UNIVERSAL VERSUS ECONOMICALLY POLARIZED CHANGE IN AGE AT

FIRST BIRTH: A FRENCH-BRITISH COMPARISON

Michael S. Rendall*, Olivia Ekert-Jaffé**, Heather Joshi***,

Kevin Lynch****, and Rémi Mougin**

ABSTRACT

France and the United Kingdom in the 1980s and 1990s represented two contrasting

institutional models for the integration of employment and motherhood: The

'universalistic' regime type offering subsidized child-care and maternity-leave benefits at

all income levels; and the 'means-testing' regime type mainly offering income-tested

benefits for single mothers. Using the two countries as comparative case studies, we

develop and test the hypothesis that the socio-economic gradient of fertility timing has

become increasingly mediated by family policy. We find increasing polarization in age

at first birth by pre-childbearing occupation in the U.K. but not in France. Early first

births persisted in the U.K. only among women in low-skill occupations, while shifts

towards increasingly late first births occurred in clerical/secretarial occupations and

above. Age at first birth increased across all occupations in France, but was still much

earlier on average than for all but low-skill British mothers.

* RAND, Santa Monica, U.S.A.

** Institut National d'Etudes Démographiques, France.

*** Institute of Education, University of London, United Kingdom.

**** Office for National Statistics, United Kingdom.

INTRODUCTION

The ability of women to combine employment and childbearing trajectories is seen as an increasingly important determinant of fertility in developed countries. While this suggests an increasingly important role for family policy aimed at reconciling employment and motherhood, it is frequently noted that two groups of countries with contrasting approaches achieve similar overall fertility levels: The highly interventionist, 'universalistic' family-policy regimes of Northern Europe, incorporating extensive publicly-subsidized childcare and strong parental-leave provisions; and the minimally-interventionist regimes exemplified by the U.S., in which 'means-testing' family-policy is mixed with market-provided childcare and weaker maternity leave (Pampel 2001; Rindfuss, Guzzo, and Morgan 2003; Adsera 2004). Cross-national analyses using highly aggregated variables such as the total fertility rate, though, may miss important differences in fertility outcomes that result from differences in family-policy regime. In the present study, we disaggregate fertility by age, parity, and pre-motherhood occupation. This allows us to ask whether the *distribution* of fertility may be strongly influenced by family-policy regime even when its overall *level* may not be. Specifically, we consider effects of family-policy regime on the socioeconomic distibution of age at first birth.

We contrast France and the U.K. as case studies of the 'universalistic' and 'means-testing' types of family-policy regime, and attempt to link their regime types to their contrasting patterns of change in first-birth timing. Our main hypothesis is that 'universalistic' regimes of employment-family reconciliation, as in France, maintain a relatively homogeneous age at first birth across socio-economic strata, while 'means-

1

testing' family-policy regimes, as in U.K., produce increasingly heterogeneous distributions of ages at first birth that depend strongly on women's labor-market opportunities. Our case study analysis proceeds as follows. We first review the development of theory on links of socio-economic dimensions of fertility to family policy. We next describe the family-policy regimes of France and the U.K. and review empirical findings on family formation and employment in those countries. In our main empirical analyses, we then compare age at motherhood by pre-childbearing occupation across cohorts approximately ten years apart in each of the two countries.

THEORY: WELFARE REGIMES AND "REPRODUCTIVE POLARIZATION"

Because of the interacting nature of family policies, they may be best understood when viewed together as a "regime." For example, the effectiveness of maternity-leave provisions in allowing women to return to the same job after a birth may depend on availability of subsidized child-care (Brewster and Rindfuss 2000). We focus on two contrasting regime types: (1) 'means-testing' regimes that mainly offer income-tested benefits for single mothers; and (2) 'universalistic' regimes that offer subsidized child-care and maternity-leave benefits to women at all income levels to facilitate the combining of motherhood with employment. The cross-national evidence that 'universalistic' regimes facilitate mothers' continuity of employment is strong (Gornick, Meyers, and Ross 1998; Ruhm 1998; Stier, Lewis-Epstein, and Braun 2001). The evidence for their increasing fertility, however, is much weaker (Gauthier 1996, 2005; but see also McDonald 2006). This may be because, as Gauthier and Hatzius (1997) note in discussing the limitations of the total fertility rate, family policies differentially

2

influence the fertility of women with different labor-market opportunities (see also Milligan 2005). If so, the effects of family policy on fertility distributions may be greater than their effects on fertility levels.

Differential impacts of family-policy regime on fertility are proposed in the "reproductive polarization" analysis of Shulze and Tyrell (2002). They critique Lesthaege's (1995) "second demographic transition" view of the enormous social changes in women's family-economic and family-demographic roles as representing growth in individual choice, instead arguing that increasing heterogeneity in family formation is structured along socioeconomic lines. They further argue that this socioeconomic structuring is much greater under family-policy regimes that do not facilitate the reconciling of employment with motherhood. Writing in the context of very high proportions of women remaining childless in Germany, and of a regime whose forms of assistance to mothers have been largely associated with their remaining out of the labor force, they argue that 'conservative' regimes increase childlessness selectively among women with the highest opportunity costs of childbearing. As consequence, 'conservative' family-policy regimes increase the proportion of children born to women with poor labor-market prospects and the fewest economic resources.

We extend these "reproductive polarization" arguments to contrast the distributions of fertility in 'means-testing' and 'universalistic' regimes. We begin with McLanahan's (2004) contention that demographic polarization in the U.S. pivots on fertility timing. She draws a sharp distinction between those women who have taken economic advantage of the second demographic transition and those who have been left increasingly far behind by it. The first group of women have been better able to optimize

3

the timing of their family formation to the advantage of their own and particularly their children's socio-economic outcomes, while women with poorer socioeconomic opportunities have continued to have children early, at a time in their lives when they have few economic resources. While Schulze and Tyrell put family-policy regime at center-stage in their analysis of reproductive polarization, however, McLanahan sees this as only one of many forces operating to increase polarization in the U.S.

We further develop arguments for the centrality of family-policy for reproductive polarization by drawing on micro-economic analyses seeking to explain differences in women's ages at first birth within and across countries in Europe and in the U.S. Ermisch and colleagues provide theory and evidence from the U.K. for *heterogeneous* timing of childbearing in regimes without subsidized child-care and strong maternity-leave provisions to support employment continuity. Cigno and Ermisch (1989) argue and find that women with better earnings prospects have a greater incentive to delay motherhood when it is associated with labor-force withdrawal. Ermisch (1989) argues that the price of childcare is critical to the fertility-employment choice, with higher earnings needed to continue employment when childcare must be purchased at market rates. Not only woman's current earnings, but also the degree of upward slope in her prospective earnings, are important in modeling the fertility-employment decision. This consideration is invoked by Cigno and Ermisch to support their use of occupation as the key explanatory variable of their empirical analyses of birth timing in UK.

Gustafsson and colleagues (Gustafsson 2001, Gustafsson and Wetzels 2000) argue with a mix of theory and empirical evidence that 'universalistic' family-policy regimes promote more *homogeneous* timing of first birth. They see extensive child-care

subsidies and strong maternity-leave provisions as first giving women at all educational and occupational levels strong incentives to delay motherhood until they have stable employment. With paid family leave and guaranteed jobs to return to, the costs of childbearing are low, and therefore women in countries offering these policies are then able to proceed more quickly with childbearing than they would otherwise be able to do.

While these micro-economic analyses of fertility timing are consistent with earlier childbearing among women with better earnings opportunities in 'universalist' regimes than in 'means-testing' regimes, predictions of fertility timing for women whose earnings may not be high enough to purchase child care at market rates in 'means-testing' regimes are less clear. One possibility is that these women will have an upward earnings trajectory that, combined with a spouse or partner's earnings, will allow them to purchase childcare and achieve employment continuity later if they wait. Such a trajectory would cause childbearing to be postponed longer for such women in a regime where childcare is not subsidized than in a 'universalistic' family-policy regime where it is. Another possibility, however, is for women to qualify for income support for childrearing without employment under the 'means-testing' provisions of these otherwise less interventionist regimes, and to begin childbearing earlier using this support. This decision is analyzed by Rosenzweig (1999), both theoretically and with evidence from the U.S. He shows that means-tested benefits provided to women with dependent-aged children may increase *early* entry to motherhood, but that this will only occur among women with otherwise poor economic prospects. Hoffman and Foster (2000) provide further empirical evidence in support of this. This suggests that women with lower earnings opportunities may sort themselves either into early or late entrants to motherhood depending on whether they

see their prospects for delaying motherhood as improving on those of motherhood with low means-tested benefits. Because benefit levels are low, a correspondingly low threshold for entering the 'late motherhood' track is implied. The result would then be later entry to motherhood than in 'universalist' regimes for the majority of women, but earlier entry then in 'universalist' regimes among a disadvantaged group.

The above scenario is consistent with a theory of reproductive polarization that makes family-policy regime type a central determinant of the socio-economic distribution of age at first birth. 'Reproductive polarization' theory of this or any type, however, has yet to be subjected to much empirical testing. Schulze and Tyrell's evidence to test their version of the theory consists only of correlations between coarse demographic and economic aggregates and family policy regime type. When these provide only limited support for their predictions, they suggest this may be due to measurement problems. To test her conjecture about the potential role of universalist versus means-tested policy regimes, McLanahan shows that the median age at motherhood in the U.S. scarcely changed over the four decades since 1960 among women in the lowest education quartile, while it increased markedly for all other groups. Sullivan's (2005) evidence for the 1990s further supports this divergent empirical trend in the timing of first births by education in the U.S. Regarding comparisons across regimes though, McLanahan's cross-national evidence of first birth timing by education is for only a single point in time and again for the median age only. It shows an inconclusive pattern of differences in ages at motherhood by education across countries with different family-policy regimes.

There is some evidence, however, for the timing version of reproductive polarization theory in contrasting age and age-by-education profiles of fertility between

6

'universalistic' and 'means-testing' countries. Compared with the 'universalistic' countries of continental Europe, the fertility- schedules in the 'means-testing' regimes of English-speaking Europe and the New World have a lower and generally later peak, and have an early fertility "hump" that has grown more pronounced over recent decades (Chandola, Coleman and Hiorns 1999; 2002). Rendall et al (2005) show that growth over time in this "hump" in the U.K. is due to a combination of unchanged early first births among low-education women and increasingly later first childbearing of women with medium and higher education levels, and that disappearance of a similar hump in Norway is due to a contemporaneous shift out of early childbearing by low-education women in Norway. They also show a shift towards later first births among women at all education levels in France. Education, however, is no more than a proxy for the differences in employment opportunities that underlie theory on the effects of family policy on fertility. An important next step is to incorporate more direct indicators of women's employment trajectories into tests of the reproductive polarization hypothesis.

FAMILY POLICY AND SOCIO-DEMOGRAPHIC OUTCOMES IN FRANCE AND THE U.K.

We turn now to comparative analysis of France and the U.K., beginning with their family policies. France is, and has been for some decades now, home to the world's largest family policy "experiment" of universalistic public intervention facilitating childbearing and its combination with employment. The U.K. has been, after the United States, the largest site of a predominantly means-testing family-policy regime. We describe the family policies of France and the U.K. during the period under examination here, being

from the mid-1970s up to the last year for which we have data in our empirical study ----
1995 in France and 1998 in the U.K. This was a period of a reasonably stable contrast in
family-policy regimes, although policies continued to evolve in both countries.

Neither France nor the U.K. represents the purest form of their respective regime
types. Both countries have 'universalistic' and 'means-testing' components in their
family policies. France's 'universalistic' provisions, however, are both more extensive
and more strongly linked to continuity in women's employment than are the U.K.'s.
France's 'means-testing' provisions, moreover, distinguish less between partnered and
unpartnered mothers than do the U.K.'s. Accordingly, Gornick et al (1997) and Pampel
(2001) rank France with the Nordic countries, and indeed at the head of them, on their
scales, respectively for "employment support for mothers" and "women-friendliness."
They rank the U.K. at the head of the English-speaking group of countries with the "least
family friendly" policies, at 12th and 11[th]places on these scales.

France's family policies are notable especially for their structural integration
between childcare provision and maternity-leave benefits (Thelot and Villac 1998).
Universalistic childcare subsidies and cash benefits have been provided in France since
the late 1970s. We focus here on those provisions applied to children of all birth orders.
These provisions include fully compensated maternity leave for 16 weeks after childbirth.
For both partnered and unpartnered mothers in France who return to work following
maternity leave, publicly provided day-care facilities (*crèches*) are widely available, and
charge approximately one-third of the real cost to mothers who were either employed or
studying full-time. Further child-care options were introduced over the period studied,
including subsidies to parents (at all income levels) for child-minders, and subsidies to

private employers for provision of child-care facilities for their employees. From the age of three, almost all French children attend free public pre-schools (*écoles maternelles*). The main other universal provisions in France are per-child cash benefits. The young child's allowance (*Allocation Jeune Enfant, AJE)* is granted to all mothers, from the 4th month of pregnancy until the child is 3 months old. It then becomes income-tested till the child's third birthday, but the ceiling allows 80% of parents of young children to receive it.

For unpartnered mothers in France, the API (*Allocation de Parent Isolé*) program provides income support up to the youngest child's third birthday, or for up to one year for a woman who becomes a single mother by partnership dissolution when the child is over three. The API was introduced in 1976. From the late 1980s, means-tested benefits for parents who qualify for no other benefit were provided under the general means-tested income-support program RMI (*Revenu Minimum d'Insertion*). Algava and Avenel (2001) report that about one third of French single mothers move onto RMI assistance after their period of eligibility for API expires. Thelot and Villac (p.139) observe that API is perceived more favorably as complementing France's other 'universalistic' programs of assistance for parenting, as opposed to the more stigmatizing RMI. The RMI program maintains a basic income level depending on family size and number of dependent children, with the recipient working-age adults expected to be available for employment. Public housing is available to API and RMI recipients at a price estimated for a single mother family at approximately one quarter of market rates.

Turning to the U.K.'s family policies, its main universalistic provisions consisted of per-child cash benefits and maternity leave. The U.K.'s ranking ahead of the other

9

English-speaking countries on employment-motherhood compatibility was due to its relatively substantial maternity-leave provisions. They were weaker, however, than those in France. The U.K. has had a statutory right to reinstatement in the pre-birth job since 1976, up to 29 weeks. These were subject to stricter employment-tenure conditions, and compensated for lost earnings at a lower average rate, than in France (see Hantrais 1994 and Gauthier 1996 for details). During the 1990s the eligibility rules for maternity leave and returns to work were made less restrictive, including the introduction of rights to return part-time.[1] The bigger contrast with France, however, is in the U.K.'s lack of integration of maternity leave with publicly-subsidized child-care. In the U.K. child-care has been considered a private responsibility. Publicly subsidized child-care for mothers with young children covered only between 2 and 6 percent of all children under three or four in the 1980s and most of the 1990s (Gauthier, 1996; Boje and Amqvist 2000). The U.K. also has a universal per-child cash benefit, at a similar level to that of France (ranked 'medium' by Gauthier 1996).

The U.K.'s means-tested benefits to families with children in the 1980s and 1990s were similar to those of the U.S, Canada, Australia, and New Zealand in that period (Bradshaw et al 1996; Kamerman and Kahn 1997). Single mothers received cash income support contingent on their unpartnered status,[2] along with full rent subsidies for public housing and exemption from local taxes. Throughout the period studied, single mothers in the U.K. were eligible to receive these benefits with no expectation of being available for employment until the youngest child attains age 16, as opposed to at the youngest child's age 3 in France.

10

Despite these major contrasts in family-policy regimes, France and the U.K. achieved similar overall outcomes in fertility and women's labor-force participation over the period under investigation (see Table 1). In both countries, the TFR was around 1.8 children per women in 1990/91, while it was between 0.1 and 0.15 children higher in France than then U.K. around 1980 and 2000. The labor-force participation rate (LFPR) of 25 to 54 year old women increased similarly in France and the U.K. from just over 60 percent around 1980 to between 75 and 80 percent around 2000. These are moderate-to-high TFRs and LFPRs by the standards of industrialized countries over the past two or three decades. Thus based on these aggregate measures, the 'universalistic' French and 'means-testing' British cases illustrate the paradox noted earlier that contrasting regime types may have similar fertility levels. A disaggregated analysis of fertility rates by age alone, however, is sufficient to challenge this. We present in Figures 1a and 1b the age-specific fertility rate profiles in the U.K. and France in their respective census years around 1980, 1990, and 2000. They show that markedly different patterns between the two countries have evolved over these two decades. Around 1980, the French age-specific fertility schedule was already sharper in its peak than was the U.K's., implying an already more homogeneous distribution of ages at motherhood. This homogeneity was preserved as the profile shifted to the right. In the U.K., meanwhile, the profile stretched out leaving an early childbearing hump and markedly reduced fertility rates in women's early and mid-20s.

[Figures 1a and 1b about here]

11

Regarding labor-force participation, the aggregate picture also obscures major differences. Labor force participation, specific jobs, and hours of employment are all more strongly sustained through childbearing in France than they are in Britain. Much higher rates of returning to the same job after maternity leave is achieved through a much higher use of formal (paid) child-care in France (Hantrais 1994; Gregory and Windebank 2000). There has been a rise in British mothers returning to work through formal child-care, but this has been concentrated among higher-earners as women's professional occupational opportunities expanded (Glover and Arber 1995). Part-time work is less common in France. French part-timers were also better protected during the period we study in terms of employment rights such as pension entitlements, and their part-time hours were longer on average than those of British mothers (Boje and Amqvist 2000). Finally, compared with French single mothers, British single mothers in the early-to-mid 1990s were more likely to be in receipt of welfare benefits and less likely to be employed, and more likely to be younger, never-married, and with children under 6 years old in the household (Bradshaw et al 1996).

CHANGES IN AGES AT FIRST BIRTH BY PRE-CHILDBEARING OCCUPATION AND EMPLOYMENT STATUS

The main results of our study document changes in occupational patterns of age at entry to motherhood in the two countries. Investigating heterogeneity in fertility profiles simultaneously by cohort, parity, age, employment trajectory, and country places heavy demands on data. They need to be longitudinal to capture fertility over a reproductive lifetime, they need to include labor-market variables in addition to demographic

variables, and the sample sizes need to be large enough to permit exploration of the patterns of fertility at less common ages of childbearing simultaneously across a range of occupational trajectories. Finally, they need to be comparable across the countries studied. We meet these challenges by using special compilations of linked census and birth registration data found in both France and Britain (specifically, England and Wales[3]). The datasets are respectively the ONS Longitudinal Study (LS, Hattersley and Creeser 1995) and French Demographic Panel (EDP, INSEE 1995). The LS links census and birth records since 1971 for a representative sample of 1 in 100 women in England and Wales, while the EDP does so since 1968 for a 1 in 200 sample in France (see Rendall et al 2008 for details). Because the two countries' populations are approximately the same size, the sample sizes are approximately twice as large in England and Wales as in France. The large sample sizes of the datasets in both countries, however, make them only available for on-site "safe-setting" analysis to protect respondent confidentiality. Pooled analysis is therefore not possible.

As "linked-record" datasets, the LS and EDP have the major advantage over regular panel surveys of very large sample sizes. Their main disadvantage is fewer socio-economic variables, collected only at the censuses (ten years apart in England and Wales, and between seven and nine years apart in France). Employment status and occupation are available for both countries at both their early-1980s and early-1990s censuses (1981 and 1991 in England and Wales, and 1982 and 1990 in France). Occupation is consistently available across countries and censuses, however, only for women who were employed at census time. In England and Wales, the only education data collected in the 1981 and 1991 censuses were post-secondary qualifications. In France, no family and

13

household data (and so no partner characteristics) were coded for three-quarters of the EDP sample in the 1982 census. Neither country's census collects income.

Given the weaknesses of having few socio-economic variables available for both countries, and the strengths of the very large samples of the EDP and LS, we focus our analyses on the estimation of first births by age, cohort, and woman's employment status and occupation. The use of these large, linked-record datasets means that we are able to obtain more precise estimates than would be possible from a survey data source, and that we are able to add a key socio-economic dimension to cross-national analyses of age- and parity-specific childbearing that have used aggregate population data. Occupation is favored as a relatively stable indicator of an employment and earnings trajectory (Cigno and Ermisch 1989; Hauser and Warren 1997), and as a variable whose qualitative dimensions are relevant to the integration of employment and motherhood (Desai and Waite 1991).

We observe pre-childbearing employment status and occupation from the censuses of 1981/2 for the 1950s cohorts, and of 1990/1 for the 1960s cohorts. Parity is determined from linked birth registration records going back to 1972 in the LS and back to 1969 in the EDP. We analyze first births in the years following the early 1980s and early 1990s Censuses, up to the latest years available for our analyses ---- 1995 in the EDP and 1998 in the LS. As we described earlier, the family-policy regime contrast between France and the U.K. was reasonably stable over this period.

Our analysis is of lifetime distributions of first births by women's pre-childbearing occupation and employment status, as observed through their mid-20s.[4] These analyses are targeted at women from the 1950s and 1960s birth cohorts in each

14

country, specifically five-year birth cohorts centered around 1957 and 1965 in France, and around 1956 and 1966 in England and Wales. These cohorts attained age 25 in the census years 1982 and 1990 respectively in France and 1981 and 1991 in England and Wales.

We classify employed women in each country into four occupation groups, designed to maximize cross-national comparability. In practice, this meant forming groups based on the French two-digit level occupations, and matching to them the three-digit British occupations (see Rendall et al 2008 for details). We follow Dex et al (1993) in separating occupations with traditionally high concentrations of female workers: "nursing and teaching" and "clerical and secretarial" occupations. These groupings align well with the findings of a detailed analysis by Grimshaw and Rubery (1997) of occupational concentration across the 1980s and 1990s in seven OECD countries including the U.S., U.K. and (for the 1990s only) France. Their study showed similar concentrations of just over 60 percent of women in both France and the UK in just ten specialized occupational groups, with secretarial and clerical workers, primary school teachers, and nurses prominent among them. Both the nature of these occupations and their traditionally heavy reliance on female labor has led to their being considered as more "family friendly"; that is, compatible with family formation and either continued employment or re-entry to employment after a break.

We divide the remaining occupations into either "intermediate and professional" or "low-skill" groups. Our four groups cover all possible occupations. Thus "Intermediate and professional" include associate professionals, technicians, and the self-employed. "Nursing and teaching" also includes social welfare occupations. The "low-

skill" group includes low-level sales, service, and manual occupations. For women not employed at census time, we classified those whose main unpaid activity was "student" (regardless of level of studies) separately from the rest, categorized here as "jobless." Including these two non-working statuses gives a total of six categories of occupation and employment status.

Women's occupation and employment statuses at ages 20 to 25

We compare the occupation and employment statuses of women in France and Britain that are childless by ages 20, 22, and 25 (see Table 2). Age is defined throughout as years attained in the calendar year (the standard French definition). This is on average half a year less than the "completed years at last birthday" definition. Up to age 24, pre-childbearing occupation is defined as that observed at single-year ages from 16 to 24. In the bottom row of Table 2 are the percentages still childless ('at parity 0') among all women attaining ages. The greater shifts away from early childbearing in France than in Britain, as seen above, are reflected here in a much greater increase between cohorts in the proportion childless among 20 year-old French women (up from 81.7 to 90.7 percent) than among 20 year-old British women (up from 79.4 to 83.9 percent). This trend also extends to 22 year-olds. By age 25 the patterns is reversed, with fewer French than British 25 year-old women childless at both dates.

[Table 2 about here]

16

The distributions of women by occupation and employment status by single-year age in the main part of Table 2 provide details of occupational shifts that add much to the picture from the usual aggregate measures of educational qualifications and labor force participation rates. The two main phenomena we highlight from this table are: (1) overall similarity between the countries in occupational distributions with a shrinking share of female-dominated occupations; and (2) a greater shift towards prolonged studies and later entry to employment in France than in Britain.

Both countries experienced large shifts out of female-dominated occupations across this decade. These shifts involved both the "nursing, teaching, and social welfare" and "clerical and secretarial" occupational groups. For the 1950s cohorts, the clerical/secretarial group of each country constituted the largest single occupational category among childless women at ages 22 and 25. Between one-third and one-half of all employed childless women in their early-to-mid 20s in both countries and both years were in clerical or secretarial occupations. These proportions declined markedly, however, in both Britain and France from the 1950s to 1960s cohorts. There were offsetting increases in the proportions of women in the intermediate and professional category in both countries. The proportion of childless 25 year-old women in this 'top' group increased from 10.5 to 17.0 percent in France and from 13.8 to 24.0 percent in Britain. The numerical importance of the low-skill occupational category, meanwhile, changed relatively little. It was, at most ages among childless women in their early to mid-20s, the second largest occupational group in both countries in both periods.

While the occupational distributions of employed women and shifts in them were overall similar between countries, women's rates of employment and shifts in these rates

over time were not. Together, they imply continued early entry to employment among British women, and increasing later entry to employment among French women. Employment rates fell among French women both with and without children in their early to mid-20s between 1982 and 1990. The falls were especially large in women's early 20s, and were associated with increases both in full-time students and joblessness. In France in 1982, one third of childless women aged 20 and one fifth of those aged 22 were still in full-time studies. By 1990, as many as two-thirds of childless 20 year-old French women were students, as were more than one third of those aged 22. In Britain, fewer than 15 percent of childless 20 year-olds in both 1981 and 1991 were students, as were fewer than 10 percent of childless 22 year-olds.

The age patterns, levels, and changes over time in joblessness also differed between the countries. The contrasts between countries were larger for women in their early- than mid-20s, and in the early 1990s than in the early 1980s. In France, the jobless percentage at age 22 increased from 9.6 percent in 1982 to 17.5 percent in 1990, and at age 25 from 7.7 percent in 1982 to 15.9 percent in 1990. This is consistent with other evidence of worsening macroeconomic conditions in France over this period (e.g., Ekert-Jaffé and Solaz 2001). In Britain, meanwhile, the jobless percentage decreased from 13.1 percent to 10.5 percent at age 22 and from 13.5 percent to 10.0 percent at age 25.

First birth hazards by occupation among French and British women through their 20s
Annual first-birth hazards at ages 16 to 28 or 29 are estimated from logisitic regression equations, using data for women of those exposed to risk of first birth in the calendar years 1983 and 1991 in France, and 1982 and 1992 in England and Wales. Age is

18

capped at 28 in England and Wales and at 29 in France to restrict the sample to women whose entire fertility histories to date could have been observed. Interactions by period were specified and tested separately for the French and British samples. Those groups of interactions that were statistically significant in at least one country were retained for both. We then used identical specifications for the two countries.

The estimated coefficients and standard errors are presented in Table 3. Dummies for single-years of age are used for the reference group in low-skill occupations in the 1980s year. The intercept and age coefficients provide the baseline first birth hazard for this low-skill group. The major difference seen between the two countries here is the higher (less negative) intercept in England and Wales, reflecting a higher level of teenage fertility, and the higher age dummies in France, reflecting a steep upward slope into the 20s. A spike at age 17 in England and Wales reflects a changing composition of women by employment status and occupation, as students change from being a heterogeneous group including soon-to-be teenage mothers to being a group that is more selective of those continuing into higher education.

[Table 3 about here]

The estimates of central importance for the study are the coefficients for occupational status, and their interactions with "1990s period." These coefficients are all relative to the low-skill reference group. As expected, the signs on the other occupations are negative, implying lower fertility in the teens and 20s for women in more skilled occupations. For jobless women, in contrast, the coefficients are positive in both

19

countries. The overall patterns of the occupation coefficients are similar between

countries, with age-slope interactions typically offsetting differences in the main effects.

The 1990s period interactions, however, reveal a key contrast between French and British

women's first birth patterns for the clerical/secretarial group. Whereas this coefficient is

small and largely non-significant in France, it is negative, of substantial magnitude, and

statistically significant in Britain. The nature of this contrast in cross-cohort change

between countries identifies the location in the occupational distribution of the cleavage

in ages at first birth in Britain that we argue constitutes "reproductive polarization".

[Figures 2a, 2b, and 2c about here]

This key result is seen more clearly in graphs of the predicted probabilities of first

birth by occupation, age, and period. We show these probabilities in Figures 2a, 2b, and

2c for the three largest groups: low-skill, clerical/secretarial, and

intermediate/professional occupations. These graphs combine the first-birth hazards

derived from the regression coefficients from Table 4 for ages up to 24 only, with first-

birth hazards from age 25 upwards derived from additional regressions estimated for

women belonging to five-year 1950s and 1960s birth cohorts and observed through 1995

for France and through 1998 for Britain (fully reported in Rendall et al 2008). This

presentation of the under and over 25 year old hazards anticipates our analyses in the

next subsection, in which we join up the pre- and post -25 hazards. The level of the

former, however, are seen in Figures 3a to 3c to be clearly lower at the connect point of

age-24 to age-25 for all but low-skill women of the 1960s cohort for Britain. This is due

to the slightly more recent cohorts entering the pre-24 regression, in a period of falling first-birth hazards at these younger ages. The exception of the low-skill women of the 1960s cohort for Britain (see Figure 2a), for whom the pre-25 and post-25 hazards connect well, is important, as it is consistent with continued early entry to motherhood for women in this labor-market-disadvantaged group in Britain but not in France.

Women in their 20s in France have first-birth hazards that are generally much higher than those of British employed women in the same occupation group. This pattern is seen most clearly for women in the largest group in both countries, that of clerical/secretarial occupations (see Figure 2b). In France, the first-birth hazards are approximately double those in Britain at most ages of the early to mid 20s. The hazard rises rapidly with age in both countries. In contrast, among women in low-skill occupations, the first-birth hazards are very high in both countries. The hazards for low-skill women start lower and rise more steeply in France, however, than they do in Britain.

For women in intermediate and professional occupations, the cross-cohort shift in first-birth hazards is stronger in France (see Figure 2c). These changes may be partly due to changes in the distribution of specific occupations within this broad group. Such within-group change would mirror women's shifts in both countries out of clerical/secretarial occupations into intermediate and professional occupations. It is worth recalling here, however, that the latter shift appears to have been larger in Britain than in France for these cohorts. The level of the first-birth hazard for intermediate/professional women of the French 1960s cohort nevertheless remains well above that for the British 1960s cohort. This implies an earlier and more homogeneous

pattern of first births for women in higher occupations in France than in Britain. We see this now in the lifetime distributions of age at first birth.

Lifetime distributions of first births by age and pre-childbearing occupation
We apply a combination of synthetic-cohort ("period") and real-cohort life table methods (e.g., Chiang 1984) to derive lifetime distributional estimates of first births jointly distributed by age and pre-childbearing occupation. The joint-distribution approach means that we are able to take into account both the earlier entry to occupations among British women, especially in the 1960s cohorts, and the faster entry to motherhood from a given occupation among employed women in France. Pre-childbearing occupation in this lifetime distribution is derived as the occupation in the year before first births up to age 24, and the occupation in a woman's mid-20s for first births age 25 onwards. This allows for real-cohort estimation after age 25, using exposure to first birth in the years following the census up to the latest year in the data.

The essence of the life table method is that a distribution of the timing of some key event over a lifetime (death, first marriage, first birth, etc.) for a cohort is derived from a set of age-specific probabilities (hazards) of experiencing that event. To complete the first-birth hazards up to the end of the reproductive ages of the 1960s cohorts, identical age patterns were imposed from the 1950s cohort estimates, but with a "level" shift derived from the ratio of the 1960s to 1950s hazards in the women's mid-30s. We similarly apply a level shift to raise the pre-age 25 hazards to meet the post-age 25 series based on the proportions childless by occupation at age 25. Full details of the regressions and life tables are available in Rendall et al (2008). Note that because our method uses

occupation in the year before the birth up to age 25 as the predictor of first birth rates by occupation in these younger ages, it is not possible to derive *rates* of childlessness by occupation. The life table method allows a rate of childlessness to be defined only by fixed characteristics. Instead, we provide here joint distributions of ages of first-birth by pre-motherhood occupation.

The lifetime estimates results are presented in Table 4. Because a large proportion of childbearing after age 25 occurs in the 25 to 29 year-old age group, we therefore divide the complete life course into ages 16 to 24, 25 to 29, and 30 to 44. We refer to these as early, middle, and late first-time mothers. The bottom row of Table 4 gives the overall distribution of ages at first birth and percentage of eventual first births in each cohort. The latter is given in the column "ages 16-44." This allows for a check to other authors' estimates and projections of childlessness, and so also of the LS and EDP data and our methods for their adjustment. Our estimates of the 1950s cohorts' eventual childless proportions (10.5 percent for France and 15.1 percent for England and Wales) are reasonably close to those estimated by others for both France (Toulemon and Mazuy 2001) and for England and Wales (Office for National Statistics 2007), although they likely understate French-British gaps in eventual childlessness. Our projection of the 1960s cohorts' eventual childlessness proportions in France (15.4 percent) are above Toulemon and Mazuy's upper projection of 12 percent, while our projections of the 1960s cohorts' eventual childlessness proportions in England and Wales (18.2 percent) are consistent with Office for National Statistics estimates of 19 percent.

Consistent with the trends in the all-parities age-specific fertility rates presented earlier, there are much greater contrasts in the age distributions of first births between the

two countries (bottom row of Table 4). First childbearing in the middle, 25 to 29 year-old age group increased substantially in France (from 23.4 percent to 27.5 percent) as fewer women began childbearing in the 20 to 24 age group. In Britain, however, it decreased slightly (from 23.2 percent to 21.6 percent) as there was insufficient transfer of early childbearing into ages 25 to 29 to offset the shifts beyond age 30. While first births before age 25 decreased much more in France, there were substantial increases in first births after age 30 in both countries. Early and late first-time mothers together made up more of the British than French first-time mothers for both the cohorts. Almost as many British women in the 1960s cohort will enter motherhood at ages 30 and over (19.6 percent) as at ages 25 to 29 (21.6 percent). In France, meanwhile, the shift out of childbearing before age 25 resulted in large increases in the proportion of French women of the 1960s cohort having their first child both at ages 25 to 29 (27.5 percent) and at ages 30 and over (16.7 percent).

[Table 4 about here]

The results of most interest, though, are those by occupation and employment status. The main finding is of a large increase in occupational polarization of ages at first childbearing in Britain but not in France. In Britain, just over two-thirds of all low-skill mothers had their first child between ages 16 and 24 in both cohorts (14.0 percent out of 21.8 percent of the 1950s cohort, and 16.9 percent out of 25.5 percent of the 1950s cohort). In France, however, while almost three-quarters of all low-skill mothers had their first child between ages 16 and 24 in the 1950s cohorts (18.2 percent out of 25.3

percent), barely more than half of first births to women in low-skill occupations occurred

at ages 16 to 24 in the 1960s cohort (10.9 percent out of 19.2 percent of the 1960s

cohort).

The other substantial group of earlier first-time mothers in Britain was jobless

women. First births among either low-skill or jobless British women before age 25

occurred for a similar 26.2 percent of the 1950s cohort and 25.8 percent of the 1960s

cohort. The latter figure accounts for just under one third of all first births in the 1960s

cohort. At the same time, the halving of the cohort proportion having their first child

from clerical/secretarial occupations before age 25 meant that early first-time mothers in

Britain became a much more negatively-selected group between the 1950s and 1960s

cohorts. The 5.2 percentage point decline in first births between the ages 16 and 24

(from 46.2 percent of the 1950s cohort to 40.6 percent of the 1960s cohort) in Britain was

entirely accounted for by women in clerical/secretarial occupations reducing their

contribution to early first births from 12.0 percent of the 1954-58 cohort to only 6.6

percent of the 1964-68 cohort.

The second cause of the increasing demographic isolation of low-skill early

mothers in Britain was a decline of employment in traditionally female occupations and

and a rise in the intermediate and professional occupations. The latter group almost

doubled its contribution to all first births in the cohort, from 7.4 percent of the 1950s

cohort to 13.4 percent of the 1960s cohort. When the postponed motherhood of middle-

level female-dominant occupation groups (clerical/secretarial and nursing/teaching) are

also taken into account, 14.4 percent of the cohort (and so about one-fifth of the 1960s

cohort's first-time mothers) are projected to be women in middle-to-high level

occupations having a child after age 30, equal to the number of first-time mothers at ages 25 to 29 in these three groups (14.5 percent of the cohort).

In France, meanwhile, declines in births before age 25 occurred similarly for women employed in both clerical/secretarial and low-skill occupations. The contribution of first births of clerical/secretarial occupations before age 25 fell from 16.9 percent of the 1950s cohort to 9.6 percent of the 1960s cohort, and the contribution of low-skill women fell from 18.2 percent of the 1950s cohort to 10.9 percent of the 1960s cohort. Further, despite the large rise in jobless women in their early 20s, the combined contribution of early first childbearing by low-skill and jobless women in France fell from 26.2 percent of the 1950s cohort to 20.0 percent of the 1960s cohort. At the upper end of the age distribution, while first childbearing among French women in the three middle-to-high occupation groups increased after age 30 to 9.9 percent of the 1960s cohort, this was still much less than the 16.3 percent contributed by these occupation groups at ages 25 to 29.

The results of Table 4 also allow us to consider cross-country differences and cross-cohort changes in the occupational structure of all women having their first child. Here, the similarities between the two countries are greater than the contrasts. Large shifts out of traditionally female (clerical/secretarial and nursing/teaching) occupations and into intermediate/professional occupations were seen in both countries, while women entering motherhood from the low-skill and jobless groups continued to figure prominently in both countries. In Britain they made up 37 percent of the cohort and therefore approximately two-fifths of all who had a first birth. In France they were 34 percent of the cohort, and thus a little over one third of all first-time mothers. It is

notable, then, that there were substantially different shifts in the age-by-occupation patterns of first childbearing over a period in which structural shifts in occupational composition of first-time mothers were similar between the Britain and France.

CONCLUSIONS

In our main empirical analyses, we found contrasting first-birth by occupation trajectories in Britain and France that strongly support the hypothesis that "reproductive polarization" is linked to type of family-policy regime. First, pre-childbearing occupation differentiated age at first birth in Britain much more than it did in France. In both 1950s and 1960s birth cohorts, in the lower-skill occupations British women had first births earlier than did French women, while in medium- and higher-skilled occupations British women had first births later than the French. Second, occupational differentiation in age at first birth increased over time in Britain compared to in France. In Britain, women in low-skill groups continued to have first births primarily in their late teens and early 20s, while women in all other occupations had first births increasingly later. The quantitative importance of this cleavage for socio-demographic inequality was seen in low-skill and jobless early mothers (under 25 at first birth) accounting for approximately one-third of all first births in Britain.

The clerical/secretarial occupational group also exhibited substantial first childbearing before 25 in the British 1950s birth cohorts. In the 1960s cohort, however, large proportions of women either had turned away from this occupation group and towards higher-level occupations with later first births, or had delayed entry to motherhood until after age 25 as members of the clerical/secretarial group. The

27

magnitude of occupational polarization in age at first birth that emerged in Britain is therefore especially large in comparative perspective: First births among the lower-skill groups became much earlier than in France; further, first births among all other occupations became much later than in France.

The persistence of early childbearing among the low-skill and jobless group in Britain but not in France is consistent with the differences in the two countries' incentives for childbearing without a partner and without significant own earnings. These differences in means-testing programs alone, however, are insufficient to account for such a large difference in economic-demographic outcomes. We follow Gustafsson and colleagues (Gustaffson and Wetzels 2000; Gustafsson 2001) by arguing that the power of family-policy regime differences like those between France and the U.K. to explain the large shift out of early childbearing in France but not in the U.K. instead derives also from the 'universalist' provisions of France ---- its combination of publicly subsidized childcare and maternity leave. These together provide a substantially greater incentive to women of all occupational trajectories in France than in the U.K. for obtaining permanent employment before entering motherhood. The key feature of these provisions is that they apply to, and are taken up by, women at all levels of potential earnings. Consistent with this, Meron and Widmer (2002) find that low-qualified women in France delay entry to motherhood as much or more than do higher-qualified women under conditions of increased difficulty in securing permanent employment.

While our comparative case-study approach finds occupational-demographic profiles of entrants to motherhood in Britain and France that are consistent with the predictions of the reproductive polarization thesis, this does not prove that differences in

these profiles were caused by family-policy regime. Nor does it prove that these findings are general across regimes of the 'universalistic' and 'means-testing' types. There are nevertheless two reasons for the plausibility of regime differences as the main explanation for our findings. The first is that the cross-national comparability of the data we used (the linked census and birth registration datasets of the EDP of France and the LS of England and Wales) allowed us to apply identical methods to estimate the relationship between pre-childbearing occupation and age at first birth across the reproductive life courses. The very large sizes of the panel-structured datasets in the two countries, moreover, allowed the kind of distributional estimates that are not possible from sample survey data sources.

The second reason for the plausibility of the family-policy regime explanation is the similarity of the two countries' other aggregate characteristics. These are most notably their time paths of overall fertility rates and labor-force participation rates, as we showed in table form. Other similarities are seen in the two countries' geo-political contexts as equal-sized (demographically and economically) neighbors in the European Union. We restricted our analyses to native-born women in each country. While the school systems differ, the minimum school leaving age was 16 years old in both countries. Legal access to contraception and abortion was similar in both countries.

Concerning alternative explanations, we note that our analyses omitted variables on the incomes of potential or actual partners. The income effects of the earnings of a woman's husband or partner figure prominently in theoretical analyses (e.g., Cigno and Ermisch 1989). Their empirical effects, however, have been found to be either weaker than those found for the women's wage (Merrigan and St. Pierre 1998) or not present at

all (Gustaffson and Wetzels 2000). Men's unemployment may be more a more important factor (Adsera 2004). Unemployment was marginally higher in Britain than in France in the early 1980s, marginally lower in Britain in the late 1980s to early 1990s. While further disaggregation of these differing trends in unemployment would allow more definitive conclusions, Britain's reduction in unemployment between the 1980s and 1990s works against an explanation of male unemployment as a cause of the increase in its reproductive polarization over this period. Instead the evidence of a positive association of unemployment with early fertility in the U.K. but a negative association in France, suggests that the effect of unemployment is itself regime-dependent.

An additional macro-economic contrast between the two countries over this period was the increasing overall income inequality in the U.K. and decreasing inequality in France (Forster and Vleminckx 2004). It is unclear, however, whether this should be considered as a cause or effect of the growing reproductive polarization in the U.K. that we have documented in this study. We found that the proportions of women in the lowest and highest-level occupation groups grew relative to the proportions in the two middle (and "family friendly") occupation groups in both countries between the 1950s and 1960s cohorts. Only for the U.K., however, was there a corresponding increasing divergence in age at first birth by occupation.

Our analysis has considered the family-policy "regime" effects on a single feature of a broader reproductive polarization process, age at first birth by women's pre-childbearing occupation. Following McLanahan (2004), we consider this feature as an entry point to a process whose outcomes strongly differentiate the resources and life chances of both mother and child. Increasingly late first births, however, also lead to the

possibility of lower completed fertility and unrealized desired family sizes. While the evidence so far is that this point has generally yet to be reached at an overall societal level (Sobotka 2004), it may have already been reached among women in those occupations associated with the oldest first births (our intermediate and professional occupational category). In this case, Schulze and Tyrell's (2002) idea of the reproductive polarization process as operating through differential family sizes will also apply.

Finally, two further questions are raised by this study that may be addressed by future research. The first is to what extent are the patterns shown here of growing occupational polarization of age at first birth in 'means-testing' regimes, but not in 'universalist' regimes, common across countries representing these two family-policy regime types? The second question stems from our noting earlier that substantial changes in the 'regime' have occurred in countries including the U.K. in the new century, after the period of our study. These changes follow in part the policies on family leave drawn from 'universalist' European regimes and in part the 'work-fare' policies for low-income mothers drawn from the United States (e.g., Blank and Haskins 2001). It is of considerable interest how far these policy changes may promote not only more similarities across developed countries in the integration of motherhood and employment, but also greater similarities in their socio-demographic distributions of childbearing.

REFERENCES

Adsera, A. (2004) Changing fertility rates in developed countries: The impact of labor market institutions. Journal of Population Economics 17:17-43.

Algava, E., and M. Avenel (2001) Les bénéficiaries de l'Allocation de parent isole (API) [Recipients of the Single Parent Benefit] *DRESS Etudes et Résultats* 112. Paris: Ministère de L'Emploi et de la Solidarite.

Blank, R.M., and R. Haskins (eds.) (2001) The New World of Welfare Washington: Brookings Institution Press.

Boje, T. P., and A. Almqvist (2000) Citizenship, family policy and women's patterns of employment. Pp.41-70 in Boje, T. P., and A. Leira (Eds.) Gender, Welfare State and the Market New York: Routledge.

Bradshaw, J., S. Kennedy, M. Kilkey, S. Hutton, A. Corden, T. Eardley, H. Holmes, and J. Neale (1996) The Employment of Lone Parents: A Comparison of Policy in 20 Countries London: Family Policy Studies Centre.

Brewster, K. L., and R. R. Rindfuss (2000) Fertility and women's employment in industrialized nations Annual Review of Sociology 26:271-296.

Chandola, T., D. A. Coleman, and R. W. Hiorns (1999) Recent European fertility patterns: Fitting curves to 'distorted' distributions. Population Studies 53:317-329.

Chandola, T., D. A. Coleman, and R. W. Hiorns (2002) Distinctive features of age-specific fertility profiles in the English-speaking world: Common patterns in Australia, Canada, New Zealand and the United States, 1970-98. Population Studies 53:317-329.

Chiang, C.L. (1984) The Life Table and its Applications Malabar, FL: Robert E. Krieger Publishing.

Cigno, A., and J. Ermisch (1989) A microeconomic analysis of the timing of births European Economic Review 33:737-760.

Desai, S., and L. J. Waite (1991) Women's employment during pregnancy and after the first birth: Occupational characteristics and work commitment <u>American Sociological Review</u> 56(4):551-566.

Dex, S., P. Walters, and D. M. Alden (1993) <u>French and British Mothers at Work</u> London: Macmillan.

Ekert-Jaffé, O., and A. Solaz (2001) Unemployment, marriage, and cohabitation <u>Journal of Socio-economics</u> 30:75-98.

Ermisch, J. F. (1989) Purchased child care, optimal family size and mother's employment <u>Journal of Population Economics</u> 2(2):79-102.

Forster, M.F., and K. Vleminckx (2004) International comparisons of income inequality and poverty: Findings from the Luxembourg Income Study <u>Socio-economic Review</u> 2:191-212.

Gauthier, A. H. (1996) <u>The State and the Family: A Comparative Analysis of Family Policies in Industrialized Countries</u> Oxford: Oxford University Press.

Gauthier, A. H. (2005) "Trends in policies for family-friendly societies" in Macura M., MacDonald A.L., and Haug W. (Eds.) <u>The New Demographic Regime: Population Challenges and Policy Responses</u> Geneva: United Nations.

Gauthier, A. H., and J. Hatzius (1997) Family benefits and fertility: An econometric analysis <u>Population Studies</u> 51:295-306.

Glover, J., and S. Arber (1995) Polarization in mothers' employment <u>Gender, Work and Organization</u> 2(4):165-179.

Gornick, J.C., M.K. Meyers, and K.E. Ross (1997) Supporting the employment of mothers: Policy variation across fourteen welfare states Journal of European Social Policy 7(1):45-70.

Gornick, J.C., M.K. Meyers, and K.E. Ross (1998) Public policies and the employment of mothers: A cross-national study Social Science Quarterly 79(1):35-54.

Gregory, A., and J. Windebank (2000) Women's work in Britain and France: Practice, Theory and Policy London: MacMillan.

Grimshaw, D., and J. Rubery (1997) "The concentration of women's employment and relative occupational pay: A statistical framework for comparative analysis" Labour Market and Social Policy – Occasional Papers No.26 Paris: Organisation for Economic Co-operation and Development. www.oecd.org.

Gustaffson, S.S. (2001) Optimal age at motherhood: Theoretical and empirical considerations in postponement of maternity Journal of Population Economics 14:225-247.

Gustaffson, S.S., and C. Wetzels (2000) "Optimal age for first birth: Germany, Great Britain, the Netherlands and Sweden" in Gustaffson, S. S., and D. E. Meulders (Eds) Gender and the Labour Market: Econometric Evidence of Obstacles to Achieving Gender Equality New York: St. Martin's. 188-209

Hantrais, L. (1994) La fécondité en France et au Royaume-Uni: Les effets possibles de la politique familiale. [Fertility in France and the United Kingdom: Possible effects of family policy] Population 4:987-1016.

Hattersley, L., and R. Creeser. (1995) <u>Longitudinal Study 1971-1991 : History, organisation and quality of data</u>. Office for National Statistics, Series LS No.7. London: HMSO.

Hauser, R.M., and J.R. Warren (1997) Socioeconomic indexes for occupations: A review, update, and critique <u>Sociological Methodology</u> 27:177-298.

Hoffman, S.D., and E.M. Foster (2000) AFDC benefits and nonmarital births to young women <u>Journal of Human Resources</u> 35(2):376-391.

INSEE (1995) <u>Echantillon Démographique Permanent: Manuel de l'Utilisation [French Demographic Panel: User Guide]</u>, Paris: INSEE Departement de la Démographie.

Kamerman, S.B. and A.J. Kahn (Eds.) (1997) <u>Family Change and Family Policies in Great Britain, Canada, New Zealand, and the United States</u> Oxford: Oxford University Press.

Lesthaege, R. (1995) "The second demographic transition in Western countries: An interpretation." Pp.17-62 in K.O. Mason and A.M. Jensen (eds) <u>Gender and Family Change in Industrialized Countries</u> Oxford: Clarendon Press.

McDonald, P. (2006) Low fertility and the state: The efficacy of policy <u>Population and Development Review</u> 32(3):485-439.

McLanahan, S. (2004) Diverging destinies: How children fare under the second demographic transition. <u>Demography</u> 41(4):607-627.

Meron, M., and I. Widmer (2002) Les femmes au chomage retardent l'arrivée du premier enfant [Unemployment leads women to postpone the birth of their first child] <u>Population</u> 57(2):327-358.

Merrigan, P., and Y. St.-Pierre (1998) An econometric and neo-classical analysis of the timing and spacing of births in Canada from 1950 to 1990 <u>Journal of Population Economics</u> 11(1):29-51.

Milligan, K. (2005) Subsidizing the stork: New evidence on tax incentives and fertility <u>Review of Economics and Statistics</u> 87(3):539-555.

Office for National Statistics (2007) <u>Birth Statistics</u> Series FM1, www.ons.gov.uk.

Pampel F. (2001) <u>The Institutional Context of Population Change: Patterns of Fertility and Mortality across High-Income Nations</u> Chicago: University of Chicago Press.

Rendall, M.S., C. Couet, T. Lappegard, I. Robert-Bobée, M. Rønsen, and S. Smallwood (2005) First births by age and education in Britain, France, and Norway <u>Population Trends</u> 121:27-34.

Rendall, M.S., O. Ekert-Jaffé, H. Joshi, K. Lynch, and R. Mougin (2008) "Universal versus economically polarized change in age at first birth: a French-British comparison." RAND Labor and Population Working Paper WR-568, www.rand.org/labor/pubs/working_papers.

Rindfuss, R.R., K.B. Guzzo, and S.P. Morgan (2003) The changing institutional context of low fertility <u>Population Research and Policy Review</u> 22:411-438.

Rosenzweig, M.R. (1999) Welfare, marital prospects, and nonmarital childbearing <u>Journal of Political Economy</u> 107(6):S2-S32.

Ruhm, C. (1998) The economic consequences of parental leave mandates: Lessons from Europe <u>Quarterly Journal of Economics</u> 113(1):285-317.

Sobotka, T. (2004) Is lowest-low fertility in Europe explained by postponement of childbearing? <u>Population and Development Review</u> 30(2):195-220.

Schulze, H., and H. Tyrell (2002) What happened to the European family in the 1980s? The polarization between the family and other forms of private life. Ch.3 (pp.69-119) in F. Kaufmann, A. Kuijsten, H. Schulze, and K.P. Strohmeier (eds) <u>Family Life and Family Policies in Europe, Volume 2, Problems and Issues in Comparative Perspective</u> Oxford: Oxford University Press.

Stier, H., N. Lewin-Epstein, and M. Braun (2001) Welfare regimes, family-supportive policies, and women's employment along the life-course <u>American Journal of Sociology</u> 106(6):1731-60.

Sullivan, R. (2005) The age pattern of first-birth rates among U.S. women: The bimodal 1990s <u>Demography</u> 42(2):259-273.

Thelot, C., and M. Villac (1998) *Politique Familiale: Bilan et Perspectives* [Family Policy: Balance Sheet and Perspectives] Paris: La Documentation Française.

Toulemon, L., and M. Mazuy (2001) Cinq projections de fécondité fondées sure une hypothèse de stabilité des comportements [Five fertility projections under a hypothesis of stable behavior] <u>Population</u> 56(4):647-656.

---

[1]After the end of the period studied, 1998, change in these provisions accelerated. In the years following 2000 the 'regime' changed greatly with measures such as extending maternity leave, introducing parental leave and paternity leave, inaugurating the right to request flexible work or to return part-time. Substantial increases in child-care provision occurred from the late 1990s as the child-care 'regime' was transformed by the National

Child Care Strategy of 1997. This included a means-tested subsidy through the new in-work benefits for formal child-care expenses.

[2] Means tested benefits also existed for two parent families, and as supplements to low earnings. However, only single-mother status allowed for exemption from work-seeking requirements.

[3] Where we use the term "Britain" below, it is as an abbreviation for "England and Wales." The mid-2002 population of England and Wales was 52.5 million, of a total population of 59.2 million in the United Kingdom, which includes Scotland and Northern Ireland (see www.statistics.gov.uk). France's year-end 2002 population was 61.4 million (see www.insee.fr).

[4] Comparison of mobility trajectories of employment status and occupation between women's 20s and 30s in the two countries, along with additional detailed distributions of occupations in our broad occupational groups, are provided in Rendall et al (2008).

Table 1 Total Fertility Rate and Female Labor Force Participation Rate in France and United Kingdom

	France 1982	UK 1981	France 1990	UK 1991	France 1999	UK 2001
Total Fertility Rate	1.91	1.82	1.78	1.82	1.79	1.63
Labor Force Participation Rate (25 to 54 year old women)	61.7	61.2	72.9	72.7	78.5	75.9

Sources: Total Fertility Rates:Council of Europe (2002) "Recent demographic developments in Europe" Strassbourg; Office for National Statistics (UK); Institut National de la Statistique et des Etudes Economiques. Labor Force Participation Rates: 1999 and 2001, OECD (2002) "Employment Outlook" www.oecd.org 1981 to 1991, ILO (various years) "Year Book of Labour Statistics" Geneva.

Table 2 Distributions of childless women by occupation and employment status at ages 20 to 25

	France						England and Wales					
Census year:	1982			1990			1981			1991		
Birth cohort:	1962	1960	1957	1970	1968	1965	1962	1959	1956	1972	1969	1966
age:	20	22	25	20	22	25	20	22	25	20	22	25
Occupation												
intermediate and professional	1.8	5.1	10.5	1.9	4.5	17.0	4.2	7.9	13.8	9.0	15.0	24.0
nurses, teachers, social welfare	1.6	6.9	17.1	0.9	3.3	10.4	7.5	9.4	16.3	4.0	6.7	12.2
clerical and secretarial	22.1	34.2	35.9	10.3	21.0	27.7	33.8	38.3	36.6	32.5	36.1	30.9
low-skill	25.4	23.4	21.4	15.7	17.1	18.0	26.4	22.1	18.2	28.1	23.7	20.9
Total employed	*51.0*	*69.5*	*84.8*	*28.8*	*45.8*	*73.0*	*72.0*	*77.7*	*84.8*	*73.7*	*81.4*	*88.0*
jobless	13.3	9.6	7.7	4.4	17.5	15.9	14.0	13.1	13.5	13.2	10.5	10.0
student	35.8	20.9	7.5	66.8	36.7	11.1	14.0	9.2	1.7	13.1	8.0	2.0
All childless women	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*
Number of cases	1,530	1,254	744	1,455	1,497	1,102	2,848	2,122	1,553	2,332	2,371	2,010
Percent at parity 0 at end of year:	81.7	64.8	40.1	90.7	77.4	52.2	79.4	64.9	47.2	83.9	67.8	55.0

Sources: ONS Longitudinal Study (LS) and French Demographic Panel (EDP)

Table 3 Early 1980s and 1990s period regressions of 1st births among women aged 16 to 29

	France		England and Wales	
	Estimate	Standard Error	Estimate	Standard Error
Intercept	-3.459 ***	0.455	-3.140 ***	0.279
Age (reference 16)				
age 17	0.231	0.439	0.984 ***	0.191
age 18	0.243	0.433	0.240	0.254
age 19	0.707 *	0.429	0.354	0.265
age 20	1.245 ***	0.435	0.434	0.272
age 21	1.248 ***	0.445	0.724 ***	0.276
age 22	1.479 ***	0.451	0.678 ***	0.282
age 23	1.659 ***	0.458	0.926 ***	0.287
age 24	1.678 ***	0.466	1.080 ***	0.292
age 25	1.730 ***	0.474	1.119 ***	0.298
age 26	1.875 ***	0.483	1.204 ***	0.306
age 27	1.778 ***	0.494	1.287 ***	0.316
age 28	1.546 ***	0.510	1.163 ***	0.326
age 29	1.461 ***	0.523	-	-
Occupation (reference low-skill)				
intermediate and professional	-0.773	0.593	-0.428	0.401
nursing, teaching, and social welfare	-1.363 **	0.582	-0.975 ***	0.357
clerical and secretarial	-0.534 *	0.284	-1.157 ***	0.190
not employed, jobless	0.154	0.297	1.014 ***	0.175
not employed, student	-1.998 ***	0.306	-1.915 ***	0.255
(age-16) * int./prof.	0.072	0.062	-0.021	0.046
(age-16) * nursing/teaching	0.111 *	0.060	0.062	0.041
(age-16) * clerical/secr.	0.044	0.035	0.101 ***	0.025
(age-16) * not employed, jobless	-0.042	0.042	-0.113 ***	0.026
(age-16) * not employed, student	0.074	0.050	-0.056	0.063
1990 Period (reference 1980)				
1990s period	-0.489	0.304	0.367 **	0.171
1990s * int./prof.	0.049	0.861	-1.085 **	0.527
1990s * nursing/teaching	-1.620 *	0.973	0.102	0.537
1990s * clerical/secr.	0.153	0.458	-0.661 **	0.295
1990s * not employed, jobless	0.390	0.466	-0.301	0.263
1990s * not employed, student	0.521	0.434	-0.038	0.244
1990s * (age-16)	0.032	0.037	-0.060 **	0.024
1990s * (age-16) * int./prof.	-0.035	0.087	0.133 **	0.059
1990s * (age-16) * nursing/teaching	0.161 *	0.095	-0.003	0.060
1990s * (age-16) * clerical/secr.	-0.012	0.053	0.051	0.036
1990s * (age-16) * not employed, jobless	-0.048	0.060	0.036	0.038
1990s * (age-16) * not employed, student	-0.141 **	0.068	0.108 *	0.065

-2 Log L	12,947 ***	23,831 ***
Sample N (person years)	34,111	62,190

Notes: * p < .10, ** p < .05, *** p < .01

Sources: French Demographic Panel (EDP) and ONS Longitudinal Study (LS)

Table 4 First births by age and pre-childbearing occupation across all ages, 16 to 44

France

Birth cohort	1955-59				1963-67			
	Age at end of calendar year				*Age at end of calendar year*			
Occupation in year before birth or at age 25	16-24	25-29	30-44	16-44	16-24	25-29	30-44*	16-44*
intermediate and professional								
percent of birth cohort	2.3	2.5	1.1	5.9	1.7	4.5	3.6	9.8
nurses, teachers, social welfare								
percent of birth cohort	2.3	3.9	2.3	8.6	0.9	3.2	2.0	6.1
clerical and secretarial								
percent of birth cohort	16.9	8.9	3.8	29.5	9.6	8.4	4.3	22.3
low-skill								
percent of birth cohort	18.2	5.2	1.8	25.3	10.9	5.6	2.7	19.2
jobless								
percent of birth cohort	8.0	1.5	0.6	10.1	9.1	3.9	1.9	14.9
student								
percent of birth cohort	7.6	1.3	1.1	10.1	8.2	2.0	2.2	12.4
All women in the birth cohort	*55.4*	*23.4*	*10.8*	*89.5*	*40.4*	*27.5*	*16.7*	*84.6*

Table 4   First births by age and pre-childbearing occupation across all ages, 16 to 44 (Cont.)

England & Wales

Birth cohort	1954-58				1964-68			
	Age at end of calendar year				*Age at end of calendar year*			
Occupation in year before birth or at age 25	16-24	25-29	30-44	16-44	16-24	25-29	30-44*	16-44*
intermediate and professional								
percent of birth cohort	2.0	2.8	2.6	7.4	3.0	4.7	5.8	13.4
nurses, teachers, social welfare								
percent of birth cohort	2.7	3.9	3.0	9.6	1.6	2.9	2.5	7.0
clerical and secretarial								
percent of birth cohort	12.0	8.8	5.6	26.4	6.6	6.9	6.1	19.6
low-skill								
percent of birth cohort	14.9	4.6	2.3	21.8	16.9	5.2	3.4	25.5
jobless								
percent of birth cohort	11.3	2.9	1.6	15.8	8.9	1.7	1.3	11.9
student								
percent of birth cohort	3.2	0.2	0.4	3.8	3.6	0.2	0.5	4.4
All women in the birth cohort	*46.2*	*23.2*	*15.5*	*84.9*	*40.6*	*21.6*	*19.6*	*81.8*

Notes: * projected
Source: Authors' estimates from EDP and LS data

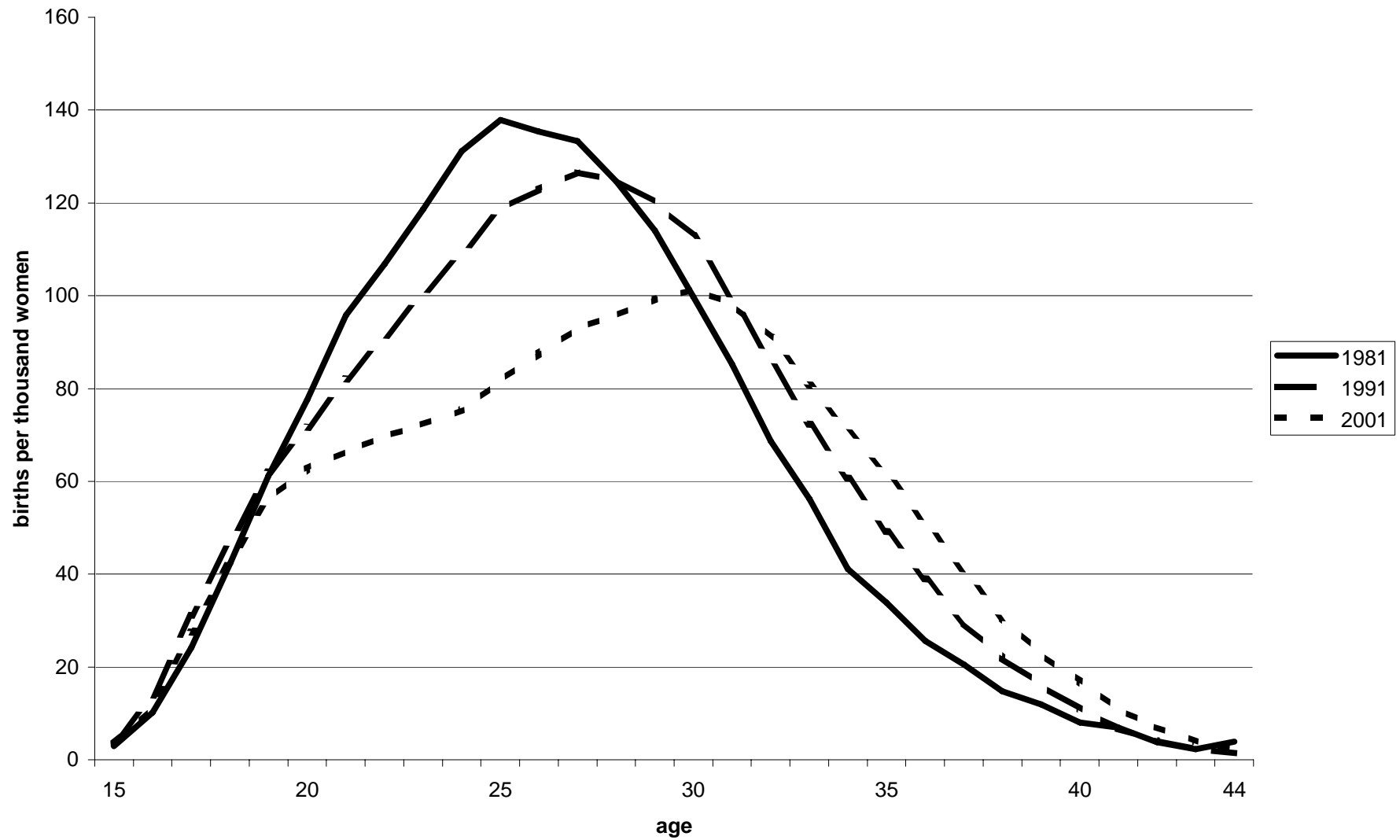**Figure 1a Age-specific fertility rates, U.K (England & Wales)**

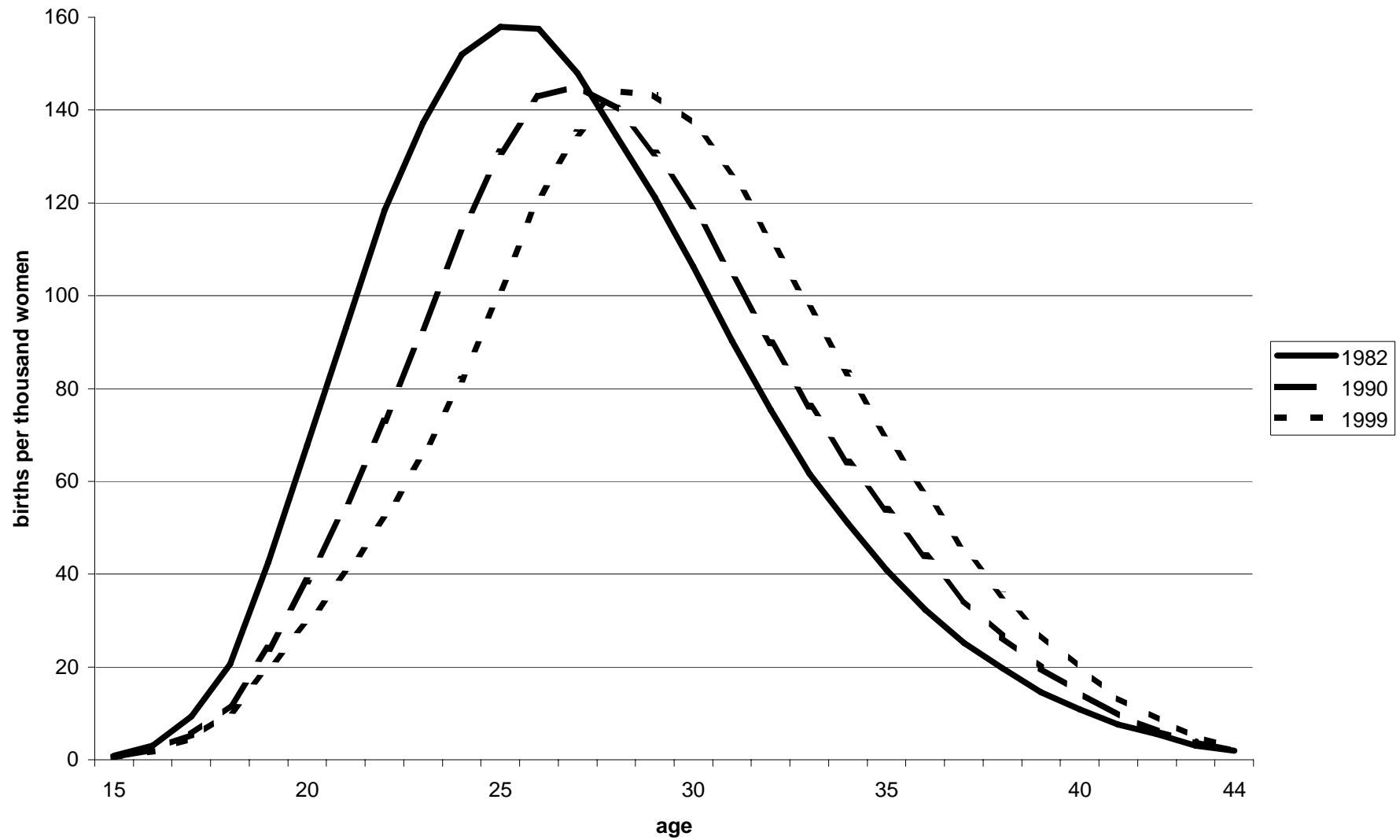**Figure 1b Age-specific fertility rates, France**

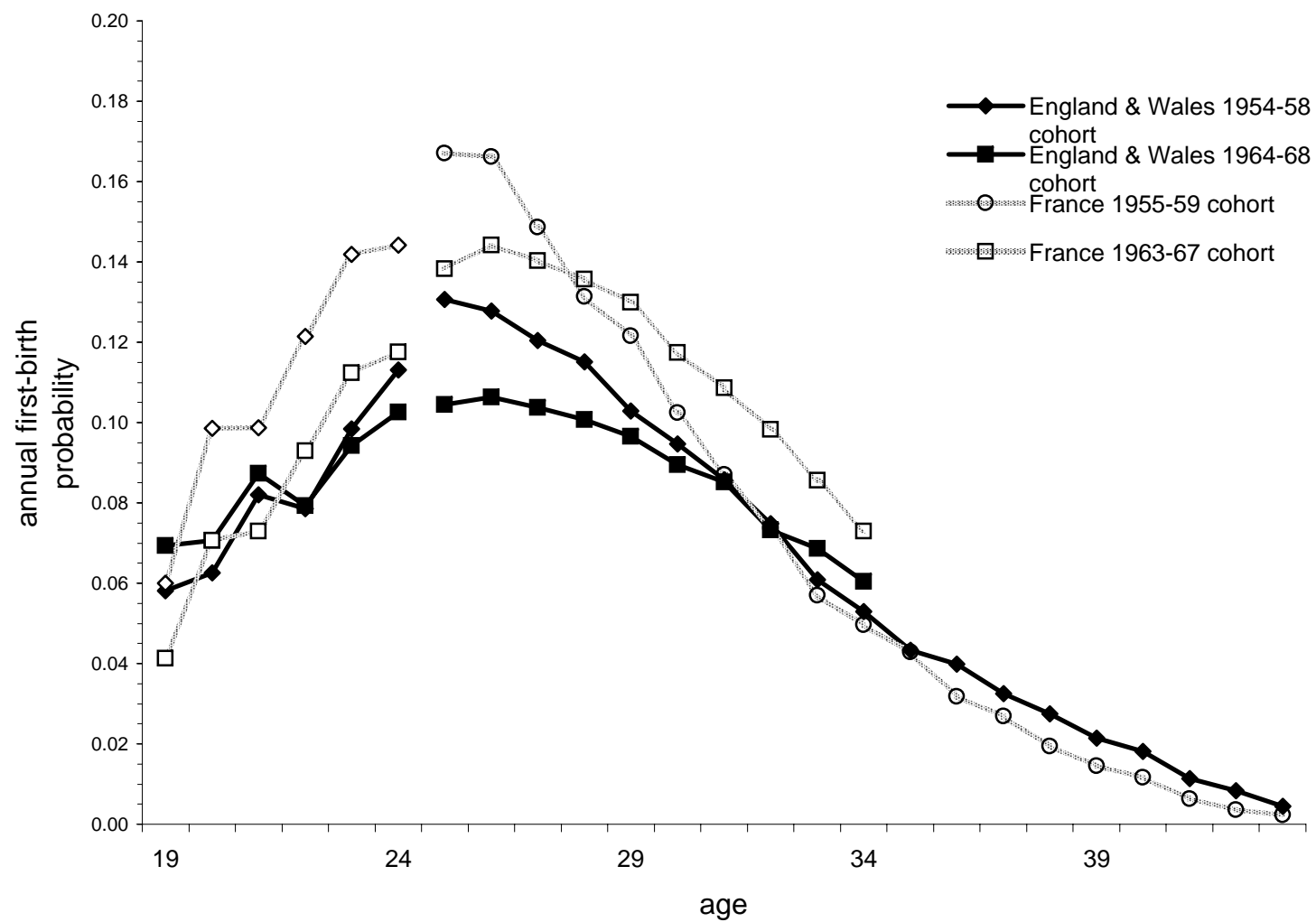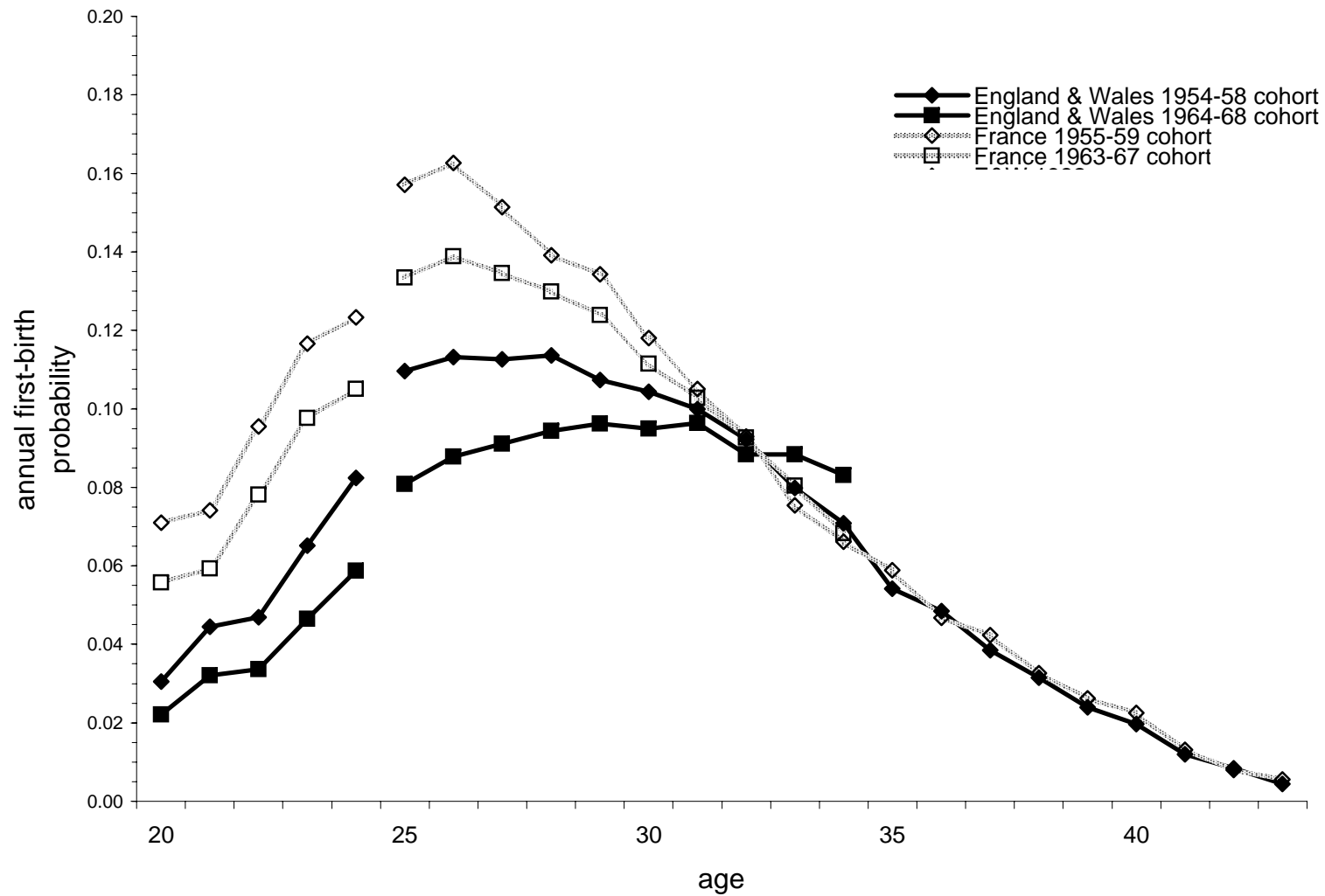Figure 2a. Low-skill Occupations

Figure 2b. Clerical and Secretarial

Figure 2c. Intermediate and Professional