

# Fertility and reproductive health

Strand organizers: Alyce Raybould, Rachel Scott (London School of Hygiene & Tropical Medicine)

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## Sexual and Reproductive Health - Monday 10 September 4.45pm

### Contemporary patterns of unintended pregnancy resolution in low- and middle-income countries

*Heini Vaisanen<sup>1</sup> & Ewa Batyra<sup>2</sup>, <sup>1</sup>University of Southampton, <sup>2</sup>London School of Economics*

Around 40% of pregnancies worldwide are unintended, and approximately half of those are terminated. Few international comparisons of unintended pregnancy (UIP) resolution (choosing birth or abortion) exist. We used Demographic and Health Surveys collected in 12 countries to analyse which characteristics (e.g. desired family size, family gender composition, parity, socio-demographic characteristics) were associated with the likelihood of experiencing an UIP; and giving birth or having an abortion. We analysed these data using multinomial and binary logistic regression. In most countries, having more than two children was positively associated with UIPs. Those who had more children than their ideal family size were more likely to report UIPs than those who had exactly the ideal number. Interestingly, so were those whose current family size was smaller than the ideal. Among women who had an UIP, having one child was negatively associated with the odds of aborting. In some countries, women who reported having more children than their ideal family size were less likely to abort than women who reported having their ideal family size. Gender composition of current family affected UIP and abortion decisions less than we expected. In some countries, women preferred having children of both genders, but evidence of son preference was weak. The results reflect determinants of abortion and UIP, but also the culture around reporting and stigma: both UIP and abortion are typically underreported. These results are of importance, as few other international comparisons of this topic exist, although they show how context affects women's choices of pregnancy resolution.

Email: [h.e.vaisanen@soton.ac.uk](mailto:h.e.vaisanen@soton.ac.uk)

### Exploring the local variation in England's teenage fertility reduction, through two decades of dramatic decline

*Katie Heap, Ann Berrington & Roger Ingham, University of Southampton*

Teenage fertility in England has dramatically reduced throughout the last two decades, although continues to be higher than many European countries. England's teenage fertility rate declined by around 30 percent between 1998 and 2008, but more than halved between 2008 and 2016. Such declines are often attributed to the Teenage Pregnancy Strategy (TPS), a ten-year UK Governmental strategy. This paper considers changes in teenage conceptions and the proportion ending in abortion in the wider U.K. context involving various societal changes: rising post-compulsory educational aspirations; changing teenage ethnic composition; declining housing affordability leading to the postponement of permanently leaving the parental home; and increased deprivation associated with economic recession and Government austerity post-2008. Teenage conception rates and abortion ratios for each of England's 324 Local Authority Districts (LAD) are explored using random intercept linear regressions to identify variability within and between LADs. Panel regression is used to explore the relationships between LAD-level characteristics and our outcomes, and whether associations altered throughout 1998-2016. Most LAD-level characteristics were consistently associated with teenage conception rates and abortion ratios, including LADs: deprivation, educational attainment and housing affordability. The greater teenage conception rates for Inner London and abortion ratios for Inner and Outer London are consistent even when controlling for our LAD-level characteristics. The next steps involve exploring within-LAD variation in teenage conception rates and abortion ratios including their relationships with LAD-level characteristics using fixed-effect models. This project aims to further explore the random and fixed effect models relationships when including each LADs TPS funding.

Email: [k.heap@soton.ac.uk](mailto:k.heap@soton.ac.uk)

### **Taking a close look at unmet need for contraception: the role of sporadic sex among young women in Mexico**

**Fatima Juarez<sup>1</sup>, Cecilia Gayet<sup>2</sup>, Gabriela Mejia-Pailles<sup>3</sup>; <sup>1</sup> El Colegio de Mexico, <sup>2</sup>FLACSO Mexico, <sup>3</sup>University of Southampton**

Mexico has been widely recognized for the public contraception program that reduced fertility. In the decade of the 1970s, the Population Law endorsed the use of contraception and launched a national family planning program. Contraceptives were made available for the whole population free of charge, fertility strongly reduced and contraceptive prevalence increased. Nevertheless, among young women fertility and unplanned pregnancies remain high. Research on young people's unmet need for contraception is very limited, as is research on their reasons for not using contraception. For the first time, it is possible to estimate unmet need for contraception with an international algorithm using the 2014 Mexican National Survey on Demographic Dynamics. The objectives of this study are: a) to estimate the level of unmet need among young women in Mexico and the influence of socio-economic and demographic variables, b) to examine in-depth the reasons for not using contraceptives, and c) to explore the factors associated with reasons for not using contraception. Results show that pregnancy among adolescents and young people is a constant concern in Mexico. Contraceptive use is low, and unmet need is high for both young married and not married women. The importance of examining subgroups and all barriers that may be preventing young people from using contraceptives points to sporadic sex as the most common reason cited by Mexican young women.

Email: [gabrielamejiapailles@gmail.com](mailto:gabrielamejiapailles@gmail.com)

### **Son preference and prenatal sex-selection against females in the UK**

**Sylvie Dubuc and Bernice Kuang, University of Reading**

Sex-selection against females is well documented in India. This pattern has been paralleled in the UK, where previous analysis of birth registration evidenced a male biased sex ratio at birth (SRB) among India-born women over 1990-2005. This paper presents an update of the SRB trend among the predominant British South Asian groups (Indian, Pakistani, Bangladeshi). However, because SRB varies with fertility, SRB alone is an insufficient indicator of the prevalence of prenatal sex-selection (PSS). To this end, we implement a novel calculation of the propensity to practice PSS (using modelling by Dubuc and Sivia) among these groups. Preliminary findings show a stabilisation of the SRB to India-born mothers from 2006 onwards, potentially announcing the beginning of a reversal. Preliminary results of the propensity calculation support this scenario and show lower PSS against females among India-born women in the UK when compared to women in their region of origin. We will extend our analysis up to 2016 to test further our hypotheses (work in progress). We further explore son-preference among women of Indian, Pakistani and Bangladeshi heritage through gender-based parity progression analyses showing contrasting patterns. Results are discussed from a transnational perspective, and in the context of the UK debates on sex-selective abortion.

Email: [s.dubuc@reading.ac.uk](mailto:s.dubuc@reading.ac.uk)

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## **Fertility determinants in low- and middle-income settings – Tuesday 11 September 9.00am**

### ***Child marriage and early fertility: Causal evidence from the Ethiopian Child Marriage Ban* Jorge Garcia-Hombrados and Alice Goisis, LSE**

This study uses age discontinuities in exposure to a law that raised the legal age of marriage for women in Ethiopia to investigate the causal links between underage marriage bans, child marriage and early fertility. Using a regression discontinuity design approach, results suggest that exposure to a legal age of marriage at 18 reduces underage cohabitation by 20 percentage points and delays in two years the age at first cohabitation. The increase in the age at birth caused by a one-year delay in women's age at cohabitation during teenage years is estimated at 0.52 years.

Email: [j.garcia-hombrados@lse.ac.uk](mailto:j.garcia-hombrados@lse.ac.uk)

### **Son preference, parity transition and birth spacing** **Mazhar Mughal and Rashid Javed, University of Pau**

Son preference is widely practiced in South and East Asia. It demonstrates itself in such sex-selection methods as differential stopping behavior and sex-selective abortion. One way in which this disproportionate desire for sons could manifest itself is differential birth spacing. The waiting span before moving to next pregnancy may be low as long as sons are not born. Shorter birth spacing leads to higher demand on the mother's body leading to higher health risks to mother and child. In addition, there is a greater competition among siblings for parental care and resources. We study this phenomenon by using three demographic and health surveys of Pakistani households covering the period from 1990-91 to 2012-13. We seek to address the following research questions: Does preference for sons affect birth spacing? Has this relationship evolved over time? Does it depend on the number or proportion of sons born? In which type of households does this phenomenon appear to be more potent? Does son preference increase the probability of risky births (those before 24 or 18 months of previous birth)? Using parametric, semi- and non-parametric estimation methods, we find strong evidence for differential behaviour among households throughout the period. Birth spacing differences vary substantially by parity and number of children. The phenomenon is more prevalent among households that are wealthier or nuclear and among older, more educated women with higher say in intra-household decisions. There also is evidence of riskier births resulting from son preference.

Email: [mazhar.mughal@esc-pau.fr](mailto:mazhar.mughal@esc-pau.fr)

### **Drastic changes in fertility level and timing in response to marriage and fertility policies. Evidence from Shandong province, China**

**Cuiling Zhang<sup>1</sup> & Tomas Sobotka<sup>2</sup>; <sup>1</sup>CPDRC/VID, <sup>2</sup>IISA, VID**

Policies regulating fertility and marriage in China are often localised, with regions specifying rules pertaining to the timing, spacing, and level of fertility. We use the 120- counties population dynamics monitoring system to investigate the effects of changes in fertility and marriage policies on fertility level and timing in Shandong province in China, which experienced frequent policy changes. We derive detailed fertility indicators by birth order in 1986-2015 and combine period and cohort data to gain insights about both short-term and long-term fertility responses to policy restrictions and their revisions. We look especially at first and second births, which make up about 90% of the overall fertility, and document massive shifts in fertility timing and in the age profile of childbearing following the strict enforcement of mandatory age at marriage and second birth since 1990. The enforcement of marriage and fertility timing policies since 1990 brought about a massive postponement of both first and second births and lengthening of the second birth interval, leading to a temporary sharp fall in period TFR to extremely low levels in the mid-1990s. The birth timing policies also led to a strong concentration of childbearing into a narrow age interval just after the mandatory minimum ages at first and second birth. Later, policy relaxations resulted in period fertility upswings. Cohort fertility rates and parity progression ratios were much less affected,

suggesting that the main effect on birth and marriage timing policies was in fuelling instability in period fertility rates during the 1990s and 2000s.

Email: [zcl\\_cpdr@gmail.com](mailto:zcl_cpdr@gmail.com)

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## **Determinants of fertility trends and their measurement – Tuesday 11 September 11.00am**

### **Contrasts in fertility timing in post-Soviet countries: Do differences in religion matter?**

***Konstantin Kazenin<sup>1</sup>, Vladimir Kozlov<sup>2</sup>; <sup>1</sup>National Russian Academy for National Economy and Public Administration (Moscow), <sup>2</sup>Research Institute-Higher School of Economics (Moscow)***

An increase of fertility took place in almost all post-Soviet countries in the recent 10-15 years. However, those countries differed rather sharply in fertility timing trends during the increase. In some countries, proportion of the input of elder ages (25+) in TFR has grown, whereas in others no significant shift towards elder fertility was witnessed and the proportion of age groups 15-19 and 20-24 in total fertility remained at least as high as 10-15 years ago. Using different data sources, we demonstrate that the input of the elder ages is not growing almost exclusively in those post-Soviet countries where Muslim population is the majority. We adduce two kinds of additional evidence for relevance of Islam/Christian distinction for the timing trends. First, we consider fertility timing among a large Christian minority in a post-Soviet country where Muslim population is the majority (ethnic Russians in Kazakhstan) and in a large Muslim minority in a post-Soviet country where Christian population is the majority (indigenous peoples of North Caucasus, Russia). We show that the two minorities follow their co-believers in other post-Soviet countries rather than the country of residence in timing trends. Second, we consider our own survey data from an area of southern Russia inhabited predominantly by Muslims, which point to a significant negative relation of personal religiosity of a woman and her age at first birth. We propose some directions for further research of the fertility timing contrasts in former Soviet countries and of mechanisms possibly underlying those contrasts.

Email: [kz@ranepa.ru](mailto:kz@ranepa.ru)

### **Why the TFR of the foreign population is so misleading: how a better fertility measure can be developed knowing fertility at immigration, emigration and naturalisation in addition to births**

***Marion Burkimsher<sup>1</sup> & Philippe Wanner<sup>2</sup>, <sup>1</sup>University of Lausanne, <sup>2</sup>University of Geneva***

The fertility of non-natives is of interest not just to demographers but also to politicians and the general public. What is not commonly appreciated is that the standard calculation method of the TFR gives a highly misleading impression of the ultimate fertility of the foreign population. Switzerland's rich data sets help elucidate how this distortion happens. Switzerland has a high proportion of foreigners; in 2016, 39% of women in their early 30s were foreign. In that year the TFR of foreigners was 1.91 compared to 1.42 for Swiss women. However, both the household registration data and the Family and Generations Survey indicate that, by their 40s, foreign women have fewer children than Swiss women. Information on the fertility of women (by age) in the year they immigrate, emigrate or naturalise is also available from the Swiss household registration statistics. Applying these rates to the data on numbers of women immigrating, emigrating and naturalising going back to 1981 we calculate the expected fertility of women by age in 2016. These match well with their observed fertility (Swiss and foreign). The life course of migrants tends to be: childlessness pre-migration; migration in their 20s followed by partnering and starting a family; in their 30s and 40s, emigration of the childless or naturalisation of those with children. All these stages impact the foreign/Swiss TFR.

Email: [drmarionb@gmail.com](mailto:drmarionb@gmail.com)

## **Approaches to subnational European fertility**

**Nicholas Campisi, University of St Andrews**

Ecological fertility researchers often utilize subnational aggregate statistics, such as the NUTS regions in Europe, that are readily supplied by statistics offices like Eurostat. The NUTS 2 level is commonly used in European analysis but is not the smallest area offered in the Eurostat database. I show that the NUTS 3 level may be necessary, especially in cross country comparisons, since this smaller level better captures regional patterns and variation. I aim to determine if there is statistical justification for analysis on the more descriptive NUTS 3 level that is often overlooked. I fit a simultaneous autoregressive model to total fertility rates (TFRs) for NUTS 3 regions of eleven countries spread throughout Europe. Regional patterns persist after including other regional factors, population density, urban-rural status, and regional GDP and contextual factors, NUTS 0, 1, and 2 fertility rates. NUTS 3 TFR data comes directly from respective national statistics offices for the countries while other NUTS 3 and NUTS 2 level data comes from the Eurostat database. Preliminary results demonstrate influence of subnational levels to the same degree of the national level. Results from the simultaneous autoregressive models suggest pervasive sub-NUTS 2 level variation after accounting for spatial and covariate factors. Countries with large NUTS 2 regions and many NUTS 3 regions show a larger amount of regional variation than those with fewer and larger sub-regions.

Email: [nc80@st-andrews.ac.uk](mailto:nc80@st-andrews.ac.uk)

## **Men and women's fertility: stability and change over time in the UK**

**Jenny Chanfreau & Wendy Sigle, LSE**

The reduction in average completed family size and rise in childlessness over recent decades has been well documented in the demographic literature. While much research on fertility relies on data on women only, research that has included a focus on men shows gender differences, with some suggestion that patterns of change over time may also differ. The objective of this paper is to build on existing analyses of differences in completed family size by education, to help unpack how family change relates at the macro level to changing educational composition of the population, and investigate whether fertility has become more socially polarised. Using retrospective fertility histories from UK survey data, the analysis draws on the concentration of reproduction approach outlined by Shkolnikov et al (2007) and asks if and how the concentration of fertility has changed over time among women and among men. Preliminary findings suggest that despite childlessness increasing among both men and women across cohorts the concentration of fertility has remained relatively stable, especially among men. By looking at both men and women's fertility in combination with the social polarisation thesis, the analysis shifts the attention from the conventional questions of what personal characteristics predict fertility levels towards consideration of the social division of labour in reproducing the population.

Email: [j.c.chanfreau@lse.ac.uk](mailto:j.c.chanfreau@lse.ac.uk)

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## **Fertility determinants in high-income settings – Tuesday 11 September 1.30pm**

### **Proximity to kin and second births in urban and rural areas of Andalusia, Spain**

**Elsbeth Graham<sup>1</sup>, Albert Sabater<sup>1</sup>, Francisco J. Viciano-Fernandez<sup>2</sup>, Diego Ramiro-Farinas<sup>3</sup>; <sup>1</sup>Department of Geography and Sustainable Development & ESRC Centre for Population Change, University of St Andrews, <sup>2</sup>Institute of Statistics and Cartography of Andalusia, <sup>3</sup>Spanish National Research Council**

Residential proximity to kin is a key structural characteristic that appears to have a pro-natal influence on women's fertility, although evidence from urban and rural areas in low-fertility countries with a familistic tradition is still lacking. In this paper, we use a 10-year follow-up study starting around 2001 with geo-referenced data from the Longitudinal Database of the Andalusian Population to investigate whether Spanish women in urban and rural areas in the low-fertility setting of Andalusia are more likely to have a second child if they lived in close proximity to parents/in-law and/or siblings. The

analytical sample consists of 42,381 primiparous women. Given the hierarchical structure of the data - individuals living in urban and rural municipalities within the province - we fit a mixed effect survival model to analyse the risk of having a second birth, with a random intercept and Weibull distribution, adjusted for individual and household fixed effects. Our results suggest that the occurrence of a second birth is positively associated with living close to kin, particularly to parents/in-laws and, to a lesser extent, to siblings, in both urban and rural areas. However, this relationship is particularly strong among women with only compulsory education in urban areas where kin support may act as a substitute for expensive childcare. Since raising children tends to involve greater expense in urban compared to rural areas, our findings demonstrate the key importance of residential proximity to kin for second births in urban areas, particularly for women with low educational attainment.

Email: [efg@st-andrews.ac.uk](mailto:efg@st-andrews.ac.uk)

### **Employment uncertainty and fertility: a meta-analysis of European research findings**

***Giammarco Alderotti, Daniele Vignoli & Michela Baccini; University of Florence***

The relationship between employment uncertainty and fertility has always been an important topic in demographic research. However, the interplay between employment uncertainty and fertility is far from clear. Uncertainty is usually deemed to negatively affect fertility; however, different associations are advocated by sociological theories and supported by micro-level evidence, albeit that it is fragmented and sometimes contradictory. We believe that before conducting another (comparative) micro-level study, there is need to get a more comprehensive understanding of the findings obtained by existing research. To this end, we perform a meta-analysis (i.e., a quantitative literature review) in order to synthesize the evidence coming from the existing literature and to draw general conclusions about the size and the direction of the impact of employment uncertainty on fertility.

Articles were collected systematically, applying inclusion criteria to decide which ones to include in our sample. We measure employment uncertainty mainly (but not only) through limited-time contracts. We considered only micro-level studies and we limited the search to Europe to make the analyses more comparable.

Results show that precarious employment has a negative effect on fertility (OR: 0.91, highly significant), but such effect changes significantly depend on gender, welfare state, parity, and some characteristics of the studies. The final step of our work will be comparing limited-time employment with other measure of employment uncertainty (i.e., part-time employment and unemployment) by using a network meta-analysis, namely a meta-analysis that allows multiple treatments at the same time.

Email: [giammarco.alderotti@uniroma1.it](mailto:giammarco.alderotti@uniroma1.it)

### **The role of biomedical factors in explaining fertility differences by education**

***Nitzan Peri-Rotem, University of Exeter***

Previous studies have shown that various lifestyle factors, including smoking and obesity, can lead to reduced fecundity and extended time to pregnancy, partly due to their association with abnormal testosterone levels among men and women. In addition, these lifestyle factors vary markedly by socioeconomic status and particularly by education, as better educated individuals are less likely to smoke or to be overweight compared to their lower educated peers. Nevertheless, the role of lifestyle factors in explaining educational differences in fertility patterns remains unclear. Therefore, this study combines social and biological data from Understanding Society waves 1-7 and the biomarker dataset in order to estimate the likelihood of couples in reproductive ages to experience (additional) childbirth within six years. For this purpose, a discrete-time hazard model is employed, where the odds of experiencing childbirth at a given month are analysed as a function of biomedical (BMI, testosterone levels) and behavioural (smoking status) factors, alongside educational attainment, fertility intentions and other socio-demographic predictors. Initial findings show that increased female testosterone levels are linked with lower likelihood of experiencing childbirth, although no significant relationship was

found between male biomedical indicators and childbearing. In addition, after controlling for female biomedical factors, highly educated women show a higher likelihood of experiencing childbirth compared to less educated ones. Thus, when biomedical indicators are held constant, the importance of socioeconomic factors in achieving fertility aspirations becomes more pronounced. Future research on fertility patterns would therefore benefit from taking both social and biomedical factors into account.

Email: [n.peri-rotem@exeter.ac.uk](mailto:n.peri-rotem@exeter.ac.uk)

### **Self-employment and fertility intentions in Europe**

***Berkay Ozcan, Antonella Bancalari, LSE***

The relationship between self-employment and fertility is not well understood. Cross-country studies showed a negative association between self-employment rates and fertility rates in advanced economies. Micro-level analyses suggested a positive association between being self-employed and fertility. We propose that part of the inconsistency is due to the heterogeneity of the self-employed. We analyse the relationship between three different types of self-employment (i.e. Entrepreneur, Labourer and Professional) and fertility intentions of individuals using micro data from the European Social Survey (ESS) covering more than 20 European countries. We use mixed-effects models that incorporate individual and country-specific factors to bridge the gap between previous macro and micro-level studies. We run separate analyses by gender and parity (i.e. intentions for the first child versus subsequent children). We find that men who belong to the entrepreneur or labourer type of self-employment have a higher likelihood of reporting positive intentions to become a father than similar wage earners. Only the labourer type of self-employed women have a higher likelihood of reporting positive fertility intentions compared to wage-earner women. Self-employment type is not associated with subsequent births. Our associations are robust to various controls at the individual and country levels (i.e. family policies) and the fixed effects specifications. We provide additional analyses to test various mechanisms related to flexibility and resources using measures of relative earnings and relative hours of work of each partner.

Email: [A.Bancalari@lse.ac.uk](mailto:A.Bancalari@lse.ac.uk)

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## **Gender and Fertility – Tuesday 11 September 4.45pm**

### **How does a couple's division of household labour affect their fertility intentions and outcomes? A review of the current literature**

**Alyce Raybould and Rebecca Sear, London School of Hygiene & Tropical Medicine**

According to McDonald's 'theory of gender equality' (McDonald, 2000a, 2000b), lowest fertility in high-income settings is expected amongst those facing conflict between their paid and unpaid labour responsibilities. This paper is a systematic literature review of all current quantitative and qualitative research in this setting. The search yielded 25 papers regarding fertility intentions, 22 on fertility outcomes, 3 analysing both and 3 on intentions and subsequent outcomes. The papers covered the USA, Europe, the Far East and Australia. Given that 9 of these 53 papers have been published in 2017 alone, the evident growth of interest in this topic provides incentive to evaluate these papers collectively for the first time. Overall, the evidence supports McDonald's hypothesis: the majority of studies found that women and men who have less work-family conflict intended to have, and had, more children. A quarter of the papers, however, reported a U shaped association

with both traditional and egalitarian couples intending and having more children. Furthermore, a group of studies highlighted that it is not always the share of domestic work between partners that is significant, but the excessive domestic burden experienced by women that dictates fertility intentions and outcomes. This suggests that it is not egalitarianism in itself that encourages childbearing, but the satisfaction for women of not experiencing a work-family 'time bind'. The review concludes that moving forward, data collectors should strive to make surveys exploring childbearing behaviour more comparable across high-income settings. Furthermore, analysts should minimise researcher's degrees of freedom so that findings are more comparable between studies.

Email: [alyce.raybould@lshtm.ac.uk](mailto:alyce.raybould@lshtm.ac.uk)

### **Son preference and female participation in household decision making**

*Rashid Javed and Mazhar Mughal, University of Pau*

Son preference is common in many Asian countries. Though a growing body of literature examines the drivers and socioeconomic impacts of this phenomenon in China and India, work on other Asian countries is scarce. This study uses a nationally representative survey of over 13 thousand households from Pakistan (PDHS 2012-13) to analyze the effects of observed preference for sons on women's participation in intra-household decision-making. Four key intra-household decisions are considered: decisions regarding healthcare, family visits, large household purchases and spending husband's income. These correspond to four categories of household decisions, namely healthcare, social, consumption and financial. Probit and Ordered Probit models are employed as the main estimation techniques besides a number of matching routines to account for the possibility of potential selection bias. We find that women with at least one son have more say in household decisions. Bearing at least one son is associated with 5%, 7% and 5% higher say in decisions involving healthcare, social and consumption matters respectively. Women's role in financial affairs, however, does not differ significantly from women with no sons. Female participation in decision-making grows significantly with the number of sons but only up to the third parity. These results are particularly visible among younger, wealthier and educated women, and those who got married earlier. The findings suggest a limited improvement in women's bargaining power at home resulting from the birth of one or more sons. This in part explains higher desire for sons expressed by women compared to men in household surveys.

Email: [rachidjaved@gmail.com](mailto:rachidjaved@gmail.com)

### **Micro-level gender inequality and fertility in ten European countries**

*Beata Osiewalska, Cracow University of Economics*

This study aims to investigate the relationship between couples' reproductive behaviour and multidimensional gender inequalities between partners in different country-specific contexts. The effect of the inequality in partners' educational levels, ages, as well as paid and unpaid household labour is examined. The first wave of Generations and Gender data for ten European countries are used. The average number of children and the probability of childbearing are both considered under the hurdle Poisson model. The general picture that emerges from the analysis is that the male advantage in gender inequality (induced by higher educational level, being older and doing less housework than the female partner) correlates with early childbearing and positively influences the number of children that couples at reproductive age have across Europe. Female advantage in gender inequality is associated with late childbearing, but only in Northern and Western Europe. For older couples who have completed reproduction, gender inequality in favour of the male partner is associated with a higher probability of parenthood in Central and Eastern Europe and France; it also correlates with higher completed fertility in selected CEE countries. Female advantage in gender inequality negatively correlates with the probability of parenthood across Europe. Finally, in NWE, gender-equal couples have a similar number of children to traditional unions (gender-unequal in favour of the male partner), whereas in CEE, equality correlates with lower fertility than male



advantage in gender inequality. This disparity is likely connected to different levels of gender equality and various family policies in the two regions.

Email: [beata.osiewalska@uek.krakow.pl](mailto:beata.osiewalska@uek.krakow.pl)

### **Couples' labour market preconditions to parenthood in Belgium: the importance of gender**

***Leen Marynissen, Karel Neels, Sarah Van de Velde, University of Antwerp***

The past few decades have been characterised by increasing female educational attainment and female labour market participation, bringing along decreasing gender differences in the public sphere. In contrast, gender role differences persist in the private domain. This raises questions whether labour market preconditions to parenthood have changed or remain traditionally gendered. Although available research supports the statement that financial resources, time and certainty about future labour market positions are preconditions to parenthood, most research only examines women. Less is known about whether these requirements are fulfilled through men's or women's economic positions. Hence, this paper examines the effect of women's labour market characteristics relative to those of their partners on the transition to parenthood in Belgium. Using data from a Belgian Administrative Socio-Demographic Panel (1999-2010), which contains detailed quarterly information on labour market and income positions for women and their household members, we estimate discrete-time hazard models of conceptions leading to a first birth. Results show that when the female partner works more hours than the male partner, the odds of having a first birth are lower than for couples where both partners have equal working hours. The odds are lower when the female partner earns less than 25% of the household income compared to equal income couples. Lastly, a higher female employment intensity positively affects the transition to parenthood. These findings suggest gendered effects of couples' labour market positions on the transition to parenthood.

Email: [Leen.Marynissen@uantwerpen.be](mailto:Leen.Marynissen@uantwerpen.be)

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## **Sexual and Reproductive health 2 – Wednesday 12 September 11.30am**

### **Inequalities in expenditure on maternal care in Bangladesh: do voucher schemes improve inequality?**

**Mark Amos<sup>1</sup>, Aazia Hossain<sup>2</sup>, Shehrin Shaila Mahmood<sup>2</sup>, Mohammed Nahid Mia<sup>2</sup>, Mohammed Shohel Rana<sup>2</sup>, Mohammed Kashem Iqbal<sup>2</sup>, Asiful Haider Chowdrey<sup>2</sup>, Manzoor Ahmed Hanifi<sup>2</sup>, William Stones<sup>3</sup>, Saseendran Pallikadavath<sup>1</sup>; <sup>1</sup>Portsmouth Brawajaya Centre for Global Health, Population and Policy, <sup>2</sup>ICDDR,b Bangladesh, <sup>3</sup>University of Malawi College of Medicine and St George's, University of London**

Demand side financing schemes such as the Bangladesh Maternal Health Voucher Scheme (MHVS) are designed to improve utilisation of maternal health services by providing cash transfers conditional on care utilisation. Vouchers provide a financial reimbursement targeted at the poorest mothers, since budgetary constraints as most likely to affect the poorest women, the most dramatic effect in terms of healthcare spending should be seen among women of low socio-economic status. This paper tests this hypothesis, examining the effect of voucher receipt on both the likelihood of making any expenditure and the level of expenditure. We find that voucher receipt significantly raises the level of expenditure for ANC and delivery stages of the continuum of care, but has no effect on the probability of making any expenditure. Further, there is no evidence that voucher receipt increases expenditure for the poorest women in particular. While demand side financing is successful in increasing access to maternal health services, it is not currently achieving its stated aim in the Bangladeshi context of increasing expenditure among the poorest.

Email: [mark.lyons-amos@port.ac.uk](mailto:mark.lyons-amos@port.ac.uk)

### **The cascade of intervention: Epidural pain management and the association between labour induction and caesarean section in the United Kingdom**

**Sarah Carter, Amos Channon & Ann Berrington, University of Southampton**

Labour induction and caesarean section are childbirth interventions experienced by a growing number of women globally each year. These two medical procedures are often linked in maternal health literature through the cascade of interventions, an intervention pathway defined by labour induction at the start of birth and operative delivery at the end. While maternal indicators of labour induction are well documented in countries like the United States, considerably less research has been done into which women have a higher likelihood of labour induction in the United Kingdom, how risk of labour induction is associated with operative delivery, and whether epidural anaesthesia mediates the relationship between labour induction and delivery type. This paper investigates the link between labour induction, epidural, and type of delivery in the UK, using multinomial logistic regression and KHB mediation analysis to examine these associations in the Millennium Cohort Study. Analyses determined that induced women were more likely to experience operative delivery, and that this relationship was mediated by epidural anaesthesia. Additionally, maternal height moderated the associations between labour induction, epidural, and delivery type, such that women between 1.60 and 1.69 metres tall were more at risk of operative delivery after labour induction and epidural than women at shorter or taller heights. Determining which women are more likely to experience labour induction and operative delivery in the UK can allow women to make more informed choices about their health care and can help support efforts to provide women with individualized, patient-centred care during their labours and births.

Email: [s.a.carter@soton.ac.uk](mailto:s.a.carter@soton.ac.uk)

### **Access to contraceptives in Argentina and Brazil: political strategies and compared health systems**

**Evangelina Martich, Universidade Federal Fluminense, Brazil**

Argentina and Brazil implemented strategies to promote the access to medicines in general and National Sexual and Reproductive Health Programs (with focus in promoting the access to contraceptives). Nevertheless both countries still need to strengthen the mechanism to address this problem. The main objective of this research is to understand how two different (in terms of institutional design) health systems address the problem of accessing to contraceptives, and to

analyse the relationship between the medicines policy and the sexual and reproductive health in both countries in a comparative perspective. Methodology is qualitative compared public policy analyses. We review and analysis secondary sources and we made 6 semi- structured interviews with stakeholders from both countries.

The results show that the ways of access to contraceptives presents own specific characteristics and different from other essential medicines and there are differences among this 2 countries. We identified 6 key elements in the creations of that ways of access: 1)the influence of the political process; 2) the relation among the ways of access and the institutional design of the health system; 3) The participation of new actors (outsiders from the sanitary sector) in the design and implementation of this strategies: 4) A feminization of the contraception: 5) the ignorance of the right to free contraception (in both countries); and 6) The decisions taken from the medicines policy influenced more than the decisions of the sexual and reproductive programs.

Email: [evangelinamartich@hotmail.com](mailto:evangelinamartich@hotmail.com)

**Son preference, sex-selection and fertility effects on sex-composition: Findings of a theoretical model and its application to India.**

***Sylvie Dubuc & Devinderjit Sivia, University of Reading***

Building on previous work conceptualising the role of fertility reduction on prenatal sex-selection practice, we use mathematical model to investigate the non-trivial relationship between fertility, birth order of sex-selective intervention, sex-ratio at birth and proportion of couples intervening in a population. We demonstrate that sex ratio at birth bias is an inappropriate indicator to gauge prenatal sex selection behaviour within a population. We show that sex ratio at birth bias can increase despite fewer sex-selection interventions occurring, because fertility decline not only impacts on the risk of remaining son-less but also disproportionately amplifies sex ratio at birth bias outcomes. The disproportionality effect allows re-evaluating SRB trends and policy responses, for instance the proposed role of the diffusion of sex selection technologies offsetting changes in gender preferences to explain increasing SRB trends in India. We propose to use prenatal sex selection propensity (proportion of couples at risk to sex select), instead of sex ratio at birth bias, as a more robust measure of sex selection. We apply our findings to India and show that sex selection propensity and prevalence in Punjab and Delhi was lower than in Rajasthan or Uttar Pradesh, despite significantly higher SRB bias in the former.

Email: [s.dubuc@reading.ac.uk](mailto:s.dubuc@reading.ac.uk)

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