had been receiving amounts up to £335.¹²

Table 4 shows the pension contributions and entitlements under the Guarantee and Provident Fund's 1927 rules for three hypothetical employees, based on the predicted salaries from figure 2. Former BSA employees entering the UBA at age 35 or older had to pay higher annual contribution rates, and it is evident from table 8 that lifetime contributions of the 1875 and 1881 BSA entrants were virtually identical, both being approximately 75 percent of the contributions made by the 1891 UBA entrant. However, the predicted real value of the 1875 and 1881 BSA entrant's pensions were only 36.4 and 29.5 percent respectively of the pension received by the 1891 UBA entrant. The BSA entrants were penalized in two ways. First, they had fewer years of UBA service and thus had a lower multiplier (value of N/160). Secondly, the flatter salary profiles of the former BSA employees shown in figure 2 meant that the pensionable salary (AVGSAL) was considerably lower for former-BSA employees.

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Table 1
Determinates of Salaries at the UBA and BSA Before 1892

	BSA	BSA	BSA	UBA	UBA	UBA
TOWN	-.0640* (2.09)	-.0112 (0.44)	.0173 (1.31)	.0081 (0.57)	.0545** (4.15)	.0097 (0.92)
CITY	.0077 (0.18)	.0192 (0.55)	.0274 (1.65)	.0984** (5.12)	.1760** (9.93)	.0438** (3.02)
METRO	.0921 (1.56)	.1659** (3.35)	.2183** (7.47)	.0472 (1.79)	.1300** (5.41)	.0639** (3.01)
INFLATION	-.0005 (0.21)	.00016 (0.08)	-.0019* (2.43)	-.0059** (4.39)	-.0061** (5.10)	-.0048** (7.10)
UNEMPLOYMENT	.0435** (6.04)	.0375** (6.20)	.0254** (10.09)	.0256** (6.11)	.0281** (7.59)	.0113** (5.20)
YEAR = 1891	-.0944* (2.00)	-.0832* (2.12)	.0714** (4.20)	-.0547* (2.16)	-.0561* (2.52)	.0902** (6.66)
ENTAGE	.0371** (2.78)	.0492** (4.32)		.0165* (2.38)	.0645** (9.78)	
ENTAGE ²	-.00038 (1.28)	-.00071** (2.74)		.00084** (5.82)	-.00047** (3.37)	
TENURE	.1531** (9.99)	.1534** (11.79)	.1196** (20.09)	.2860** (35.76)	.2850** (40.22)	.2530** (55.11)
TENURE ²	-.0054** (2.75)	-.0082** (4.89)	-.0050** (6.64)	-.0213** (19.02)	-.0234** (23.40)	-.0185** (29.41)
TENURE ³	.00011 (1.17)	.00022** (2.81)	.00012** (3.69)	.00076** (13.84)	.00085** (17.31)	.00061** (20.02)
TENURE ⁴	-.0000066 (0.49)	-.0000018 (1.60)	-.0000014** (2.75)	-.0000098** (11.25)	-.000011** (14.02)	-.0000074** (15.36)
BREMP	-.0021 (1.50)	.0059** (4.55)	-.0009 (1.48)	-.00034 (1.21)	.0002 (0.85)	.00054** (2.63)
TELLER		.2571** (6.41)	.0382 (1.93)		.1900** (8.84)	.0277 (1.92)
ACCOUNTANT/TELLER		.4966** (10.13)	.0406 (1.65)		-.4030 (1.41)	-.0476 (0.26)
ACCOUNTANT		.2767** (10.13)	-.0022 (0.15)		.1950** (11.22)	.0135 (1.12)
AGENT		.3257** (10.05)	.0475** (2.62)			
MANAGER		.6674** (17.04)	.1451** (6.81)		.3200** (16.97)	.0316* (2.13)
BREMP*MANAGER		-.0028 (0.98)	.0005 (0.37)		.0081** (14.83)	.0028** (6.56)
HEAD OFFICE		1.1951** (10.24)	.0786 (1.31)		.8540** (6.04)	-.3430** (3.12)
INSPECTOR					1.1390** (17.77)	.5900** (11.12)
State Dummies	NO	NO	NO	YES	YES	YES
Individual Fixed Effects	NO	NO	YES	NO	NO	YES
CONSTANT	3.4872** (23.08)	3.2098** (25.27)	0.0164** (5.17)	3.205** (38.50)	2.727** (35.02)	.000094 (0.04)
F	275.15**	286.91**	516.46**	721.15**	720.71**	727.23**
Adjusted R ²	.7766	.8480	.9003	.7660	.8170	.8060
Sample Size	1026	1026	1028	4191	4191	4197

Notes: * = Significance at the 5 per cent level, ** = Significance at the 1 per cent level, Dependent variable is log real salary, Absolute value of the t-statistic in parentheses, For the BSA INSPECTOR & HEADOFFICE are combined

Table 2
Determinates of Initial Change in Salaries after Moving to the UBA

Independent Variable	Coefficient
TENURE	.0153 (1.58)
TENURE ²	-.00045* (2.28)
BRGONE*TENURE	-.0060* (2.48)
RURAL	-.0335 (0.39)
ENTAGE	.0053 (1.41)
Ln (RS ₁₈₉₁)	-.1646** (3.17)
Constant	.7113** (4.11)
Likelihood ratio	14.8604
Wald χ^2	113.49**
Sample size	100
Censored cases	24
Selection Regression	
BRANCH CLOSED	-.5014 (0.82)
BRANCH MERGED	-.2377 (0.65)
CLERK	.1280 (0.43)
OVER45	-.9709* (2.10)
CONS	.8657** (3.06)

Notes: * = Significance at the 5 per cent level

** = Significance at the 1 per cent level

Dependent variable is Ln (RS₁₈₉₂) - Ln (RS₁₈₉₁) [the change in log real salary]

Absolute value of the t-statistic in parentheses

Table 3
Determinates of Real Salaries at the UBA, 1892-1945

Independent Variable		
ENTAGE	.0289** (10.78)	.0260** (8.57)
ENTAGE ²	.00009 (1.74)	.00028** (4.60)
TENURE	.2313** (80.40)	.2199** (67.83)
TENURE ²	-.0146** (49.85)	-.0125** (37.60)
TENURE ³	.00040** (36.93)	.00032** (26.24)
TENURE ⁴	-.0000037** (29.02)	.0000028** (19.34)
BREMP	.00034* (3.41)	-.00097** (9.17)
TELLER	.0537** (5.61)	
ACCOUNTANT/TELLER	.0599** (6.01)	
ACCOUNTANT	.2226** (21.85)	
MANAGER	.3494** (36.93)	
BREMP*MANAGER	.0058** (21.89)	
INSPECTOR	.7563** (42.43)	
GENERAL MANAGER	.9050** (7.65)	
BSA MANAGER91	.0723* (3.07)	.3243** (12.33)
YEARS BSA	.0433** (16.54)	.0535** (17.95)
(YEARS BSA) ²	-.0011** (9.50)	-.0016** (11.72)
TENURE * YEARS BSA	-.0021** (12.11)	-.0024** (11.93)
TENURE * (YEARS BSA) ²	-.00000036 (0.04)	.0000029 (0.27)
YEARS BSA * BRANCH CLOSED	-.0077** (4.60)	-.0193** (10.29)
YEARS BSA * NEW BRANCH	.0023 (1.57)	-.0018 (1.07)
CONSTANT	3.2722** (96.42)	3.3541** (87.13)
F	2082.40**	1901.52**
Adjusted R ²	.8259	.7734
Sample Size	14,478	14,478

Notes: * = Significance at the 1 per cent level, ** = Significance at the .1 per cent level, Dependent variable is Ln (RS), Absolute value of the t-statistic in parentheses, Coefficients for TOWN, CITY, METRO, INFLATION, UNEMPLOYMENT, and state dummies are not reported.

Table 4
Estimated Pension Contributions and Entitlements

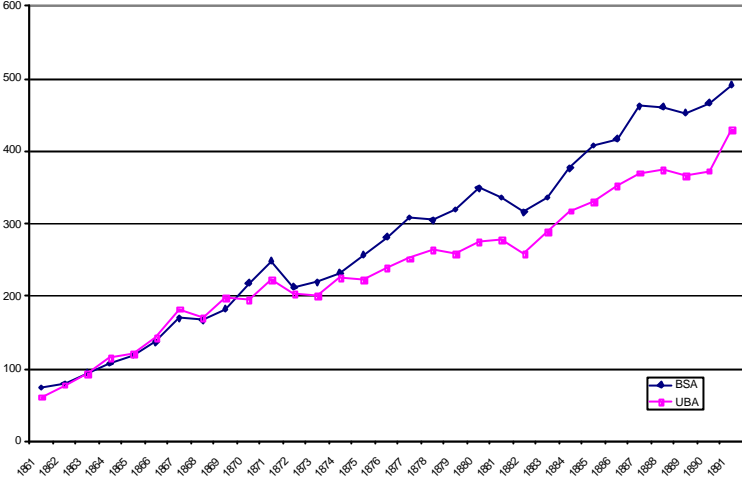
	UBA –1891 entrant	BSA – 1881 entrant	BSA –1875 entrant
Contribution rate first 5 years	4.1%	4.1%	7.0%
Contribution rate remaining years	4.1%	4.1%	5.0%
Predicted Total contributions (3% discount rate)	£720.40	£543.81	£541.58
Years pensionable service	42	30.5	24.5
Average salary based on final ___ years	20	20	12
Predicted average nominal salary	£375.01	£255.65	£227.87
Predicted Nominal Pension	£248.90	£99.07	£66.49
Real Value at the time of retirement (1911-12 pounds)	£188.56	£68.63	£55.63

Notes: Individuals are assumed to enter at age 18 and retire at age 60. Predicted salaries are computed as in Figure 2.

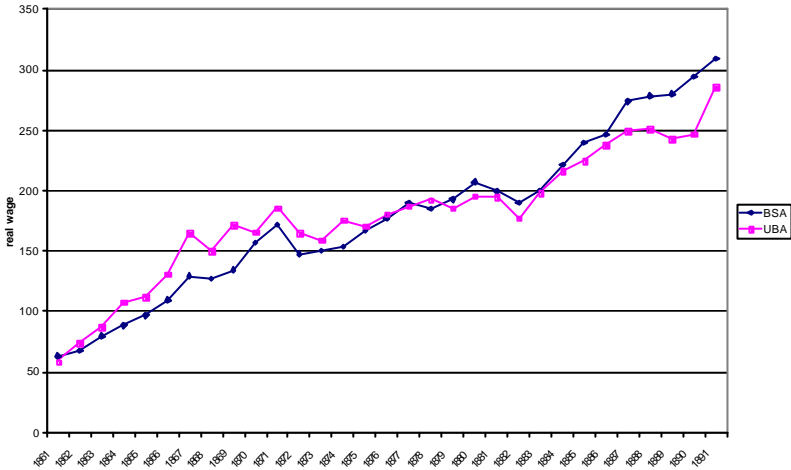
Source: All pension rules are from U/277, salary data are from U/271.

Figure 1
Predicted Salary Profiles at the UBA and BSA Prior to the Merger

A. No Position Controls



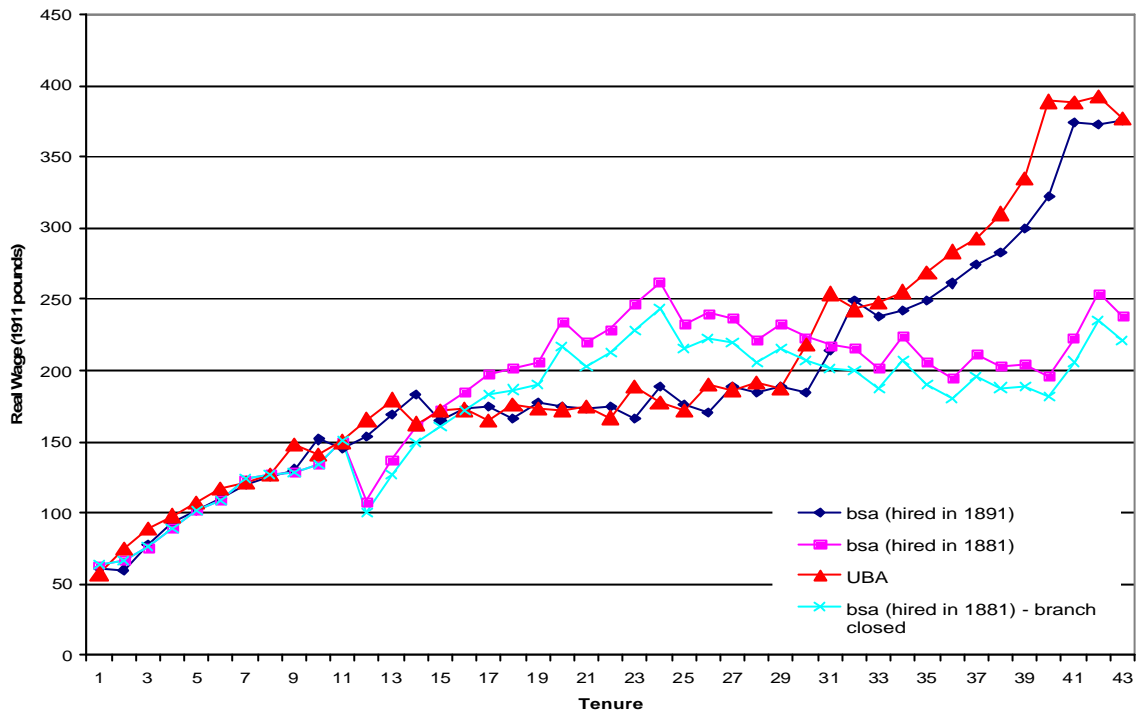
B. Position = Clerk



Notes: Predicted values are for an employee entering at age 18 in 1870, working as a clerk in a rural branch with 5 employees.

Source: Table 1

Figure 2
Predicted Salary Profiles of UBA Employees After the Merger



Note: Predicted values are for an employee beginning their banking career at age 18, working as a clerk in a South Australian rural branch with 5 employees.

Source: Tables 1 and 3