WORKFORCE AND EMPLOYMENT ESTIMATES: NEW ZEALAND 1921-1939

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Abstract

New Zealand does not have a consistent set of employment and unemployment data for the interwar years. The best source is the Population Census which was held three times, but not during the Great Depression. There is also a consistent set of official factory statistics which commences in 1921, and can be separated into males and females, adults and minors. This paper uses an estimate for the 1933 workforce that is equivalent to the census data points of 1921, 1926 and 1936. It also uses officially sourced employment estimates for 1939. From these data points, from the factory data, and from Post Office Savings Bank balances, a set of equations are constructed from which annual employment data are drawn. Workforce estimates for periods of high unemployment are interpolated in accordance with the subsequent recoveries. The 1920s was a period of insecurity and low female participation. The 1930s saw a transformation from mass unemployment to full employment in just six years, despite a rise in labour force participation.

The interwar years were a tumultuous period of New Zealand's labour history; years in which the general experiences were overwhelmed by those of the Great Depression of the early 1930s. The interwar years were not years of prolonged slump; they were years in which technological change transformed the New Zealand way of life (Watson 1984) and years in which growth (especially in manufacturing and services) predominated despite the setbacks (Rankin 1992). The 1920s were years of 'insecurity and instability' (Hawke 1985, p.102). The contented colony of the early 1900s was facing up to the new realities of the second industrial revolution. There were always going to be some stresses and strains in the interwar labour market. How did it respond?

While widespread recollection of interwar hardship and insecurity came to pervade New Zealand's collective consciousness to an unusual extent, most of the scant quantitative literature suggests that unemployment in New Zealand was not as great as in other comparable countries (Olssen 1990, Hawke 1985 p.124, Macrae and Sinclair 1975). I have questioned this view (Rankin 1990, 1995) by exploring the similarities and differences between the New Zealand and Australian experiences of the Depression, concluding that the two countries' experiences were comparable. Nevertheless, even allowing for the Hawke/Olssen view, the contrast between the Depression and the years that followed was very great. The achievement of security - full employment, an insulated tradeables sector, and a universal welfare safety net - came to be embodied in the legendary portrait of Michael Joseph Savage, Prime Minister and father figure of the nation from 1936 to 1940.

Concepts

The concept of 'workforce' that I am using is somewhat different from the 'labour force' concept that is embodied in the modern Household Labour Force Survey. It is based on the premise that the workforce is a comparatively stable segment of the working age population. Indeed, the workforce is the remainder of the working-age population, once people who can be identified with other activity categories (eg student, homemaker, retired) have been deducted. Discouraged workers who are unable or unwilling to seek work via formal methods are therefore seen as being in the workforce. They are as much a part of any 'unemployment problem' as are the unambiguously unemployed.

As a result of my approach, I am most comfortable with the terms 'core employment' and 'residual workforce' as the key sub-divisions of the workforce. Core employment consists of those identified in the census tables as 'employers', 'working on own account', 'wage or salary earner' or 'apprentice'. The residual workforce is the remainder of the working-age population, once the non-workforce and the core employed have been accounted for.

Part-time employment was established as a new employment category in the 1933 and 1936 censuses. In the New Zealand census, the label was 'part-time unemployed'. The category 'relative assisting without pay' tended to rise with unemployment, while those who did not specify a workforce status had incomes commensurate with the unemployed. These three categories have been classified

with the unemployed in the residual workforce.

The residual workforce included many females - single and married - who were classified in the census as being 'dependent'. The reclassifications ensured that female unemployment rates were never lower than male rates, and also reflected increased numbers of women with incomes. Many of those in the residual workforce were employed intermittently during the Depression; they had an income, albeit very low. Indeed, if a modern labour force survey had been taken in 1933 or 1936, the numbers of females classed as jobless or employed part-time would have been very high. In all probability, a clear majority of women in households adversely affected by the Depression would have been either seeking employment or available for work. Many, of course, were working on their own account; making and selling products such as handicrafts, home-baked food, fresh vegetables, eggs, as well as performing a variety of services for cash. Much of this also applies to teenage males. It is interesting to note, however, that during the Depression there was a tendency for jobless sons to stay on at school, whereas daughters were increasingly withheld from school (Rankin 1990, ch.3).

It is important to note that the following estimates apply only to the non-Maori population. Almost certainly, Maori unemployment rates were higher (Macrae and Sinclair 1975). The non-Maori population database has been easier to use when age disaggregation is required. Another problem relates to the marginalisation of Maori, away from the industrialised economy in which there was a clear distinction between being 'at work' and 'at home'. This problem should not be overstated, however, because Pakeha economic activity in the Depression years also became less formally structured.

Estimating the Employment Series

The starting point for any analysis of the New Zealand labour market in the inter-war period (1919-1939) is the Population Census. Three were conducted: 1921, 1926 and 1936. To estimate employment and workforce participation for the depth of the Great Depression, I have used the Australian census of 1933 as if it were a New Zealand census (Rankin 1990, Rankin 1995). The technique has been to adjust the Australian data, disaggregated by sex and age, to a New Zealand population base. To allow for the census understatement of female unemployment and casual employment, adjustments were made to the 1926, 1933 and 1936 female workforce (Rankin 1995). No adjustments were required for 1921.

The census employment and benchmark workforce data are presented in table 1. I have added employment benchmarks for 1939 derived from data taken from the Reports of the National Service Department (AJHR H-11A, 1945, ¶230). 1945 census data are presented also so that a comparison can be made between the immediate pre-World War 2 period with the immediate post-war period, making it possible to separate changes in participation rates that took place in the 1930s from others that occurred in the 1940s.

The 1939 benchmark has problems in that it can only be separated into adults and minors on the basis of educated guesswork. There is also concern that the 1939 female employment statistic may be inflated. Certainly the National Service Department estimates for females for 1945 were well above the census totals. The main problem appears to have been that many women who moved into factories and offices during the war were transferring from domestic service, but had been counted as additions to the workforce. The published 1939 data are based on Septem-

Table 1: Core employment and workforce benchmarks, New Zealand 1921-45

	MALES		FEMALES	
	Adult EMA	Youth EMY	Adult EFA	Youth EFY
Employment				
1921	307,088	42,344	67,700	32,400
1926	367,960	58,306	74,892	35,030
1933	307,088	42,344	76,000	30,600
1936	380,063	59,637	93,237	40,357
1939	445,000	75,000	132,000	43,000
1945	408,200	54,300	111,600	48,600
Workforce				
1921	337,900	59,600	75,700	36,000
1926	373,115	65,185	81,488	37,500
1933	418,487	64,225	149,343	48,000
1936	435,046	69,587	152,340	47,700

Source: see text and appendix 1

Table 2. Employment in New Zealand factories, 1921-39.

	MALES		FEMALES	
	adult FMA	youth FMY	adult FFA	youth FFY
1921	39,500	8,907	11,194	5,587
1922	38,237	8,643	10,841	5,411
1923	40,684	9,849	12,130	5,858
1924	41,782	10,256	11,820	5,817
1925	43,672	10,468	12,048	6,053
1926	43,531	10,369	12,287	6,155
1927	42,519	10,893	12,807	6,597
1928	43,035	11,060	13,224	6,801
1929	43,138	11,513	13,696	7,257
1930	45,443	11,874	14,823	7,376
1931	37,601	10,815	12,776	6,278
1932	31,269	11,022	13,143	6,274
1933	31,727	11,894	13,659	6,004
1934	33,506	12,799	15,184	6,165
1935	38,108	13,696	17,204	6,559
1936	43,445	14,192	19,070	7,200
1937	50,384	14,499	22,452	9,976
1938	52,508	14,575	22,059	10,843
1939	53,474	15,394	22,640	11,288

Source:NZ Census and Statistics Office (refer appendix 1)
Note: Youths are workers aged 14-20 inclusive.

ber of that year. As 1939 was a year of quite high economic growth, I deducted 5,000 females to form the March employment benchmark, of 175,000. Because of offsetting seasonal factors, I left the male employment benchmark at 520,000.

To interpolate the benchmark employment data, I have used a multiple regression technique, with the key regressor being the factory workforce. Factory employment statistics were made available on a consistent basis from 1921 to 1939. Furthermore, they are broken down each year on the basis of wage rates. For each sex, the wages show a bi-modal distribution. I have concluded that the lower peak represents minors while the higher peak represents adult workers. By separating minors from adults, it has been possible to extract four regressor series from the factory data. They are presented in table 2.

The other main regressor used was Post Office Savings Bank balances ('POSB'). These are sensitive to the employment circumstances of ordinary families, whereas trading bank balances are biased in favour of the wealthier minority, and firms rather than households. My initial line estimations ('simple regressions' in table 4) have used just four years as data points (ie excluding the less reliable 1939 benchmark). From these regressions, I estimated the most probable breakdown between adults and minors for 1939.

There was a fall in Post Office funds after 1938 which cannot be explained by reduced economic activity. Therefore I have included a dummy variable regressor ('PDUM') to account for the year 1939. For my final line estimations, I have made use of two other regressors: GNP per capita ('GNPC'), and the general price level ('PRICE'). The supplementary regressor series are presented in table 3.

Table 4 presents the line estimation equations that I have used for inter-benchmark interpolation. (The 'PRICE' regressor gave a better fit than 'PDUM' for adults, whereas 'PDUM' was preferred for minors.) The resulting employment estimates are tabulated in appendix 2. The time series are shown below in figure 1.

The employment estimates need to be interpreted with some care. In particular, the extent of the fluctuations in teenage employment in the late 1920s should be treated with a degree of scepticism. Nevertheless, there are grounds for accepting that these estimates are valid. 1927 did represent a very sharp downturn in the provincial

Table 3. Series of regressors used to generate the employment functions

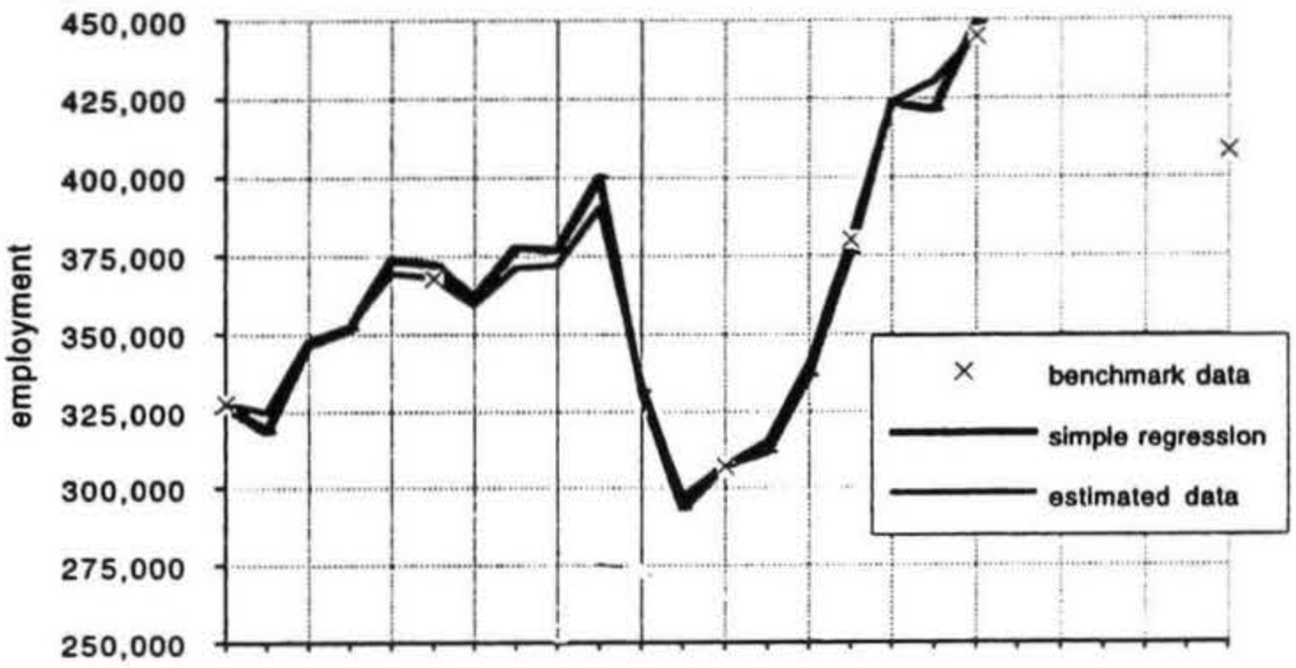
YEAR	POSB	PDUM	GNPC	PRICE
	£ per person		£ per person	
	(1)	(2)	(3)	(4)
1921	34.20	0	75.0	1906
1922	33.69	0	70.8	1613
1923	33.47	0	75.2	1618
1924	34.20	0	75.1	1674
1925	34.03	0	77.5	1688
1926	33.98	0	71.9	1619
1927	34.06	0	68.7	1564
1928	32.85	0	75.5	1586
1929	33.07	0	77.3	1585
1930	33.20	0	73.0	1523
1931	31.53	0	65.9	1344
1932	28.35	0	63.7	1263
1933	27.33	0	67.5	1249
1934	28.95	0	70.4	1284
1935	31.66	0	73.3	1383
1936	33.62	0	86.4	1419
1937	36.58	0	90.4	1522
1938	39.36	0	95.8	1555
1939	37.37	1	95.9	1657

Notes
(1)Post Office Savings Bank balances (nominal) per capita (incl. Maoris), in NZ£.
(2)Dummy variable to exclude the 1939 data, which does not originate from any population census.
(3)Real Gross National Product per capita, in NZ£1910/11.
(4)Wholesale Price Index, excl. imports (1000 = 1910/11).

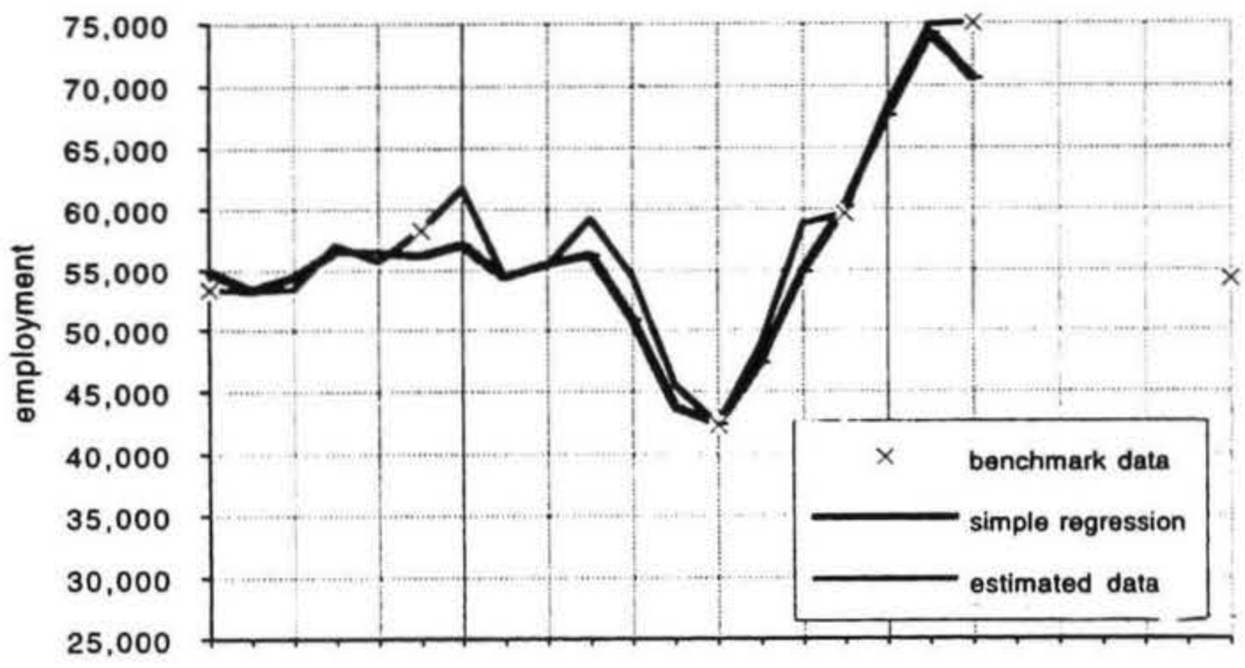
Source:Bloomfield, pp.391-392 Rankin 1992, Tables 3 & 4

Figure 1. Inter-war employment estimates

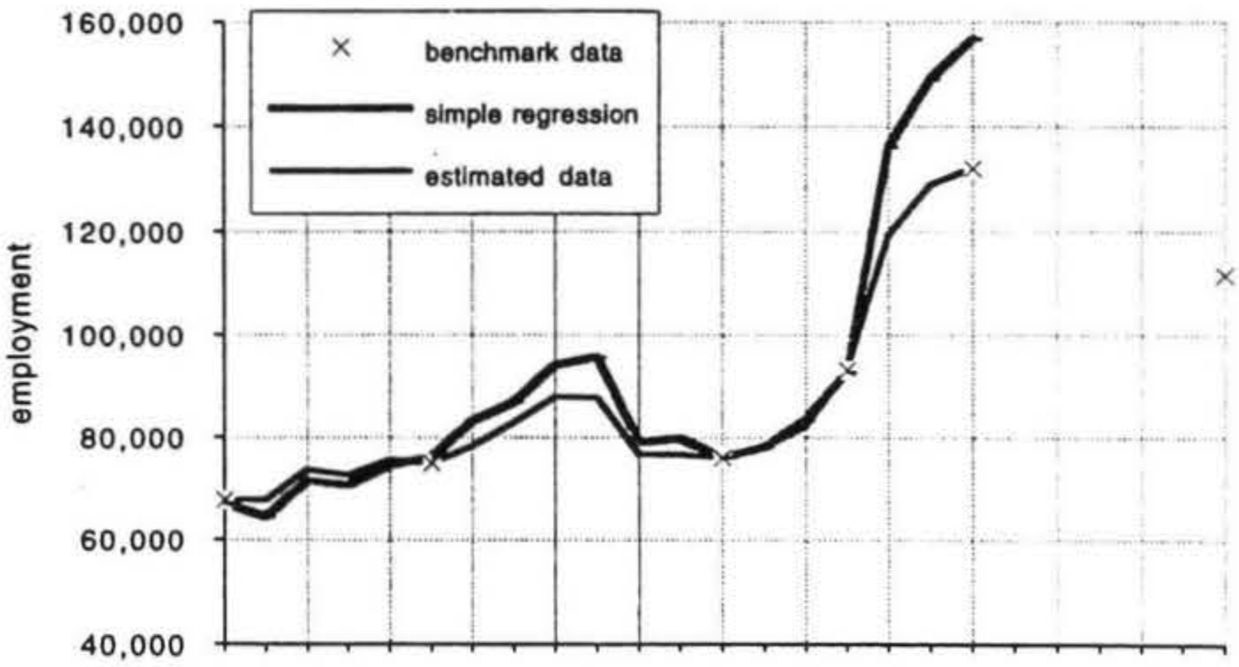
a. Males (over 21)



b. Males under 21



c. Females over 21



d. Females under 21

hinterlands; many teenagers who left school to support their families must have found work at the expense of their elders who were highly paid (Rankin 1990:155-56). Many of those extra teenage workers will have retained their jobs as they became adults. However, there was not enough job growth to satisfy new workforce entrants in the summers of 1927/28 and 1928/29 (Neale 1929 p.81). A similar situation occurred in 1935/36, after teenage employment growth led the post-Depression recovery. In the late 1920s, there was a drift of young people to the towns (Fisher 1929).

The comparisons between 1939 and 1945 are interesting, in that they show that it was the Depression rather than the War which acted to bring women into the workforce. Certainly the employment rate of single women picked up during the World War 2, but that was offset by more women getting married and starting families. Surprisingly, male employment rates fell during the war years. As Ruth (1950) pointed out, it was the greater access to alternatives to employment - especially retirement and education - that underpinned the falling male unemployment rates during the 1940s.

Workforce Estimates

Annual workforce estimates were derived by joining the benchmark workforce participation rates in accordance with three basic rules. In years of declining employment, participation rates for teenagers and females were raised because of the added-worker effect. That is, periods of negative growth are linked to an influx of non-traditional workers seeking to supplement household incomes in the face of redundancy, short-time or wage cuts to primary breadwinners (adult males, by social convention). Recovery phases see a constant participation rate as the workforce becomes less unemployed. Once post-recovery expansion takes hold, non-traditional workers tend to leave the workforce, for example to start families.

A ratchet effect clearly took place, however, from the late 1920s, leaving women with permanently higher participation rates. The periods of falling participation rates were not long enough to offset the rapid influx of job seekers during the downturns. This trend of rising female participation was accentuated by structural change favouring the growth of new occupations around which male cultures had not developed.

Estimated workforce participation and employment rates are presented in figure 2.

Male minors show a big decline in participation in the Depression if the census benchmarks are used. However, it is clear that male teenagers' patterns of workforce activity were strongly correlated with those of female minors. I did not adjust the census benchmarks for teenage males, as I did for females (in Rankin 1995). Instead, as is shown in figure 2b, I have overridden their census workforce participation rates. The recovery reveals a high rate of male teenagers wanting work during the Depression. It is not plausible that fewer teenagers wanted to work in 1933 than in 1938.

The estimates of the entire workforce are tabulated in appendix 2, along with the core employment data. The workforce includes a few people aged less than 14, plus many aged over 65. All of those in the workforce not classed as being in core employment come into the residual workforce category, a broad measure of unemployment.

Table 4. Estimated Employment Functions for New Zealand, 1921-1939.

Male Adults

a) EMA = 110.8*YEAR + 10.6*FMA - 8873*POSB simple regression [t = 5.7, 6.6, 3.3; R^2 = 0.989]
EMA = 99.6*YEAR + 9.27*FMA - 7842*POSB + 528*GNPC [t = 7.9, 11.5, 6.2, 1.6; R^2 = 0.999]
EMA = 86.5*YEAR + 8.27*FMA - 4418*POSB + 397*GNPC - 22.9*PRICE

Male Youths

b) EMY = -19.6*YEAR + 1.32*FMY + 2361*POSB simple regression [t = 2.0, 1.86, 5.0; R^2 = 0.962]
EMY = -30.6*YEAR + 3.20*FMY + 3605*POSB - 531*GNPC [t = 4.3, 2.2, 3.7, 1.08; R^2 = 0.989]
EMY = -24.0*YEAR + 2.80*FMY + 3374*POSB - 544*GNPC + 4556*PDUM

Female Adults

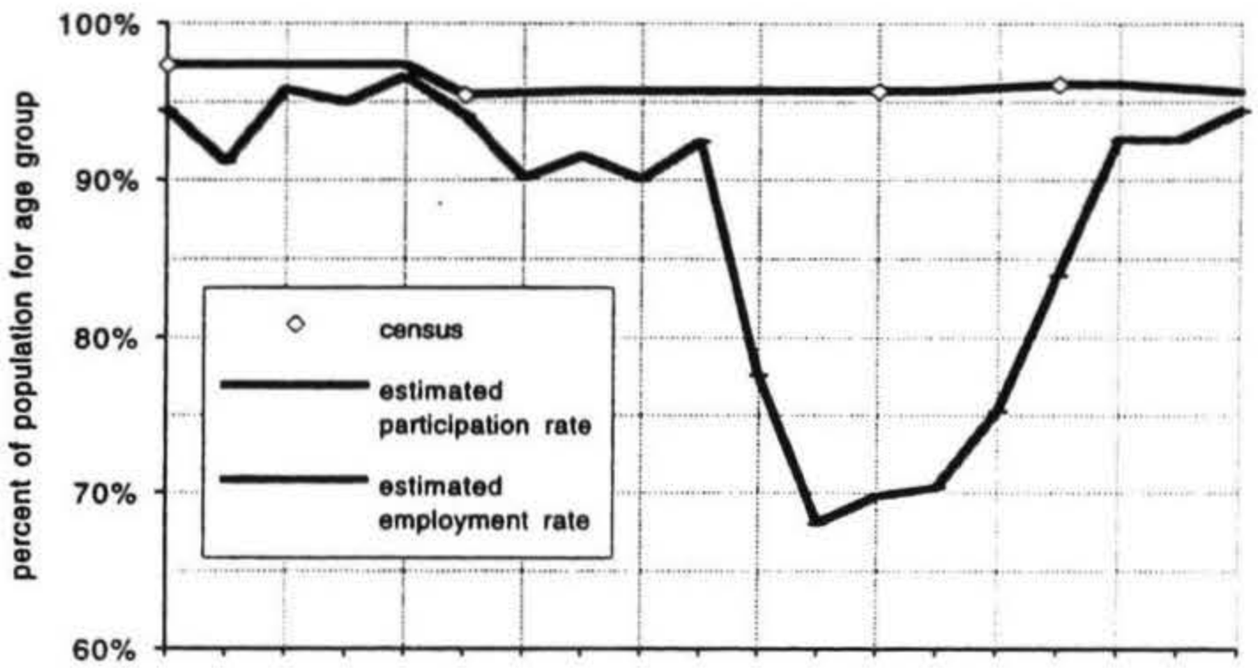
c) EFA = -5.21*YEAR + 16.0*FFA - 358*POSB simple regression [t = .96, 12.6, 1.4; R^2 = 0.994]
EFA = 4.41*YEAR + 9.41*FFA - 1066*POSB + 599*GNPC [t = .60, 7.4, 1.8, 1.8; R^2 = 0.997]
EFA = 3.22*YEAR + 9.15*FFA - 17.3*POSB + 442*GNPC -11.6*PRICE

Female Youths

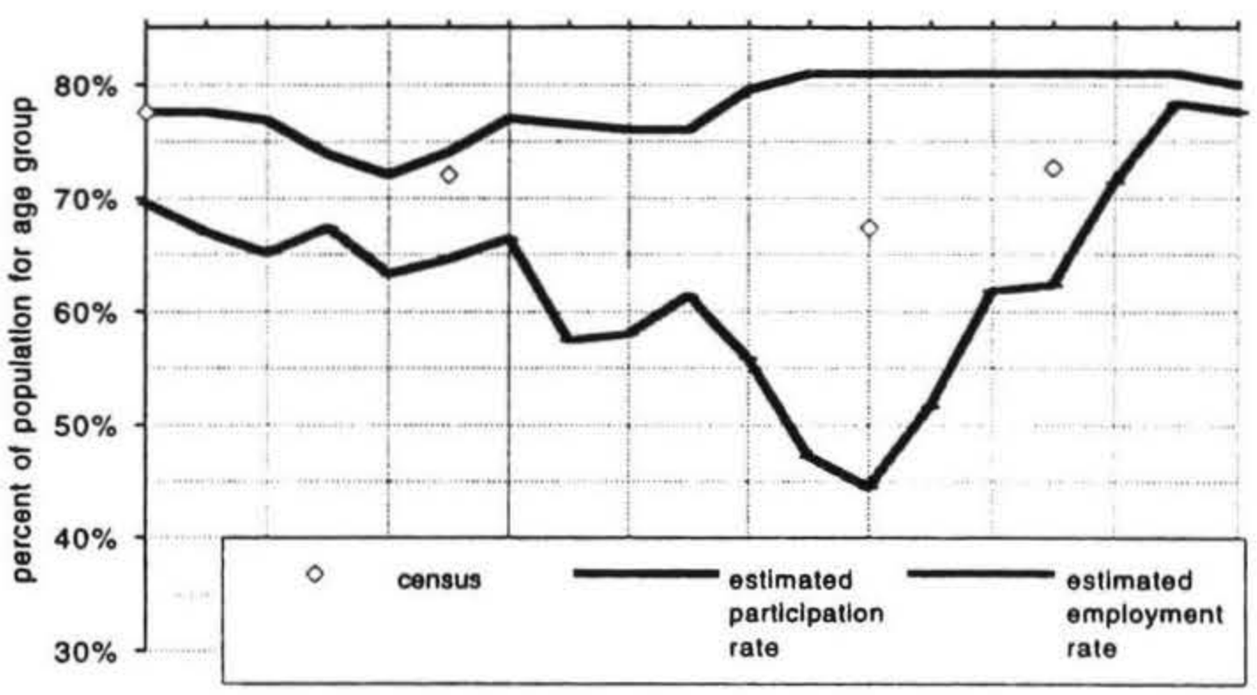
d) EFY = 0.398*YEAR + 1.19*FFY + 759*POSB simple regression [t = 2.0, 1.86, 5.0; R^2 = 0.956]
EFY = -0.255*YEAR + 1.73*FFY + 1146*POSB - 203*GNPC [t = 0.08, 2.13, 1.97, 0.67; R^2 = 0.985]
EFY = 3.05*YEAR + 2.41*FFY + 1586*POSB - 550*GNPC + 3125*PDUM

Figure 2. Inter-war workforce participation rates, New Zealand

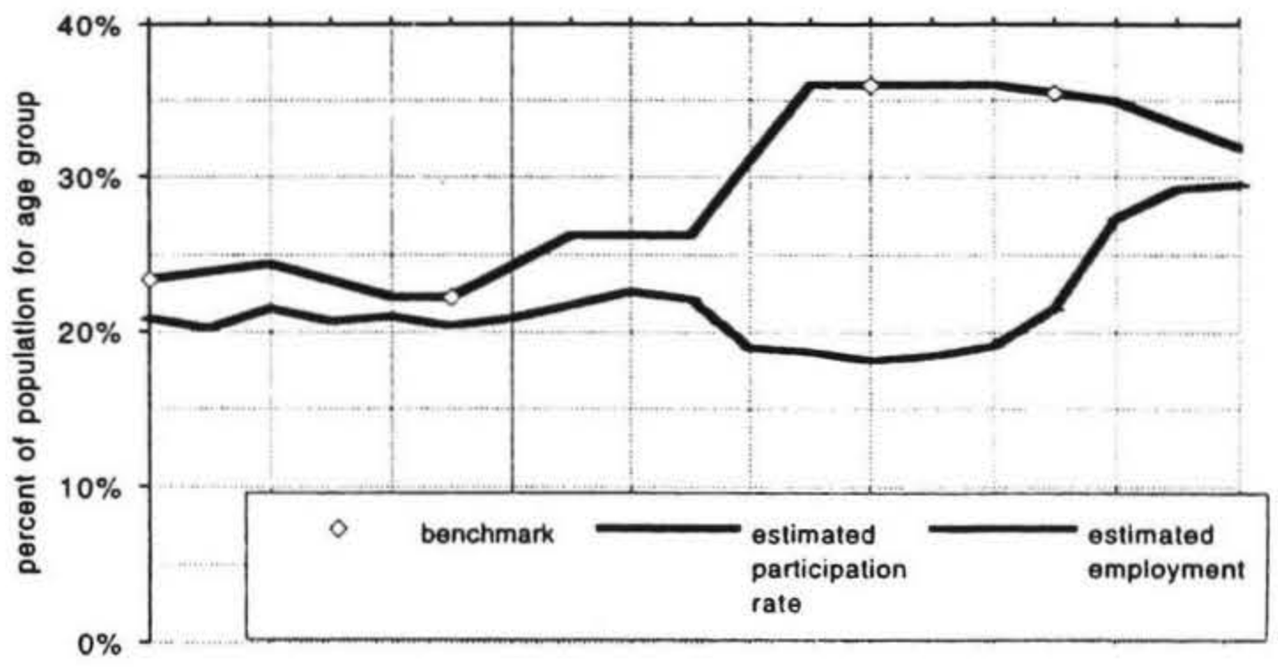
Males aged 21-64



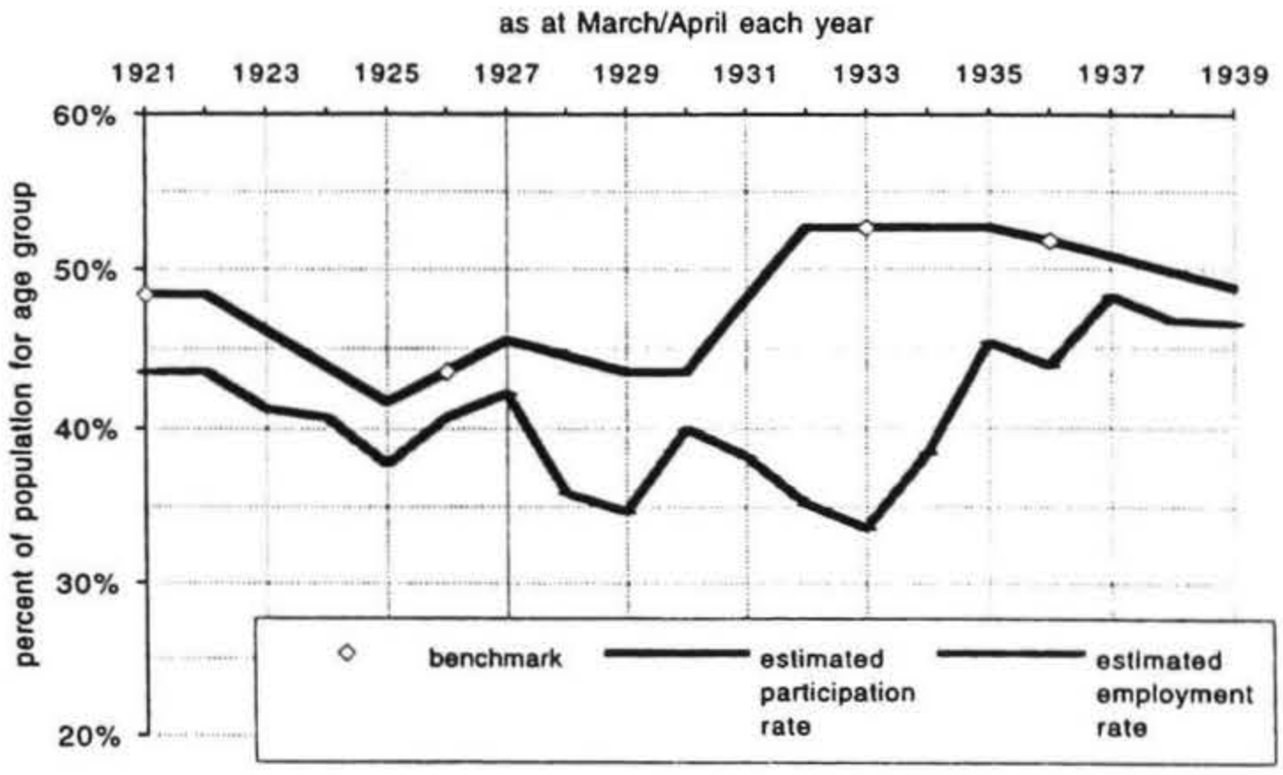
Males aged 14-20



Females aged 21-64



Females aged 14-20



Unemployment Estimates

Appendix 2 divides the workforce into its two constituent parts. The resulting unemployment rates reflect the same kind of pattern that was present in Australia, the United States and Canada. Joblessness peaked during the winter of 1932, exceeding 35% of the workforce: 240,000 men, women and teenagers. This is remarkably similar to the 'ballpark' estimate used by Elizabeth McCombs in Parliament (NZPD, 28 September 1933) based on a similar definition of unemployment.

Appendix 3 sub-divides the working-age population. Of major significance is the non-participation rate. For teenagers, the full-employment year of 1925 clearly coincides with the highest non-participation rates. The table suggests that 9% of males aged 14-20 were obliged to enter the workforce as a result of deteriorating economic conditions from the late 1920s. For young females, the equivalent figure is 11%. For adult females, with the highest non-participation rates, an estimated 14% wanted to work who would not have so wished in 1925. This is confirmed by the much lower fertility rates and marriage rates between 1926 and 1936 (Rankin 1990, ch.2). Because adult male participation rates were much higher in the inter-war years than they are now, by any measure of participation, unemployment rates tended to be higher than they have been in recent years, for similar levels of employment.

I have suggested elsewhere (Rankin 1994) that the drop in median per capita real incomes may have been as great as 50% from 1930 to 1933. This relationship is inferred from a comparison between census median incomes and time series of GNP per capita. This certainly underpins the big drop in employment, and suggests that the 26% fall in male adult core employment rates (from 86.5% to 64.1%) may have only been part of the story. In Broomhill's account of South Australian conditions in 1931-32 (Broomhill 1974), only one-third of the male workforce was fully employed; ie neither unemployed nor underemployed. Australia's recovery was well under way at the time its census was taken, whereas New Zealand's registered unemployment was at its peak. There is no hard evidence that New Zealand's experience of underemployment was less marked than Australia's. Hours worked by male wage earners almost certainly fell by much more than 26%.

Conclusion

How would this paper's estimates compare with estimates consistent with modern labour force surveys? My view is that male labour force participation rates would have been, at least for the Depression years, somewhat lower under HLFS criteria, while employment rates would have been higher, with many more men - for example those on relief work - being classed as employed. On the other hand, it is likely that a modern survey would have counted many more women as unemployed - or at least jobless, given the lack of channels through which women could 'actively seek' employment - than I have estimated here.

Women were seen as taking men's jobs, and were even more ardently discriminated against in the mid-1930s than in the 1920s. Nevertheless, the structural changes in the wider economy reinforced the market and political responses to the Depression, creating new employment opportunities in the late 1930s for female job-seekers and, in the 1940s, more leisure opportunities for men.

My estimates for peak inter-war unemployment involve a relatively liberal interpretation of the term 'unemployment'. However, within that interpretation, these unemployment estimates may be conservative. Income data suggest a huge fall in wages paid. Female employment rates were low by today's standards, in the 1920s as well as during the Depression. That means that there was much more scope for people to enter the workforce (or remain in the workforce) in response to a household budgeting crisis than there is in the 1990s. Thus, very high rates of female unemployment were plausible in the inter-war context, given the potentially high transfer rates of females from non-participation to unemployment.

Unemployment during the interwar years was significantly higher than official estimates used at the time and, later, by social and economic historians. New Zealand's unemployment levels were not different from those of comparable English speaking countries. New Zealand was however unique in the extent and speed of its recovery. A different perception of normalcy made the Depression seem particularly great.

Future Research

This paper gives a sketch of aggregate labour market activity during the Great Depression in relation to the rest of the interwar period, in the form of time series that can be used in econometric studies.

As well as facilitating such quantitative research, the data presented here can be used to further understand present-day labour markets. Historical context is important in the understanding of labour supply and labour demand. Are the trade-offs being made by families and individuals - between paid work, unpaid work and leisure - different today because our history has changed our values and our range of choices? Or can we predict future developments in labour supply from the kinds of responses that people made during the stressful interwar years? How does technological change affect the demand for labour? The interwar years give an insight to the workings of job creation under conditions of instability, disequilibrium and changing production functions.

My present work can be extended in three different directions. First, comparable Maori workforce estimates should be synthesised. Second, we need annual employment data disaggregated by sector. These data will necessarily include Maori, because private sources such as archived business records will not have discriminated between Maori and non-Maori. Third, we need employment and workforce estimates that extend back well into the nineteenth century.

There is also a need to understand the labour market by examining (from literary and oral history as well as quantitative sources) changes in the activity preferences of all segments of the population; to learn about the way household decisions which affect the extent of individuals' attachment to the labour force have been made. Employment is a means to other ends - essentially disposable income but also social belonging, indeed social status. Employment is a cost rather than a benefit that involves leasing our time to someone else in order to achieve these ends. Work, on the other hand, can have other rewards; eg the satisfaction of producing something, or of raising a family.

Labour market research needs to focus more on the distinction between means and ends, and the distinction between employment and work. Otherwise we tend to assume that employment is an end in itself; a good that successful labour markets produce in high quantities. My study of the interwar period suggests that rising female labour supply was a cost borne by families in distress; a cost which nevertheless satisfied a number of ends, *ex post*. It is now time to investigate ways in which the benefits high levels of employment have given us can be achieved by other means. We can learn from the way the 1920s' labour market was evolving before being hit by the Great Depression; from the fact that the majority of households had gained discretion over how family members spent their time. That period was characterised by low participation rates, rising leisure and socialisation through voluntary activities, and large scale transfer payments (albeit within households). The unnecessary gender bias and internalisation of transfer payments aside, the early 1920s may be able to teach us something about how labour markets can operate successfully without providing for mass employment. What are the opportunity costs of high participation rates? The interwar period can give us some clues.

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Appendix 1: Note on sources.

All of the data presented in figures 1 and 2, and in the Appendix tables are my estimates of the size and composition of the New Zealand workforce from 1921 to 1939.

The census employment benchmarks presented in table 1 come from the various population censuses cited (the volumes on Industries and Occupations). The key table is that of employment status (or grade) against sex and age cohort. In the Australian Census of 1933, the data is presented in tables 14 & 15, of chapter XXIV (pp.275-276). Benchmark data for the male workforce were derived from the same census tables, as were the 1921 female workforce statistics. For the other female workforce benchmarks the census data were modified as per table 10 of Rankin (1995).

Population data disaggregated by age, are taken from the censuses, or from the official inter-censal estimates given in the *Statistics of Population and Buildings*. Where possible, mean calendar year data has been used. Otherwise, the data represents March or April of the year in question. The population data and the census data on employment status are exclusive of Maoris.

1939 employment data used in table 1 is taken from the National Service Department (AJHR, H-11A). During World War 2, the Labour Department was expanded, becoming the NSD. As there was a strategic need for more information about the labour force, so annual employment statistics commenced. The NSD data was the precursor of the half-yearly and quarterly employment surveys, conducted by the Department of Labour from 1946 until 1988.. The NSD mainly had information about the modern sectors, and therefore aggregate data cited from this source should be used with caution. Certainly, the NSD underestimated the attrition from domestic service.

The data presented in table 2 is derived from tables of factory employment disaggregated by wage rates, found in the New Zealand Yearbooks (NZOYB) and in the annual *Statistics of Factory Production*.

A useful source which summarises official historical data on all aspects of the New Zealand economy is Bloomfield (1984). I have not used Bloomfield as a major source because of my need for disaggregated annual data. However, I have used Bloomfield as a convenient source for financial data.

Appendix 2. New Zealand's Workforce, 1921-1939

March est.	MALES	FEMALES	TOTAL	MINORS under 21	ADULTS over 21
Workforce					
1921	397,500	111,700	509,200	95,600	413,600
1922	408,600	117,100	525,700	98,800	426,900
1923	416,700	120,100	536,800	99,800	437,000
1924	423,900	117,400	541,300	98,500	442,800
1925	435,700	114,900	550,600	98,500	452,100
1926	440,100	119,000	559,100	104,400	454,700
1927	452,700	130,700	583,400	111,500	471,900
1928	460,500	139,700	600,200	112,200	488,000
1929	468,300	141,300	609,600	112,200	497,400
1930	477,300	143,500	620,800	113,000	507,800
1931	488,100	169,800	657,900	122,000	535,900
1932	492,700	195,600	688,300	126,800	561,500
1933	495,600	197,300	692,900	125,100	567,800
1934	502,500	199,300	701,800	124,500	577,300
1935	509,100	201,200	710,300	125,300	585,000
1936	512,600	200,000	712,600	125,200	587,400
1937	518,400	198,600	717,000	124,300	592,700
1938	523,200	192,900	716,100	123,000	593,100
1939	528,500	187,900	716,400	122,500	593,900
Core Employment					
1921	381,300	100,100	481,400	85,800	395,600
1922	378,000	101,200	479,200	86,700	392,500
1923	401,200	106,400	507,600	86,200	421,400
1924	409,500	105,800	515,300	90,400	424,900
1925	425,100	107,300	532,400	87,400	445,000
1926	426,300	109,920	536,220	93,330	442,890
1927	421,000	115,300	536,300	98,800	437,500
1928	425,600	114,800	540,400	86,400	454,000

Appendix 2 continued

1929	427,400	119,200	546,600	86,800	459,800
1930	449,400	124,100	573,500	95,600	477,900
1931	388,600	112,000	500,600	89,900	410,700
1932	342,300	109,000	451,300	77,900	373,400
1933	349,400	106,600	456,000	72,900	383,100
1934	363,800	113,200	477,000	83,600	393,400
1935	398,900	123,500	522,400	100,300	422,100
1936	439,700	133,600	573,300	99,960	473,340
1937	492,000	163,500	655,500	112,600	542,900
1938	505,300	171,700	677,000	117,600	559,400
1939	520,000	175,000	695,000	118,000	577,000

Residual Workforce ("Unemployment")

1921	16,200	11,600	27,800	9,800	18,000
1922	30,600	15,900	46,500	12,100	34,400
1923	15,500	13,700	29,200	13,600	15,600
1924	14,400	11,600	26,000	8,100	17,900
1925	10,600	7,600	18,200	11,100	7,100
1926	13,800	9,080	22,880	11,070	11,810
1927	31,700	15,400	47,100	12,700	34,400
1928	34,900	24,900	59,800	25,800	34,000
1929	40,900	22,100	63,000	25,400	37,600
1930	27,900	19,400	47,300	17,400	29,900
1931	99,500	57,800	157,300	32,100	125,200
1932	150,400	86,600	237,000	48,900	188,100
1933	146,200	90,700	236,900	52,200	184,700
1934	138,700	86,100	224,800	40,900	183,900
1935	110,200	77,700	187,900	25,000	162,900
1936	72,900	66,400	139,300	25,240	114,060
1937	26,400	35,100	61,500	11,700	49,800
1938	17,900	21,200	39,100	5,400	33,700
1939	8,500	12,900	21,400	4,500	16,900

Unemployment Rate

1921	4.1%	10.4%	5.5%	10.3%	4.4%
1922	7.5%	13.6%	8.8%	12.2%	8.1%
1923	3.7%	11.4%	5.4%	13.6%	3.6%
1924	3.4%	9.9%	4.8%	8.2%	4.0%
1925	2.4%	6.6%	3.3%	11.3%	1.6%
1926	3.1%	7.6%	4.1%	10.6%	2.6%
1927	7.0%	11.8%	8.1%	11.4%	7.3%
1928	7.6%	17.8%	10.0%	23.0%	7.0%
1929	8.7%	15.6%	10.3%	22.6%	7.6%
1930	5.8%	13.5%	7.6%	15.4%	5.9%
1931	20.4%	34.0%	23.9%	26.3%	23.4%
1932	30.5%	44.3%	34.4%	38.6%	33.5%
1933	29.5%	46.0%	34.2%	41.7%	32.5%
1934	27.6%	43.2%	32.0%	32.9%	31.9%
1935	21.6%	38.6%	26.5%	20.0%	27.8%
1936	14.2%	33.2%	19.5%	20.2%	19.4%
1937	5.1%	17.7%	8.6%	9.4%	8.4%
1938	3.4%	11.0%	5.5%	4.4%	5.7%
1939	1.6%	6.9%	3.0%	3.7%	2.8%

"Core Employment" equals employers, wage/salary earners, self-employed.
"Unemployment" includes "partly unemployed", "relative assisting", "not specified".

Appendix 3. Disaggregation of Working-Age Population

March	MALES			FEMALES		
est.	14-20	21-64	14-64	14-20	21-64	14-64
Population						
1921	76,400	331,300	407,700	74,200	317,900	392,100
1922	79,000	340,200	419,200	76,700	328,500	405,200
1923	81,600	346,700	428,300	79,300	335,800	415,100
1924	84,300	354,300	438,600	81,600	343,500	425,100
1925	87,600	364,900	452,500	83,800	352,800	436,600
1926	89,900	373,100	463,000	85,800	360,000	445,800
1927	92,400	380,700	473,100	87,700	367,600	455,300
1928	94,200	387,100	481,300	89,000	374,300	463,300
1929	95,100	394,500	489,600	90,300	381,600	471,900
1930	95,900	402,800	498,700	90,800	388,900	479,700
1931	97,100	411,000	508,100	92,200	396,200	488,400
1932	96,000	416,400	512,400	91,800	402,000	493,800
1933	94,700	421,900	516,600	90,800	408,100	498,900
1934	94,100	427,900	522,000	90,600	413,700	504,300
1935	94,700	431,700	526,400	91,200	418,300	509,500
1936	95,200	432,300	527,500	91,700	422,700	514,400
1937	95,300	438,200	533,500	91,600	428,500	520,100
1938	95,300	444,500	539,800	91,200	434,600	525,800
1939	96,400	451,300	547,700	92,200	440,800	533,000
Non-Participation Rate						
1921	22.5%	2.7%	6.4%	51.6%	76.6%	71.9%
1922	22.5%	2.7%	6.4%	51.6%	76.1%	71.5%
1923	23.2%	2.7%	6.6%	53.8%	75.6%	71.5%
1924	26.2%	2.7%	7.2%	56.1%	76.7%	72.8%
1925	28.0%	2.7%	7.6%	58.4%	77.8%	74.0%
1926	26.0%	4.6%	8.7%	56.4%	77.8%	73.7%
1927	23.1%	4.4%	8.1%	54.5%	75.8%	71.7%
1928	23.5%	4.3%	8.1%	55.5%	73.8%	70.3%
1929	24.0%	4.3%	8.1%	56.5%	73.8%	70.5%
1930	24.0%	4.3%	8.1%	56.5%	73.8%	70.5%
1931	20.5%	4.3%	7.4%	52.0%	68.9%	65.7%
1932	19.0%	4.3%	7.1%	47.3%	64.0%	60.9%
1933	19.0%	4.3%	7.0%	47.3%	64.0%	61.0%
1934	19.0%	4.3%	7.0%	47.4%	64.0%	61.0%
1935	19.0%	4.1%	6.8%	47.4%	64.0%	61.0%
1936	19.0%	3.9%	6.6%	48.2%	64.5%	61.6%
1937	19.0%	3.9%	6.6%	49.1%	65.1%	62.3%
1938	19.0%	4.2%	6.8%	50.2%	66.6%	63.8%
1939	20.0%	4.4%	7.2%	51.2%	68.1%	65.2%

Appendix 3 continued

March est.	MALES 14-20	21-64	14-64	FEMALES 14-20	21-64	14-64
Core Employment Rate						
1921	69.5%	94.5%	89.8%	43.5%	20.9%	25.1%
1922	67.0%	91.1%	86.6%	43.5%	20.2%	24.6%
1923	65.1%	95.7%	89.9%	41.2%	21.5%	25.2%
1924	67.4%	94.9%	89.6%	40.7%	20.7%	24.5%
1925	63.2%	96.6%	90.1%	37.7%	21.0%	24.2%
1926	64.5%	94.1%	88.4%	40.7%	20.4%	24.3%
1927	66.5%	90.1%	85.5%	42.2%	20.8%	25.0%
1928	57.4%	91.5%	84.9%	35.8%	21.7%	24.4%
1929	57.9%	90.0%	83.8%	34.7%	22.6%	24.9%
1930	61.4%	92.5%	86.5%	40.0%	22.1%	25.5%
1931	55.8%	77.6%	73.4%	38.3%	19.0%	22.6%
1932	47.2%	68.0%	64.1%	35.2%	18.7%	21.7%
1933	44.5%	69.8%	65.1%	33.6%	18.2%	21.0%
1934	51.5%	70.3%	66.9%	38.4%	18.4%	22.0%
1935	61.8%	75.2%	72.8%	45.3%	19.1%	23.8%
1936	62.3%	84.0%	80.1%	43.8%	21.5%	25.5%
1937	71.4%	92.6%	88.8%	48.3%	27.3%	31.0%
1938	78.3%	92.5%	90.0%	46.7%	29.2%	32.2%
1939	77.6%	94.4%	91.4%	46.5%	29.5%	32.4%
Residual Participation Rate ("Unemployment")						
1921	8.0%	2.9%	3.8%	4.8%	2.5%	2.9%
1922	10.5%	6.2%	7.0%	4.8%	3.7%	3.9%
1923	11.8%	1.6%	3.5%	4.9%	2.9%	3.3%
1924	6.4%	2.4%	3.2%	3.2%	2.6%	2.7%
1925	8.8%	0.7%	2.3%	3.9%	1.2%	1.7%
1926	9.5%	1.3%	2.9%	2.9%	1.8%	2.0%
1927	10.5%	5.5%	6.5%	3.3%	3.4%	3.4%
1928	19.1%	4.1%	7.1%	8.7%	4.5%	5.3%
1929	18.1%	5.7%	8.1%	8.9%	3.6%	4.6%
1930	14.6%	3.2%	5.4%	3.5%	4.1%	4.0%
1931	23.7%	18.1%	19.2%	9.8%	12.2%	11.7%
1932	33.9%	27.6%	28.8%	17.5%	17.3%	17.4%
1933	36.5%	25.9%	27.9%	19.1%	17.9%	18.1%
1934	29.4%	25.4%	26.1%	14.3%	17.6%	17.0%
1935	19.2%	20.6%	20.4%	7.3%	16.9%	15.2%
1936	18.7%	12.1%	13.3%	8.0%	14.0%	12.9%
1937	9.6%	3.5%	4.6%	2.6%	7.6%	6.7%
1938	2.7%	3.3%	3.2%	3.1%	4.2%	4.0%
1939	2.4%	1.2%	1.4%	2.3%	2.4%	2.4%

"Core Employment" consists of employers, wage/salary earners, & the self-employed.

"Unemployment" includes those "partly unemployed", assisting without pay, and "not specified".