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HOW LONG IS A PIECE OF ELASTIC? THE MEASUREMENT OF FEMALE
ACTIVITY RATES IN BRITISH CENSUSES 1951 - 1981

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ABSTRACT

The labour force is conventionally defined as all those employed, or seeking work - whether or not registered as unemployed. In Britain, this total of economically active persons has only been observed intermittently in Censuses and Surveys. Data for the regular Working Population refers to the employed plus registered unemployed only. The principal source for the post war period is the decennial Census of Population (1951-81). We show in this paper that the inference of a comparable time series of female economic activity rates from these data is not at all straightforward as the way in which economic activity was recorded altered on each occasion. We document these changes in procedure and use other contemporary sources to assess the reliability and likely direction of errors in Census evidence. Finally we adjust the Census information in the light of our findings to present a series of decennial female economic activity rates by age group "less inconsistent" with the definition of economic activity as adopted by the EEC Labour Force Survey which is the most regular source likely to be available in the future. Since the 1971 Census seems to have been exceptionally extensive in its coverage of the economically active, the revised series makes the longer run upward trend seem to have been smoother than the crude data suggest.

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NON-TECHNICAL SUMMARY

The size of the female labour force is often thought to stretch and contract in response to changes in the pressure of demand over the economic cycle. If, for example, there is a recession, the question is whether the number of economically active women is larger or smaller than it otherwise would have been in the absence of a recession - should estimates and projections of numbers in the labour force make an allowance for any such "added" or "discouraged" workers? An investigation of the presence and size of these effects requires a consistency defined series of numbers in the female labour force, as well as estimates of the numbers there would have been at constant demand. We are concerned here with the first of these requirements - how to measure the change over time in the "actual" labour force.

The labour force is conventionally defined as all those employed, or seeking (paid) work - whether or not registered as unemployed. In Britain, this total of economically active persons has only been observed intermittently in Censuses and Surveys, for the regular Working Population data refers to the employed plus registered unemployed only. The main apparently consistent post war sources are the decennial Censuses of Population (1951-81), but we show in this paper that the inference of a comparable time series of female activity rates from these data is not at all straightforward.

The way in which economic activity was recorded altered at each Census - for example in 1951 the questions referred to a person's usual economic activity, whereas subsequent censuses adopted the concept of a "reference week". The inappropriateness of a head-count measure of labour supply also becomes apparent, for it requires that people be placed in mutually exclusive categories of economic activity. Women who divide their time between work in the home and the labour market pose a classification problem, and those performing paid work for only a few hours a week may well

be returned as economically inactive by whoever in the household fills out the Census form - as comparisons with in-depth interview surveys reveal. We found that 1971 was the only Census schedule which did not specifically mention 'housewife' as a reason for 'economic inactivity', and indeed the census female activity rates for that year compare relatively more closely with other sources than in any other census year.

We document these and other changes in procedure, and use what other contemporary sources are available, such as National Insurance records, The Census Post Enumeration Survey and The General Household Survey, to assess the reliability and likely direction of errors in Census evidence.

Finally, we adjust the Census information in the light of our findings to present a series of decennial female activity rates by age group, "less inconsistent" with the definition of economic activity as adopted by the EEC Labour Force Survey which is the most regular source likely to be available in the future. Since the 1971 Census seems to have been exceptionally extensive in its coverage of the economically active, the revised series makes the longer run upward trend seem to have been smoother than the crude data suggest.

HOW LONG IS A PIECE OF ELASTIC - THE MEASUREMENT OF FEMALE ECONOMIC
ACTIVITY RATES IN BRITISH CENSUSES 1951 - 1981

The size of the female labour force is often thought to stretch and contract in response to the pressure of demand in the economy. The official time series known as the Working Population certainly shows pro-cyclical variations. However, this series only covers persons in employment or registered unemployment and its fluctuations could just reflect the fact that some of the extra people who are out of work in recessions do not register as unemployed. The conventional definition of the labour force is broader. Besides people actually "employed", it includes all those seeking work, whether or not registered as unemployed. This has only been observed intermittently in censuses and surveys.

Suppose for example there is a recession. The question is whether the the number of economically active women is larger or smaller than it otherwise would have been had there not been a recession - i.e. should estimates and projections of numbers in the labour force make an allowance for any such "added" or "discouraged" workers? In order to investigate the presence and size of such effects we require a consistently defined measure of the actual number of active women in the economy as well as an estimate of the number there would have been at constant demand. We infer the latter from the econometric model* we fitted to the employee rates of women aged 20 - 59 over the years 1950 - 74. This paper is about how to measure the change over time in the "actual" labour force.

* The model is described in Joshi & Owen, 1981 and revised in Joshi & Overton, 1984.

The main apparently consistent source over the post war period are the decennial Censuses of Population from 1951 to 1981. However, the inference of a comparable set of female activity rates from this source is not straightforward, as the way in which economic activity was recorded altered from census to census. There are of course many ways in which economic activity may be defined depending on the user's interpretation of the term "productive labour", and membership of the labour force is even more arbitrary, for conventions have to be imposed about how much of a person's time has to be spent in "economic activity" before they qualify to be counted in the labour force. So we do not claim that the definition adopted here is any more (or less) "right" than any other. Indeed the problems encountered in measuring the female labour force illustrate the inappropriateness of a headcount measure of labour supply to the paid economy where people divide their time and energy between "economic" and other work as most women do.

The census attempts to count the number of people potentially available for work in that part of the economy which generates conventionally measured G.N.P. - broadly speaking that sphere of production which falls within the cash nexus. On the whole such labour is work for pay or profit, but some unpaid work for example may be included if it contributes to conventionally measured output. Each census therefore provides an estimate of the number employed at or looking for such work, and this paper examines the extent to which the estimates of economic activity rates from successive post war censuses may be treated as comparable. We document the changes that have been made in census procedures over these years in their various approaches to obtaining this information. By comparing this census evidence with material from other sources we assess their reliability and the likely direction of any error.

Various data sources use different means to measure the labour force in practice. These vary between surveys of employers, administrative sources, interview surveys with samples of households or individuals and between each Census of Population. It has long been recognised that the mass operation of a Census of Population is not the best instrument to detect marginal members of the labour force - people whose chief occupation is not "economic" but who also have occasional or part-time employment or are "informally seeking" some. For example, in a comparison of the 1981 Census with alternative estimates of labour force participation, the article in the Employment Gazette of February 1983 ("A changing labour force : constants and variables) suggests that "heads of households filling in the census forms might classify women who worked for only a few hours a week or who were seeking work informally as housewives rather than economically active". It suggests that interview surveys, particularly if they take place with such women themselves would produce higher estimates of economic activity rates from the same households. Similar cautions have been urged in the past about the 1951 and 1961 censuses*. The latest article on labour force estimates in the Employment Gazette of February 1984 ("Labour Force outlook for Great Britain") uses the LFS for 1981 and, revises the 1971 activity rate to allow for a "census schedule bias" - the under-reporting of female economic activity on census household schedules relative to interviews. As census

* British Labour Statistics : Historical Abstract, Note to Table 104 re 1951 and Appendix A of the 1961 Economic Activity Tables quoting the post

schedules have been changing over time, we investigate whether it is reasonable to assume that every census displays the same order of such a bias in an attempt to reconstruct a consistent time series for females aged 20 - 59 for the years 1951, 1961, 1971 and 1981.

The conventions force people to be categorised by only one activity, although in reality the descriptions which make up the economic status classification are not mutually exclusive : student, paid work, seeking paid work, retired, permanently sick; housewife. The convention followed in this paper is that anyone who is a "full-time student" is economically inactive even if they have paid employment as well, but that otherwise anyone with any "employment" is counted as such however many other descriptions also apply. The latest official estimates of the labour force (Employment Gazette, February 1984) have reversed the convention about students with jobs, counting them in the labour force. Fortunately the ambiguities about the classification of students, and other young people on training schemes can largely be ignored here as we are focussing on women over 20.

Another difficulty is that interview surveys themselves can produce a range of estimates of female employment and unemployment depending on how probing is the questioning, as is shown in the report of the 1980 Women and Employment Survey, which presents (in its Chapter 2) a whole range of estimates of the numbers of women with jobs and of non-employed women available for work according to responses to several differently worded questions (Martin and Roberts, 1984).

The rest of this paper is laid out as follows. In the next section we present an overview of comparisons of the Working Population and equivalent estimates from censuses from 1951 to 1981. Then follows, census by census a discussion of the definitions and procedures used at each of the decennial censuses to collect information about the labour force, and in the final section we summarize our findings in suggesting a less inconsistent decennial series of activity and employee rates for females aged 20 - 59. The Appendix summarizes our attempts to summarize growth in the proportion of women who are employed part-time. In a companion paper we apply these estimates to an attempt to measure the extent of the "discouraged worker" phenomenon.

AN OVERVIEW OF THE SERIES

Table 1 presents a comparison of the global totals of employees from successive censuses with independent contemporary sources. This suggests that 1971 was an odd census. In all of the other censuses the census reported at least 300,000 fewer female employees than the alternative source. In 1971 the Census of Population reported 100,000 more employed females than the Census of Employment and only 200,000 fewer than the average of the March and June Card Exchange. The 1981 Census of Employment had 400,000 more female employees than the Census of Population which appears to have under-reported female employees to approximately the same tune as the 1951 and 1961 censuses.

The Out-of-work are a fairly volatile category. On the whole, the Census finds more of them than the administrative sources, especially among females. Once again the 1971 census stands out as the one reporting the biggest excess over the register, therefore, as with female employees, the census most likely to categorize a woman as economically active. The difference between the administrative estimate and the census would reflect, among other things, the existence of "unregistered unemployed". On this basis there are virtually none in the census year of highest unemployment, 1981. In the earlier years, 1951 to 1966 female "unregistered" unemployment grew much faster than the female register. The latter stayed more or less constant across these dates while male "unemployment" on either indicator was rising.

The comparison for males also suggests that the 1971 and 1981 Census of Population are not comparable, although they contain less to suggest that the 1971 Census was out of line with its predecessors as far as its relative reporting of male economic activity. Note that the total number of males out of work in the 1981 Census is actually smaller than the administrative total with which it is compared for the first time and that the excess of the Census of Employment over the Census of Population increased by 500,000 for each sex from 1971 to 1981. As is noted in the Gazette of February 1983, not all of these discrepancies can be attributed to individuals having been missed by the Censuses. However, the other sources of discrepancy (different dates, different geographical coverage, the treatment of students and double jobbing) would have had to have changed enormously if the 1981 Census Schedule had elicited identical responses to those obtained with the 1971 Census.

1951 CENSUS

The 1951 census continued the pre-war convention of asking about a person's "usual occupation". If a "gainful occupation" existed but was not current at the time of the census, the return had to qualify the information, as 'out of work' or 'retired'. If a person over 15 had no occupation to report, the form filler had to write in a reason of which the examples given include ("Home Duties", "Student", "Private Means" or "None"). The form made it clear that the following categories were "occupied" as it required such information to be written in where applicable: "Apprentice, Articled Pupil, Part-time* or Unpaid Workers (in family business)". There was no precise indication of the time period in which an occupation had to be current. This means that, in principle, seasonal and part-year workers not working in the census week could have been returned as "occupied". In practice women with irregular or few hours of work would also have fitted the description given in the notes for "Home Duties": "anyone chiefly occupied in domestic duties at home".

Our comparisons with Ministry of Labour estimates of female employees suggest that up to 500,000 gainfully employed women were known to the National Insurance System in the first half of 1951, who were not reported as occupied in the census. Most of these were married. It therefore seems likely that relative to current procedures the 1951 census under-recorded the number of women in paid work (See Tables 1, 2 and 3).

* The instructions said that the description "part-time" should not be used where the work normally occupies 30 hours a week or more. Nowhere was it suggested that all the occupied working under 30 hours would necessarily be described as part-time

It is more difficult to be dogmatic about the out of work. The General Report on the 1951 census urged particular caution over the numbers reported as unemployed or retired, as they felt that responses could have been confused by benefit entitlement (or lack of it) under the then new National Insurance regime. The excess of census unemployment over the Register was smaller than in subsequent years (up to '71). Whatever the degree of census under-reporting of out-of-work females it is a relatively trivial matter in what seems to have been a near fully employed labour market.

1961 CENSUS

This census introduced the practice of a reference week - the questions required a description of the economic status of household members in the week prior to the census. It also attempted to tighten up the definition of some categories. For example a section for those "not in employment but intending to get work or wholly retired" required details of the last full-time employment which should have reduced confusion about who was retired. The "out of work sick" were a separate category for the first time for those intending to get work but sick or injured for the whole week. A further change was the definition of part-time employment to "usual hours less than normal for the job", which would accommodate groups such as teachers for whom 30 hours p.w. might be full time. Hours worked were required for those classified as part time in this way, but not from "full timers", so there was no complete consistency check on their subjective definition. The use of a reference week would have excluded some women who may have been active for substantial periods of the year, though not that week, which suggests under-reporting of active women relative to the 1951 conventions. Other factors working in the same direction would be that the inactive category specifically referred to "Housewives" as well as "Home Duties", and the out of work category specifically referred to "intending to get work".

An Appendix to the 1961 Census Economic Activity Tables assessed the quality of its data in two ways. One compared estimates with Working Population from the National Insurance Card Exchange. There was also, for the first time, in 1961, a post-enumeration survey which checked the quality of responses by interviewing a sample of households.

Ministry of Labour sources yielded an estimate of persons holding cards as employees less those registered as unemployed which were compared with the census totals of employees plus out of work sick. The former exceeded the census by 766,000 people, 602,000 of whom were women. Roughly a third of this discrepancy is accounted for by schoolchildren and students with some paid work, and a further 200,000 by seasonal and intermittent workers, leaving about 300,000 other N.I. card-holders who "had jobs but failed to declare them at the census". It was suggested that "large numbers of married women with part time jobs might come into this category if their chief economic activity had been regarded as "housewife" by whoever filled in the form". Further evidence suggests that the numbers of women with undeclared jobs could have been even higher. The Ministry of Labour comparison did not exclude 99,000 unpaid female family workers, although they were unlikely to have been exchanging cards. We allow for this when looking at the $\frac{1}{2}$ % sample of National Insurance records, so Table 2 shows an excess of 561,000 married women exchanging cards over census employees in employment. Few of these would have been students but some could have been seasonal workers. Table 3 shows card holders for whom contributions were actually paid, and this excludes those working intermittently and those on sick leave as well. Among women aged 20-59 (few of whom would have been students) the excess of contributing employees over the census amounts to 406,000 in 1961.

The post-enumeration survey* also reinforces this conclusion. On the whole the levels of agreement for the economic activity questions was high, around 97%. The most significant item was the number of women working part-time incorrectly returned as inactive, which would raise the activity rate of married women by 1.5 percent points, and that of non-married women by 0.5 percentage points, or 1.2 percentage points to the overall activity

*Quoted in General Report of the 1961 Census of England and Wales and summarized in our Table 4.

rate (233,000 women). This can be treated as a minimum estimate, for it is smaller than the 300,000 suggested from the Ministry of Labour exercise, or the minimum of 400,000 suggested by Table 3. The General Report harbours suspicions that the post enumeration survey itself underestimated the degree of census misclassification. However the sample size was too small to suggest the age distribution of the reporting error, or to validate census estimates of the out of work, although as Table 4 shows no net revision was indicated for the number of females out of work.

In explaining the excess of 80,000 persons who were 'out of work, other' at the census over the number registered as unemployed, the Appendix notes various technical reasons why the estimates would not be identical even if all unemployed job seekers reported themselves as such to the census and to the register. However, unregistered job search would help to account for the differences. Note however that the census found 8,000 fewer married women 'out of work, other' than had been on the register and concluded that "some married women registrants may well have been counted as inactive". This reflects the general tendency of this census to have been parsimonious in its estimates of female economic activity.

But was it more parsimonious than its predecessor? Despite the introduction of the reference week, comparison with the Ministry of Labour figures in both 1951 and 1961 suggest not. The analyses presented in the 1961 Appendix show that the changes over time in each source were comparable. This is confirmed in our age-specific comparisons for female employees in Table 3. The National Insurance estimates of employees in work aged 20 - 59 exceed census employees by 7% in both years.

*Note that the Historical Abstract gives results for 1961 on both a corrected and uncorrected basis and that the Appendix to the Economic Activity Tables cited above used corrected numbers.

It should also be noted that the 10% stratified sample on which the 1961 Economic Activity Tables were based was found to be biased. Correcting factors were calculated to be applied by the user to the published data*. The factors for employment status are listed here - 0.98 for example implies the published census figure is too high by 2%.

1961 Employment Status Bias Factors

<u>Employment Status</u>	<u>Males</u>	<u>Females</u>
Total active	0.99034	0.99450
Employers	0.96446	0.97865
Self-employed	0.97768	0.98856
Employees	0.99174	0.99466
Out of work sick	0.99972	1.00687
Out of work other	1.00621	1.00312

Unless specifically noted, our tables have not incorporated these factors, which were not published by age.

1971 CENSUS

The questionnaire for this Census was redesigned to avoid the problems of underreported employment recognised after 1961. A job was defined specifically, (and on the same page as the questions) - it was anything for payment or profit even if it was on own account, casual, temporary, part time (even if a few hours a week e.g. paid domestic work), or unpaid work in a family business. Precodes, i.e. labelled boxes for people to tick appeared for the first time. The form instructed "tick box 1" ("in a job at some time during the week") if the person had a job "even if only part-time or if the person was temporarily away from work, on holiday, sick, on strike or laid off". The part-time classification was made ex-post on the basis of reported hours of work, and so there was no self-definition of part-time.

There thus seems to have been a greater chance of women appearing as employed in this Census. On the other hand, the out-of-work category became if anything more restrictive. People who had a job at any time during the week before the Census would be returned as employed, whereas in 1961 people becoming unemployed during Census week were supposed to be returned as "intending to work". Furthermore in 1971 the term "seeking" work appeared explicitly on the form, which could have pushed some marginal cases into the "retired" or "other inactive" category, but which could also have reduced the association of the term 'out of work' with entitlement to unemployment benefits.

Comparisons with National Insurance Sources suggest that the 1971 Census was more effective than its predecessors at detecting people with jobs - especially women. It actually found more female employees aged 25 -

59 than were making contributions as employees to the National Insurance System (½% sample, see Table 3). In 1951 and 1961 there had been substantially more contributors than Census employees. The other comparisons of the Census with Card holders (Tables 1 and 2) also show Census and Cards being much closer in 1971 for females than previously. Among the out-of-work the more restrictive census definition does seem to have resulted in the census estimate of out-of-work males increasing less than proportionally to the register over 1961-1971, but among females the census out-of-work roughly doubled though the register was at the same level. Any effect of the changed procedures for identifying women out-of-work would thus seem to have been in the opposite direction to that expected.

The Post Enumeration Survey Quality Check (also summarized in Table 4) had a much smaller sample than the 1961 exercise. It suggested that females in employment had been under-reported to the tune of 285,000 (+ 200,000), or 1.4 percentage points on the global employment rate. This is a similar order of magnitude to that suggested by the 1961 Check, but it was a smaller proportion of the employment reported and not this time disproportionately among married women. The total economic activity rate only needed revision by 0.7% because of a proportionately more serious "over-reporting" of the out-of-work, principally due to cases the interviewer deemed to be housewives or retired having been returned as seeking work, what the report refers to as 'an undefined dividing line between a housewife actively seeking a job and her only being interested if one turned up'. There was no evidence for women described as "out-of-work sick" turning out in the quality check to be permanently incapacitated although a couple of males in the sample had been thus misclassified.

The upward revision of numbers of women in employment derives principally, as in 1961, from women returned as inactive whom the interviewer discovered to have had some paid work. (In each year these cases were offset to some extent by women the interviewer considered to be housewives having been described on the census form as "having a job").

Table 5 shows that the interviewers conducting the General Household Survey in 1971 discovered marginally even more people with paid jobs than either the Census or the Quality Check, but these margins are all fairly small (1 or 2 percentage points of the adult population) and not much bigger than their margins of sampling error. The Census estimates of the out-of-work (both men and women) were higher than those suggested by the two interview sources. Despite its apparently tightened definitions the 1971 Census would therefore appear to have been relatively extensive in its coverage of the out of work. A breakdown of the GHS comparisons for women by age and marital status appears in Table 6, and by age and economic status in Table 7. Groups where workers apparently missed by the census yield a discrepancy of over 3 percentage points include not only married women aged 35 - 44 (who are in the phase of the life-cycle where multiple roles make the economic activity classification particularly problematic), but also non-married women aged 18 -24 and 55 -59. The excess of census out-of-work over GHS out-of-work occurs principally among non-married women aged 25 - 59. These comparisons are summarised in Table 8 which also shows comparable material for 1981. Note that (with one exception) the out-of-work in 1971 are the only category in Table 8 that a census seems to have "overcounted" relative to interview sources.

To summarize our conclusions about the 1971 census, its under-reporting of female employment relative to administrative sources was unusually low, though there was still some under-reporting of employment relative to material elicited by interviews. This interview-based evidence does not strongly confirm that under-reporting of female employment in 1971 was less severe than in the censuses before and after it, but because of sampling error it is consistent with this view. The economic activity rate (i.e. including the out-of-work as well as the employed) is more clearly out of line because its relatively extensive coverage of the out-of-work.

1981 CENSUS

This census took much the same form as 1971 - the use of a reference week continued, and the concept of economic activity aimed for remained the same except that unpaid workers of any kind were excluded this time. However there were more pre-codes including a separate box for housewives and a specific distinction was made between all permanently sick and the out-of-work who were temporarily sick. The hours worked question was dropped, the identification of part-timers reverting to self-assessment guided by a definition of 30 or less hours per week.

The very design of the form should have increased the chances of married women with minor amounts of employment being classified as housewives. Pending the publication of the 1981 Quality Check there is some evidence to confirm this. First there is the comparison with the Census of Employment presented in Table 1. Secondly there is the comparatively low proportion of part-timers among employed women according to the 1981 Census relative to contemporary sources and the 1971 Census (See Appendix) and thirdly there are comparisons with household surveys.

Table 9 contains a comparison of the 1981 General Household Survey and Census along the same lines as Table 7 for 1971 with the addition of some estimates derived from the Labour Force Survey for use in the official Labour Force Estimates. Table 8 summarizes the differences between the two household surveys (as published) and the Census employment and activity rates for all women and married women separately.

The General Household Survey interviews all adults personally; the Labour Force Survey collects the information about all the adults in a household by an interview with one of its members, not necessarily the head of household; and the Census collects information by a self-completion form addressed to the head of household. The presumption is that the General Household Survey would be most likely to detect marginal members of the labour force, since all adults are actually interviewed. The Labour Force Survey collects about 40% of its information by proxy and might reasonably be expected to generate an intermediate estimate of numbers economically active between the GHS and Census forms. Tables 8 and 9 on the whole bear this out. The Census activity rate for women aged 20 - 59 was 61.5%, the LFS - based rate 62.8% and the GHS rate 64.6%. In most of the constituent elements of Table 9 this ranking is repeated.* As far as women out of work are concerned, the 1981 Census appears if anything to have made a more conservative estimate than the survey sources, in contrast to 1971. This is perhaps explicable by the fact that in 1971 there were tick boxes on the form for the out-of-work categories but not for housewives. The restriction of the 'out-of-work sick' category in 1981 to those whose sickness could be described as temporary could not have made much of a difference (except in the 55 - 59 age-group where DE estimates that one percent of the female population were "out-of-work-permanently-sick" in 1981). Since the 1971 Census tended to "overcount" out-of-work females

* One exception to this is for the 20 -24 age group where the census finds more employees than the Labour Force Survey. This discrepancy may be explicable by another feature of survey data which makes it less reliable than a census - namely low response rates. In this age group response to the Labour Force Survey was particularly poor. If this was because young single people with full-time jobs are difficult to contact (as would have appeared to be the case in the Women and Employment Survey) there would be a response bias to survey estimates of employment and activity rates. OPCS are currently investigating this problem.

the procedure adopted in the latest official series to correct the 1971 estimates of this part of the labour force for "census undercount" is not adopted by us here.

Table 8 shows that the excess of GHS employment, unemployment, and activity rates over the 1981 census are larger than they had been in 1971. Had a LFS-style operation taken place in 1971 bearing the same relation to the GHS as it did in 1981, it seems possible that its estimates of the female labour force would have been very close to those of the 1971 census itself. This provides our case against revising the 1971 census-based activity rates for "census undercount".

A less inconsistent series of female activity and employee rates

For our investigation of the effect of state of the business cycle at the time of various censuses on the size of the labour force they detected we require consistently defined estimates of the activity and employee rates at the four dates, or at least of the three sets of decennial changes. It is clear that this is a hazardous enterprise, and that even after corrections estimates of decennial change in these series will be subject to considerable uncertainty.

Since, for reasons discussed above, we are not convinced that the 1971 census estimates of employees need correction for undercount, we have arbitrarily decided to take them at face value. For 1981 we follow the DE in preferring LFS based rates (of Table 9) except perhaps for our doubts about the LFS rates for the 20 - 24 year olds. For want of better information we assume that 1951 and 1961 are roughly comparable with each other but that each of them "undercounted" employees relative to those recorded at the 1971 census and the 1981 LFS. However we compared the change in rates from 1951 - 1961 on both a National Insurance and census basis and found the two fairly close suggesting that the census card-count discrepancy is similar for both years. Thus we decided to take the 1971 census employee rate (E_{C71}) as a basis and adjust the 1951 and 1961 employee rates from this by imposing the change observed in the NI card count employee rates instead of the actual differences between censuses.

$$E_{R61} = E_{C71} - (E_{NI71} - E_{NI61})$$

$$E_{R51} = E_{C71} - (E_{NI71} - E_{NI51})$$

where E_R is the revised estimate of the employee rate

E_C is the employee rate as reported in the census (including family workers)

E_{NI} is the proportion of the mid-year population paying National Insurance contributions as employees.

Members of the labour force who are not employees comprise the self-employed and the out-of-work. The Quality Checks, surprisingly enough, suggest that census responses on self-employment are quite reliable, but the borderlines of the out-of-work category may well have been shifting over time. We did not feel we had firm enough evidence to do anything other than take census estimates of the out-of-work at face value in 1951 and 1961. However the census estimates of the out-of-work in 1971 stick out as inconsistent with all the other sources, and require some downward revision. Our adjustment is a shot in the dark, guided by the age distribution of discrepancies between the 1971 Census and the General Household Survey, rounded up to bring the overall magnitude of the revision closer to that suggested by the Quality Check. It is to reduce the Non-Employee rate in ages 35 - 54 by one percentage point and in age group 55 - 59 by 1.5 points. This reclassifies about 90,000 women returned as out-of-work to the inactive category, less than the 126,000 implied by grossing up the small Quality Check Sample.

Hence

$$AR_{51} = ER_{51} + NEC_{51}$$

$$AR_{61} = ER_{61} + NEC_{61}$$

$$AR_{71} = EC_{71} + NER_{71}$$

$$AR_{81} = EL_{81} + NEL_{81} \quad \text{ages over 25}$$

$$AR_{81} = EC_{81} + NEC_{81} \quad \text{age group 20 - 24}$$

where

A = Activity rate

NE = Non-Employee Active rate

R subscripts are revised estimates

C subscripts are census rates

L subscripts refer to DE-adjusted LFS-based rates.

The results of this operation are presented in Table 10. Figures 1 and 2 plot the observed Census rates together with our revised series for the 20-59 and 45-54 age groups. The graphs show clearly how 1971 was an 'odd' year, taking Census results at face value. Our 'less inconsistent' series is much smoother and seems to imply a steady rate of increase in female economic activity when measured at ten year intervals.

These revised rates are supposed to be consistent with the sort of estimate that the Labour Force Survey might have obtained over the period had its procedures been consistently applied since 1951. The only merit of picking this particular degree of coverage of the grey areas at the margin of the labour force is that this is the method that will continue to be employed during the 1980's. The Quality Check on the 1981 Census may help to confirm the assumption that the coverage of employees is roughly equivalent in the 1971 Census and the 1981 Labour Force Survey, but even with its benefit any estimates are bound to be tentative. The uprating we

have imposed on the 1951 and 1961 employees depends on our assumption that the degree of coverage by National Insurance was consistent over the period. We can offer little evidence to support this assumption but it is one that also had to be made to fit our econometric model to annual time series data. The particular purpose for which we have generated Table 10 requires this assumption to be maintained, but it may well not provide the ultimate rewriting of history for all other purposes.

Table 1

Census and Departmental Estimates of the Working Population, Great Britain
1951 - 1981

	1951	1961	1966	1971	1981
	millions				
	<u>Employees in Employment</u>				
Females					
Census of Population	6.5	7.4	8.3	8.3	8.7
National Insurance (25% sample)	7.0	8.0	8.6	8.5	
Census of Employment				8.2	9.1
Difference a	-.5	-.6	-.3	-.2	
b				.1	-.4
Males					
Census of Population	13.4	13.9	14.4	13.3	12.0
National Insurance (25% sample)	13.5	14.3	14.7	13.6	
Census of Employment				13.4	12.6
Difference a	-.1	-.4	-.3	-.3	
b				-.1	-.6
	<u>Out of Work</u>				
Females					
Census of Population	.14	.19	.27	.44	.64
Register Wholly Unemployed Claimants "	.07	.08 .05	.06 .04	.08 .05	.62
Difference a	.07	.11	.21	.36	
b		.14	.20	.39	.02
Males					
Census of Population	.34	.49	.43	.85	1.57
Register Wholly Unemployed Claimants Unemployed	.15	.21 .16	.22 .17	.59 .48	1.59
Difference a	.19	.28	.21	.26	
b		.33	.26	.37	-.01

Census of Population adjusted for sampling bias, 1961 & 1966. 1981 employees include Armed Forces, all previous years Civilian only National Insurance. Employees and Registered Unemployment are averages for March & June. Differences calculated before rounding.

Sources: 1951-1966 British Labour Statistics Historical Abstract
 Civilian Employees: Appendix A
 Registered out-of-work, Tables 122, 123, 176
 Census out-of-work: Table 104
 1971 British Labour Statistics Yearbook 1971
 Tables 51 and 116
Census Economic Activity Tables 3 & 4
 1981 Employment Gazette, February 1984 Table 1.1
Census of Population, Table 13.

TABLE 2

Married Women: National Insurance Card Holders as Employees compared with Census Employees, GB 1951 - 71.

'000

	Census Employees (excluding family workers)	National Insurance Employees usually in employment plus insured out of work	Difference NI - Census
<u>All Ages</u>			
1951	2462	3070	608
1961	3583	4210	627
1971	5149	5378	229
<u>16-59</u>			
1961	3431	3992	561
1971	4859	4997	118
<u>Age-wise</u>			
<u>1961</u>			
16-19	43	49	6
20-24	367	364	-3
25-34	764	865	101
35-44	1046	1181	135
45-54	952	1170	218
55-59	278	363	85
60+	133	218	85
<u>1971</u>			
16-19	55	59	4
20-29	986	978	-8
30-39	1130	1146	16
40-49	1525	1561	36
50-59	1147	1243	96
60+	290	401	111

Source: Ministry of Labour Gazette, August 1952, June 1962
 Yearbook of Labour Statistics, 1971, Table 82
 1951 Census of England Wales, Occupation Table 3
 1951 Census of Scotland, Occupation Table 2
 1961 Census, GB Summary Tables, Table 12
 1971 Census of GB, Economic Activity Tables, Vol. 2, Table 1.

TABLE 3

Female employees in Census and Card Exchange, 1951, 1961 and 1971, G.B.

	1951			1961			1971		
	Employees in employment '000	Employees at work (cards) '000	Cards as % census	Employees in employment '000	Employees at work (cards) '000	Cards as % census	Employees in employment '000	Employees at work (cards) '000	Cards as % census
15-19	1,196	1,176	98.3	1,216	1,268	104.3	930	1,055	113.4
20-24	1,072	1,073	100.1	961	979	101.9	1,139	1,183	103.9
25-29	717	746	104.0	587	629	107.2	672	667	99.3
30-34	551	613	111.3	565	616	116.8	624	616	98.7
35-44	1,230	1,365	111.0	1,403	1,510	107.6	1,620	1,619	99.9
45-54	1,077	1,180	109.6	1,446	1,601	110.7	1,836	1,786	97.3
55-59	354	371	104.8	552	586	106.2	760	740	97.4
20-59	5,001	5,348	106.9	5,515	5,921	107.4	6,651	6,611	99.4
All ages	6,481	6,915	106.7	7,160	7,673	107.2	8,218	8,246	100.3

Source: Cards data from D.E. Gazettes plus adjustment for credits from DHSS Insured Population Statistics.
1951 adjustment imputed.

Census 1951 England & Wales; Occupation Tables, Table 3

Scotland, Vol. 4, Table 2.

Census 1961 Great Britain Summary Tables, Table 32.

Census 1971 Great Britain Economic Activity Tables, Part II, Table 3.

Notes: Census Employees exclude Family Workers and Unpaid Assistants, for whom cards were unlikely to be held.
"Employees at Work" exclude cases receiving a credit (for registered unemployment, sickness or maternity) in the week before the June Card Exchange.

TABLE 4

Quality Checks on 1961 and 1971 Censuses: Summary of findings on the Employment and Activity Status of Females over 15*

	1961			1971		
	In Employment	Out of Work	Inactive Total	In Employment	Out of Work	Inactive Total
Revision of Census rate implied by Quality Check (% of pop. over 15)	+1.2	0	-1.2	+1.4	-0.8	-0.7
Net excess of Quality Check responses over responses on Census forms	67	-1	-66	15	-8	-7
consisting of:						
Agreement	2038	33	3301	416 ^b	13	525
Quality Check but not Census	92	7	27	19	1	11
Quality but not Quality Check	-25	-8	-93	-4 ^b	-9	-18
Misclassification rate (a)			(2.3%)			(3.1%)
			5372			954
			126			31
			-126			31
			(2.3%)			(3.1%)
distributed as follows:						
	What the Quality Check found:					
Recorded by the form filler						
In employment	2038	6	19	2063	415	5
Out of work	-	33	8	41	2	7
Inactive	92	1	3301	3394	13	525
All with answers	2130	40	3328	5498 ^c	434	537
No answer on Census form				154	4	10
No answer in Quality Check						15
						n.a

Notes: (a) The broad categories presented here hide some of the misclassifications detected, e.g. between housewives and retired, in the 1971 Quality Check.

(b) After allowing for the coding rule which would have put a student with a job into the inactive category.

(c) The total does not include cases with which the quality check failed to make contact, or where co-operation refused. The report shows there to have been 345 of these in 1961.

(d) The sample numbers quoted are confined to those analyzed in Table 16, row 1 is taken from Table 17 Sources: 1961 Census of England & Wales: General Report, Tables 38 & 39.

*Sample numbers unless stated otherwise.

TABLE 5

Economic Position of Persons over 15 Living in Private Households

Great Britain 1971

	%				
	Census (households only)	Quality Check Estimate	s.e. of % (actual)	General Household Survey	s.e. of % (s.r.s.)
Males					
In employment	78.3	79.4	0.3	79.0	0.4
Out of employment					
Sick	0.9	0.3	0.2		
Other	3.4	3.0	0.2		
All	4.6	3.2		3.3	0.2
Economically Active	82.5	82.6		82.3	0.3
Economically Inactive	17.5	17.4		17.7	0.3
Base Number	18,813,960	ca 1,000		11,938	
Married Females					
In employment	40.5	41.7	0.6	42.4	0.7
Out of employment					
Sick	0.4	0.4	-		
Other	1.5	0.8	0.3		
All	1.8	1.1		1.6	0.2
Economically Active	42.3	42.9		44.0	0.7
Economically Inactive	57.7	57.1		56.0	0.7
Base Number	13,570,232	670		8,742	
All Females					
In employment	41.1	42.5	0.5	42.6	0.3
Out of employment					
Sick	0.5	0.3	0.1		
Other	1.6	1.0	0.2		
All	2.1	1.4		1.8	0.1
Economically Active	43.2	43.9		44.4	0.3
Economically Inactive	56.8	56.1		54.8	0.3
Base Number	20,775,274	ca 1,000		13,354	0.3

Sources: Census 1971 General Report, Part 3: Duality Check, GB Tables 16 & 17. General Household Survey, 1971, Introductory Report Table 6.3 & GHS Monitor 82/1. The Monitor was used to approximate an adjustment to the original report to reclassify students with jobs as inactive. Standard errors for GHS do not allow for design factors.

TABLE 6

Differences in Age-Specific Female Activity Rates by Marital Status, GHS-Census, 1971

%

	18-24	25-34	35-44	45-54	55-59	18-59	All Ages 15+
Employed							
Married	0.1	1.1	3.7	0.5	2.2	2	2.0
Non-married	6.3	-0.7	2.2	1.4	3.9	3	2.0
Unemployed							
Married	-0.1	0.4	-0.5	-0.2	-0.8	0	-0.2
Non-married	0.0	-1.7	-2.6	-1.5	-2.7	-1	-0.4
Economically Active							
Married	0.0	1.4	3.1	0.3	1.4	1	1.8
Non-married	6.4	-2.5	-0.4	0.0	1.2	2	1.5
Economically Inactive							
Married	0.0	-1.4	-3.1	-0.5	-1.2	-1	1.8
Non-married	-6.4	2.5	0.4	0.0	-1.2	-2	1.5
Sample Numbers							
Married	811	1905	1852	1867	777	7212	8739
Non-married	674	729	271	242	373	1924	4611
Census Base Populations '000							
Married	1352	2863	2796	2820	1263	11094	13729
Non-married	1419	437	362	571	442	3232	7758

Sources: General Household Survey 1971, Introductory Report, Table 6.1
Census, 1971, Economic Activity Tables, Great Britain 100%, Table 1

- Note (i) Census figures include institutional population.
(ii) Discrepancies do not necessarily sum appropriate due to rounding. Age group 18-59 is reported rounded to the nearest whole percentage point because the GHS rates were reconstructed from published percentages and subject to rounding errors.
(iii) GHS counts students with jobs as employed, but as census classifies them as inactive they have been removed here, using estimates inferred from OPCS Monitor GHS 82/1 Table 10.

TABLE 7

Economic Status rates of Women, 1971 Census and General Household Survey Compared

Age		Percentages				
		Employees +	Self Employed =	In Employment +	Unemployed =	Active
18-24	Census	58.6	0.8	59.4	3.3	62.7
	GHS	n.a.	n.a.	61.2	3.3	64.5
20-24	Census	56.3	1.0	57.3	3.0	60.3
	GHS	57.6				59.8
25-34	Census	40.0	1.8	41.8	2.2	44.0
	GHS	39.5	2.8	42.3	2.4	44.7
35-44	Census	52.3	2.6	54.9	2.2	57.2
	GHS	55.8	2.9	58.7	1.67	60.3
45-54	Census	55.0	2.9	57.9	2.5	60.4
	GHS	55.7	3.0	58.7	2.1	60.8
55-59	Census	45.6	2.8	48.4	2.5	51.0
	GHS	48.5	3.1	51.6	1.4	53.0
20-59	Census	49.8	2.3	52.1	2.4	54.5
	GHS	51.2	n.a.	n.a.	n.a.	55.6
18-59	Census	50.5	2.2	52.7	2.5	55.2
	GHS	50.4	3.0	54.4	2.1	56.5

Sources:

Census: Census of GB 1971, Economic Activity Vol II Table 3 (10% sample)
 GHS : GHS last 3 columns (except age groups 20-24 and 20-59), Table 6.1
 of the 1971 General Household Survey Introduction Report, amended
 in the light of OPCS Monitor GHS 82/1 Table 10 to exclude students
 with jobs. Other entries derived by inspection of unpublished tables
 in the Department of Employment by E. Overton.

TABLE 8

"Census Undercount", 1971 and 1981

Employment, Unemployment and Activity Rates: Excess of Published Survey estimates over census, 1971 and 1981, Married Women and All Women, by selected age ranges and all ages.

		Percentage points							
		GHS LFS	18-24 20-24	25-34 25-34	35-44 35-49	45-54	55-59 50-59	18-59 20-59	All ages 15+ (1971) 16+ (1981)
Employed									
Married									
	PES 71								1
	GHS 71	0	1	4	1	2	2	2	2
	GHS 81	2	1	3	4	4	3	3	3
	LFS 81	-2	1	2		2	1	1	1
All Women									
	PES 71								1
	GHS 71	2	1	4	1	3	2	2	3
	GHS 81	2	2	2	3	4	2	2	2
	LFS 81	-1	0	2		1	1	1	1
Unemployed									
Married									
	PES 71								-1
	GHS 71	0	0	-1	0	-1	0	0	0
	GHS 81	2	1	2	1	0	1	1	1
	LFS 81	6	2	1		1	1	1	1
All Women									
	PES 71								-1
	GHS 71	0	0	-1	0	-1	0	0	0
	GHS 81	2	1	1	0	0	1	1	1
	LFS 81	1	1	1		0	1	1	1
Economically Active									
Married									
	PES 71								1
	GHS 71	0	1	3	0	1	1	1	2
	GHS 81	4	3	5	5	4	4	4	4
	LFS 81	1	3	3		2	2	2	2
All Women									
	PES 71								1
	GHS 71	2	0	3	0	2	1	1	2
	GHS 81	4	2	4	3	3	3	3	2
	LFS 81	-1	2	2		2	2	2	2

Table 8 (continued)

<u>Sources:</u>	<u>PES 1971</u>	<u>Post Enumeration Survey Census 1971. General Report pt.3 Quality Check, Table 17.</u>
	<u>GHS 1971</u>	<u>Introductory Report, Table 6.1.</u>
	<u>Census 1971</u>	<u>Economic Activity Tables, Great Britain, Table 1.</u>
	<u>GHS 1981</u>	<u>General Household Survey 1981, Table 4.8.</u>
	<u>LFS 1981</u>	<u>Labour Force Survey 1981, Tables 4.1, 4.4, 4.15.</u>
	<u>Census 1981</u>	<u>General Tables, Table 12.</u>

- Note: (a) The survey estimates do not cover the population living in institutions. The census rates with which they are compared do include them except in the case of the 1971 Quality Check comparison.
- (b) "Married" women exclude the legally separated in the GHS and LFS, but include them in the census.
- (c) Students with jobs classified as inactive.

TABLE 9

Economic Status rates of women, 1981 Census, Labour Force Survey and General Household Survey compared

Age		Percentages				
		Self Employees +	Employed =	In Employment +	Unemployed =	Active
18-24	Census	60.2	1.0	61.2	9.1	70.3
	GHS	n.a.	n.a.	63	11	74
20-24	Census	60.0	1.2	61.2	8.0	69.2
	LFS-based	57.3	1.1	58.4	8.4	66.8
	GHS	61.6	n.a.	n.a.	n.a.	72.2
25-34	Census	47.7	2.6	50.3	4.1	54.4
	LFS-based	47.9	3.7	51.6	4.5	56.1
	GHS	47.5	3.0 - 3.9	51	5	56.0
35-44	Census	58.5	4.0	62.5	3.0	65.5
	LFS-based	59.8	4.2	64.0	4.0	68.0
	GHS	61.6	2.9 - 3.8	65	4	69.7
45-54	Census	59.4	3.5	62.9	3.1	66.0
	LFS-based	61.6	3.3	64.9	3.2	68.1
	GHS	62.3	3.2 - 4.1	66	3	69.6
55-59	Census	46.7	2.7	49.4	2.9	52.3
	LFS-based	47.9	2.3	50.2	3.2	53.4
	GHS	50.4	2.0 - 3.0	53	3	55.5
18-59	Census	54.9	2.8	57.7	4.5	62.1
	GHS	n.a.	n.a.	60	5	65
20-59	Census	54.9	2.9	57.4	4.1	61.5
	LFS-based	55.1	2.9	58.0	4.8	62.8
	GHS	56.5	n.a.	n.a.	n.a.	64.6

Table 9 (continued)

Sources and Definitions.

Census: Census of Great Britain, 1981, General Tables Table 12. (100% Sample). In this table employees and self-employed are as described on the forms. The 10% tables contain some reclassification (of directors of limited companies as employees) effected at the coding stage.

LFS based rates have been supplied by the Department of Employment. The activity rates are derived from those reported by the household population sampled by the EEC Labour Force Survey in April 1981. Sample numbers were grossed up by age-specific factors which make no allowance for possible differential contact rates among the active and the inactive. The rates have been further adjusted by the Department to cover the institutional population and to bring the population base to the home population at mid-year. The decomposition of the active into employees, self-employed and unemployed has been imputed according to the status composition of the sample respondents in each age group for whom status was known. These activity rates differ from those published in the Gazette of February 1983 because the latter included an allowance for the out-of-work-sick whose sickness was not temporary and from those published in the Gazette of February 1984 which include students with jobs as active.

GHS The Activity and Employee rates were calculated from unpublished sample numbers available to the Department of Employment by E. Overton. The entries in the three intervening columns have been inferred by reference to the rounded percentages in employment and unemployed published in Table 4.8 of the 1981 General Household Survey Report (and hence shown as a range). These estimates refer to the population living in households over the course of the whole calendar year.

TABLE 10

Female Employee and Activity Rates: Ages 20 - 59, GB 1951 - 1981

Age Group	The less inconsistent series				unadjusted census data			
	1951 revised	1961 revised	1971 census *	1981 L.F.S.	1951 census	1961 census	1971 census	1981 census
Employee Rate								
20-24	62.66	59.21	56.28	60.00**	63.55	60.00	56.28	60.00
25-29	42.68	42.03	39.38	47.80	38.98	37.57	39.38	48.43
30-34	36.17	38.69	40.73	48.00	31.85	34.30	40.73	46.96
35-44	37.08	43.82	52.29	59.80	32.82	39.73	52.29	58.53
45-54	37.06	46.12	55.04	61.60	31.27	39.53	55.04	59.41
55-59	26.94	36.43	45.63	47.90	24.14	32.88	45.63	46.70
20-59	39.12	44.47	49.77	55.44	35.92	40.29	49.77	54.50
Activity Rate								
20-24	64.50	61.55	60.22	69.21**	65.39	62.34	60.22	69.21
25-29	44.15	43.97	43.11	56.27	40.45	39.51	43.11	55.45
30-34	38.46	40.96	44.98	55.99	33.47	36.57	45.98	53.39
35-44	39.41	46.51	56.15	68.00	35.15	42.42	57.15	65.49
45-54	40.21	49.87	59.40	68.10	34.42	43.28	60.40	66.03
55-59	30.36	40.44	49.46	53.40	27.56	36.89	50.96	52.26
20-59	42.11	47.44	53.68	62.80	38.31	43.26	54.47	61.47

* Activity rates for age groups over 30 revised by the following factors:
 35 - 54: -1.00, 55 - 59: -1.50, 20 - 59: -.79.

** Census 1981.

Source: see text for method.

Fig 1: Female Employees & Activity Rates 1951-71, ages 20-59:
CENSUS & REVISED ESTIMATES

Percentages
of age group

70

A = Activity rate
E = Employee rate
..... C = census
—— R = revised

60

50

40

30

1951

1961

1971

1981

Year

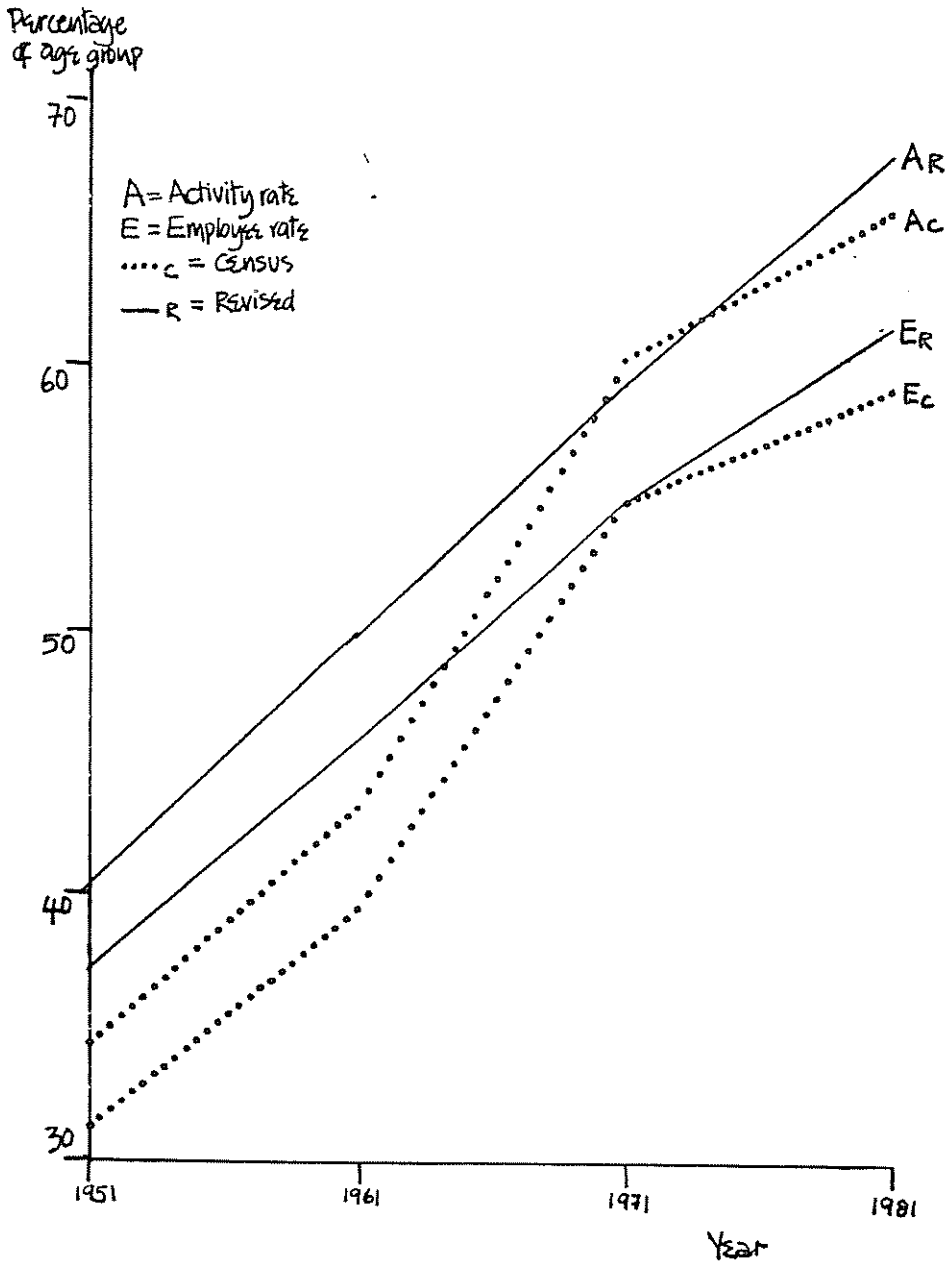
AR

Ac

ER

Ec

Fig 2: Female Employees & Activity Rates 1951-81, ages 45-54;
Census & Revised Estimates.



Appendix: Part Time Working

The Census is virtually the only data source which documents the prevalence of part-time working in the labour force for the years 1950 - 1970. National Insurance records for example only give the incidence of very low hours*, and the series on part-time work for 1950 - 73 compiled from the 'L returns' made by employers only covers manufacturing industries whereas part-time work is most prevalent in the service sector. Thus although successive censuses revised the method of estimating the extent of part-time working, we have little evidence by which to judge the results. The picture is different for the 1971 - 81 intercensal period though, as two employer surveys, the NES and Census of Employment give annual estimates with the GHS and EEC Labour Force Survey providing household survey figures for several other years. These data are summarised in Table A1. Clearly there is a rising trend in the evidence of part-time employment between 1951 and 1971 even allowing for the differences in Census definition which are considered below. The picture for 1971 to 1981 is more ambiguous though and we discuss this secondly.

The 1951 Census required a self definition of part-time, although the accompanying notes state that the term part-time should not be used for those usually working over 30 hours p.w. It does not suggest that those working less than 30 hours p.w. must be part-timers, so teaching for example could be classified full time even if their hours at school were less than thirty. In 1961, form fillers were told that part-time meant 'less than normal hours in employment', and those so entered were additionally required to state their hours worked excluding overtime and meal breaks. Some women

*People below the "NI floor" i.e. working under 8 hours per week, were only insured for Industrial Injuries and notoriously poorly recorded.

returned as part-time actually worked over 30 hours p.w., and their exclusion reduces the percentage of all female employees working part-time from 24.9% to 21.9%. The post enumeration survey showed that these figures should be treated cautiously - it indicated a net understatement of married women working part-time of about 9%, mainly due to their misclassification as economically inactive. Correcting for this factor raises the proportion of women working part-time by 1 to 2%. The hours worked by part-timers were also checked, and found to be 83% reliable, but a quarter of the errors involved moving women into the full time category. The types of misclassification reported by this survey could have occurred in 1951 as well, but we cannot say for certain.

In 1971, form fillers were not required to state whether the job was part time or full time, but only the hours worked, excluding overtime and meal breaks. This makes comparison with other years difficult, for classifying everyone working 30 hours or less per week as part-time would misplace some groups who are full time even though they may spend less than 30 hours p.w. actually at work - the most obvious example being teachers. The percentage of employed women working 30 hours or less per week was 37.8%, but excluding the 18,000 teachers working 24 - 30 p.w. reduces the figure to 35.6%. This hours only definition of part time work also introduces problems of what to do with the 4% of employed women who did not state their hours - different assumptions about the likelihood of their being full or part time could lower or raise the part time figure by 2%. Thus all in all the definition based solely on hours seems more arbitrary than if hours were used in conjunction with a self definition of part time. Comparing 1971 with other data sources suggests the 30 hours or less definition to be an overestimate -

the census rate of 37.8% part timers amongst employed females exceeds the NES rate of 31.33 and the Census of Employment rate of 33.5%. The sources are not completely comparable as the census rate covers those self employed who stated hours, whereas the other two refer to employees only. The GHS 1971 gives a proportion of 40% out of a more extensively covered workforce with a 30 hours or less definition of part-time. Taking all these factors into account it is probably safe to estimate the 1971 figure at around 34 - 35.5% rather than the 37-8% returned as working 30 hours or less a week. The quality check on the 1971 data is no help on this issue as again it only asked about hours worked (and the results of this exercise are not reported anyway).

The 1981 Census reverted to a self definition of part-time employment in that the form filler could choose between two tick boxes labelled "in a full time job" or "in a part-time job". The instructions at the side of the panel of tick boxes said that a part-time job was one "in which the hours worked, excluding any overtime are usually 30 hours or less per week". There was no question on hours worked and no reference to meal breaks, formerly excluded from the calculation. The part-time rate amongst all women with jobs was 38.7%, and confining the picture to employees it was 39.1%. The latter figure is similarly defined to the Census of Employment and LFS but lower than both cases - by 1.5% in the employer based survey and 3.3% in the household interview survey. This could be accounted for by the fact that the Census of Employment double counts double-jobbers among whom part-timers would be over-represented, and the Labour Force Survey has a slightly more extensive coverage of the workforce. The other household interview survey - the GHS, is confined to ages 16 - 59 for which the 1981

part-time rate was 43.1% whereas the Census rate for 16-59 year olds was 37.1%. Looking at the changes in part-time employment over the decade, the Census shows a very small rise for all ages over 16 but a fall when either the under 20 or over 60 year olds are excluded (even when the 1971 hours not stated group are all assumed to be part-time). The only really unambiguous feature emerging from all the survey evidence is a stagnation in the rate after 1977, (though most show a rise from 1971 to 1977). In the absence of information from the 1981 post enumeration survey about the classification of part time, we can only suggest that Census evidence is not a reliable indicator of the change in part-time employment for the 1971 - 1981 decade, as the rate for 1971 is overstated and that for 1981 most likely understated.

Part Time Employment Rates in 1971 and 1981 - Census evidence

	Age	Percentages				
		16+	16+ (exc. teachers)*	16-59	20-64	20-59
1971 (hours stated)		37.8	35.6	39.4	45.2	44.2
1971 (hours not stated all full time)		36.2	34.2	37.9	43.5	42.6
1971 (hours not stated all part time)		40.4	38.3	41.7	47.3	46.2
1981		38.7	n.a.	37.1	41.4	40.5

Part-time rate = $\frac{\text{part-time employees} + \text{self employed}}{\text{all employees} + \text{self employed}}$

1971 P/T = 30 hrs. p.w. excluding overtime and meal breaks

1981 P/T = own definition, instructions say part time is hours worked excluding overtime usually 30 hours p.w.

* teachers working 24-30 hrs. p.w. counted as full time.

Taking all these factors into account, we can tentatively draw up a "less inconsistent" series of female employees of all ages working part time. The table below shows the Census data at face value for 1951-81 together with a series which we consider would accord with a self definition of part time, but where hours worked were usually less than thirty per week, i.e. the 1981 Census definition. The third column is an even rougher guess at what the same series would look like had the data been collected in the same way as the LFS - in other words it makes an additional allowance for the women doing paid work who are undercounted by the Census, and who are most likely to be part-time workers.

A Less Inconsistent Series of Female Employees Working Part Time

1951 - 81, all ages

	percentages		
<u>Year</u>	<u>Unadjusted Census</u>	<u>Adjusted Census</u>	<u>LFS consistent</u>
1951	11.5	12	13
1961	24.9	22	23
1971	37.8	34	36
1981	39.1	39	42

% Female Employees Working Part Time (all ages)

	New			General		Census of Emp. (manuf. only)
	Census of Population+	Earnings Survey	Census of Employment	Household Survey	Labour Force Survey	
					own defn.	hrs. defn.
1951	11.5					
1961	24.9*					12.2
1966	31.9					13.7
1968		28.0				17.7
1971	37.8	31.3	33.5	40.0		17.7
1972		32.1	34.5			18.7
1973		33.2	36.3	40.4		18.7
1974		34.4	38.3			20.2
1975		32.2	39.6	44.1		
1976		34.0	40.1			
1977		34.4	40.9	44.1	43.0*	(43.8)
1978		34.7	40.2			
1979		35.5	40.5	43.3	40.8*	(42.3)
1980		35.3	40.6	43.3		
1981	38.7 39.10	32.5	40.8	43.1	42.4	(44.0)

+ includes self employed

* 21.9% if self defined part-time but working over 30 hrs p.w. excluded.

o excluding self employed.

Definitions of part-time work

Census 1951

Self definition, notes say not to be used for those working over 30 hrs. per week.

1961 Self definition, notes said part time = less than "normal" hours. Hours collected for those so defined part-time.

1966 Part-time is 30 hrs p.w.

1971 Hours only collected.

1981 Self definition, notes say part-time = hours worked usually = 30 p.w.

N.E.S. All ages 18+, employees only, part-time = not normally expected to work more than 30 hrs p.w. (25 for teachers and academics).

Census of Emp All ages, employees only, counts jobs not people, industry only, part-time is 30 hrs p.w.

G.H.S. Ages 16-59, employees plus self employed stating hours; hours criterion.

L.F.S. Self definition, but hours worked also collected, both refer to all ages 16+ employees only.

L Returns 30 hrs. p.w. excess.

N.B. In all cases, hours exclude meal breaks and overtime.

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