

The effects of children and partnership on women's income and poverty in the UK and US

Susan Harkness, University of Bath

s.harkness@bath.ac.uk

Research Question

- What effect does becoming a first-time mother and subsequent (or concurrent) transitions to lone parenthood have on income and poverty in the US and UK?

Background

- Across the OECD recent decades have seen:
 - A rapid rise in single parent families.
 - Increased income inequality and growing concern about childhood poverty.
 - Increased female employment.

Background

- **Single motherhood** and **child poverty** is strongly linked:
 - across OECD countries lone parents face a high risk of poverty (Christopher et al, 2002), and
 - growing lone parenthood is related to increased child poverty and inequality (Sawhill & Thomas, 2005; Hoynes et al, 2005)
- But, increased **female employment** is increasingly associated with **reduced rates of lone parent poverty** (*Esping-Andersen, 2015; Baker, 2015*).
- And, there are wide **cross-country variations** in the influence of **children** on **female employment** (Budig & England, 2002) and **family income** (Todd & Sullivan, 2002; Sigle-Rushton & Waldfogel, 2007).

Past studies and contribution

1. Earlier work has used cross-sectional data to look at the relationship between family structure, work and poverty:
 - By using longitudinal data, we look directly at the association between changes in family structure and changes in earnings, income and poverty.
2. Previous studies looking at the influence of family structure on income / poverty have tended to look at single transitions (e.g. DiPrete, 2002; Jenkins, 2007).
 - We look at the **cumulative effect** of children and lone parenthood on income and poverty.
3. We look at both **market** and **disposable income**, to gauge the importance of the tax and benefit system in moderating the affect of demographic change.

US and UK Context

Common features:

- among the highest rates of *child poverty* in the OECD, and
- largest shares of children growing up in *lone parent families* (OECD, 2014).

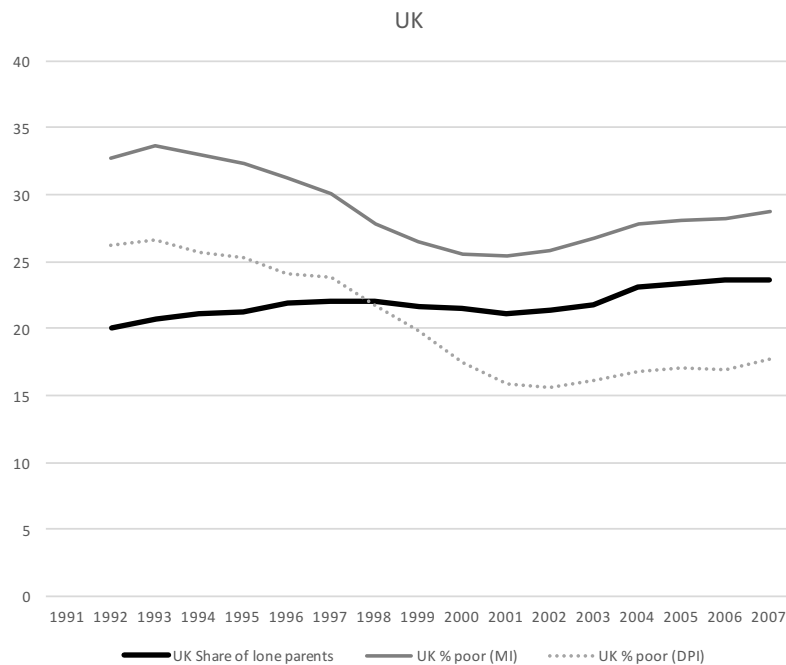
Differences:

- Very different effect of motherhood on **employment**, with British women much less likely to work if they have children, and were they do work, to work part-time.
- Lone mothers in the UK are less likely to work than partnered mothers, with far greater reliance on **social transfers** which are much more generous than in the US.

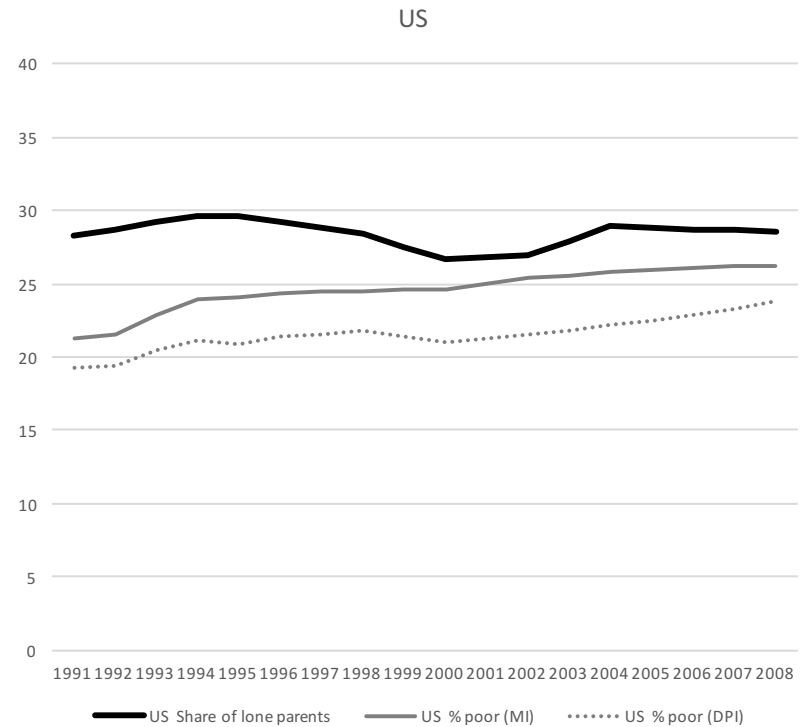
While rates of lone parent poverty are similar the causes may be very different.

Lone parenthood and poverty (families with children)

UK

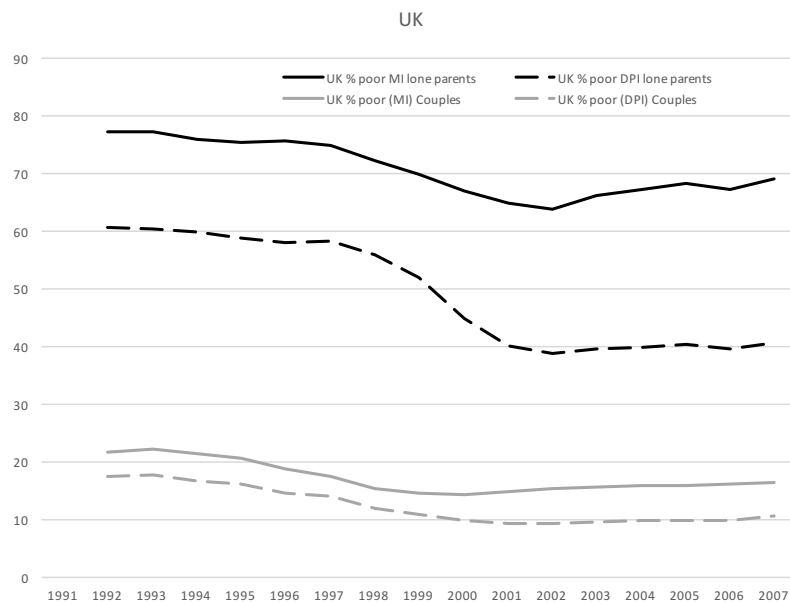


US

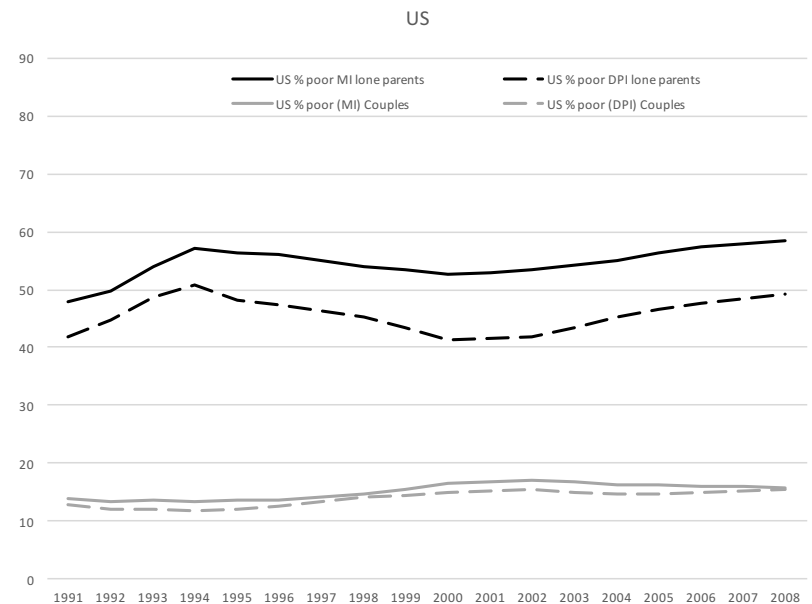


Poverty (MI and DPI) for Couples and Lone Mothers

UK

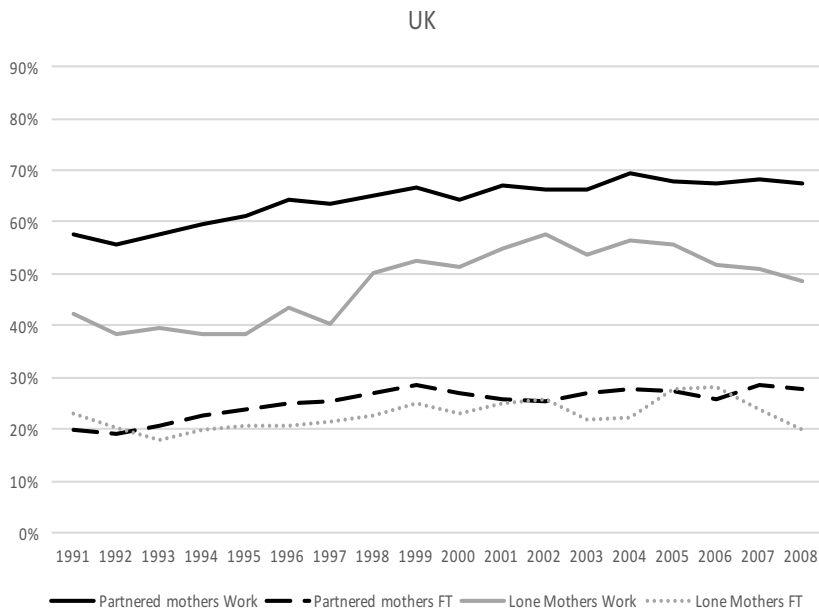


US

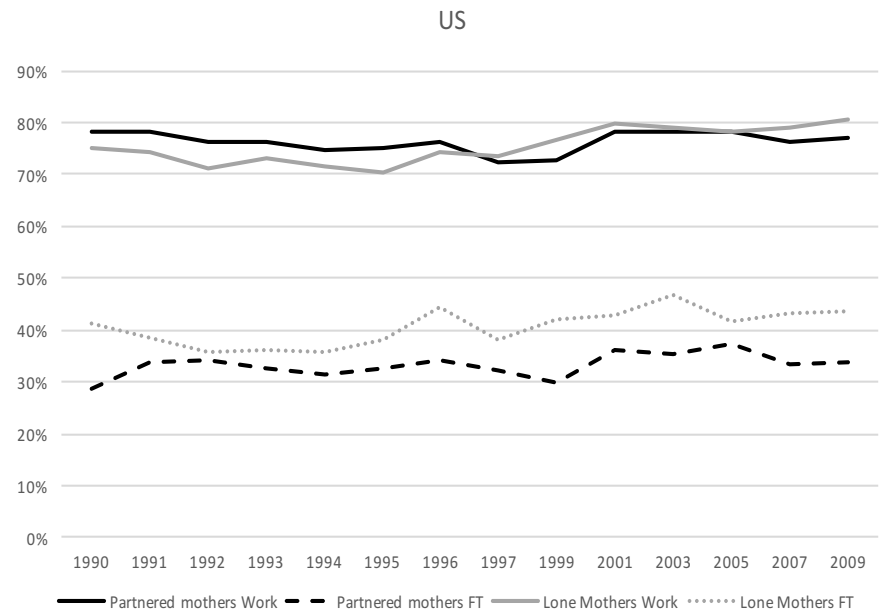


Employment Rates (PT and All) Lone and Partnered Mothers

UK



US



Income composition is very
different...

Income Composition

UK

	Couples with children			Lone mothers		
	1992	2000	2008	1992	2000	2008
Male earnings	28,529	31,936	34,884	0	0	0
Female earnings	8,047	11,685	14,354	6,148	8,424	9,485
Other private income	2,614	3,268	3,978	4,120	4,605	5,207
Market income (MI)	39,190	46,888	53,216	10,268	13,029	14,692
Benefits	3,822	3,814	5,218	9,166	9,497	11,609
Income Tax	-10,495	-12,535	-14,885	-2,308	-2,928	-3,627
Disposable income (DPI)	32,518	38,167	43,549	17,126	19,599	22,675
Equiv. DPI	16,362	19,243	21,858	9,834	11,336	13,327

Income Composition

UK

	Couples with children			Lone mothers		
	1992	2000	2008	1992	2000	2008
Male earnings	28,529	31,936	34,884	0	0	0
Female earnings	8,047	11,685	14,354	6,148	8,424	9,485
Other private income	2,614	3,268	3,978	4,120	4,605	5,207
Market income (MI)	39,190	46,888	53,216	10,268	13,029	14,692
Benefits	3,822	3,814	5,218	9,166	9,497	11,609
Income Tax	-10,495	-12,535	-14,885	-2,308	-2,928	-3,627
Disposable income (DPI)	32,518	38,167	43,549	17,126	19,599	22,675
Equiv. DPI	16,362	19,243	21,858	9,834	11,336	13,327

US

	Couples with children			Lone mothers		
	1992	2000	2008	1992	2000	2008
Male earnings	60,589	67,933	70,018	0	0	0
Female earnings	21,794	27,083	30,637	27,792	31,030	33,104
Other private income	5,982	6,713	4,343	12,632	11,082	9,342
Market income (MI)	88,366	101,730	104,998	40,424	42,112	42,446
Benefits	1,390	2,803	1,519	3,489	4,790	3,425
Income Tax	-20,910	-24,527	-23,750	-5,113	-4,097	-2,612
Disposable income (DPI)	69,225	78,004	82,214	39,363	40,192	41,488
Equiv. DPI	34,672	38,875	41,219	22,377	22,892	23,034

% zero earnings or market income

	Couples with children			Lone mothers		
	1992	2000	2008	1992	2000	2008
UK No female earnings	37%	30%	30%	53%	44%	46%
No head or spouse earnings	14%	9%	10%	53%	44%	46%
No market income	6%	3%	3%	33%	28%	27%
Sample size	3,823	5,379	5,327	826	1,431	1,353

	Couples with children			Lone mothers		
	1992	2000	2008	1992	2000	2008
US No female earnings	21%	22%	20%	11%	7%	5%
No head or spouse earnings	0%	0%	0%	11%	7%	5%
No market income	0%	0%	0%	0%	0%	0%
Sample size	6,508	3,983	4,057	1,861	1,534	1,732

Following Mothers ...

Data

Data: Cross National Equivalence Files (CNEF) income data, merged with demographic information from the BHPS and PSID, from 1990/91 to 2008/09.

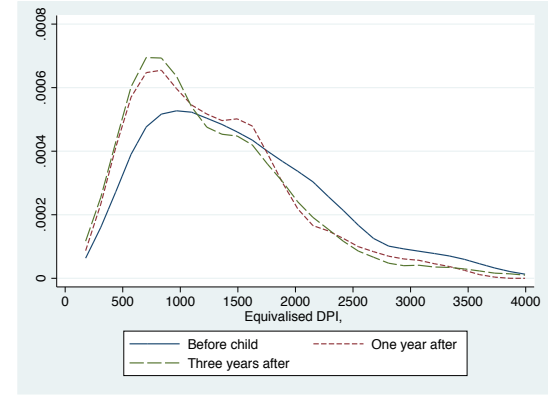
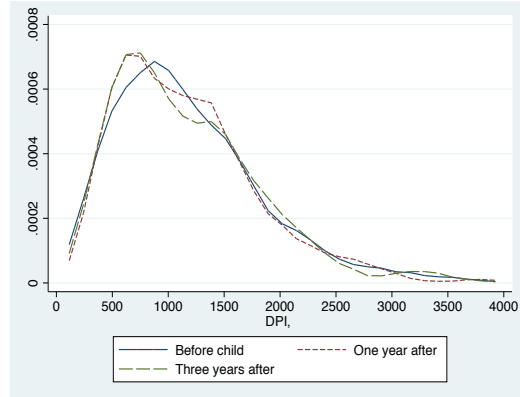
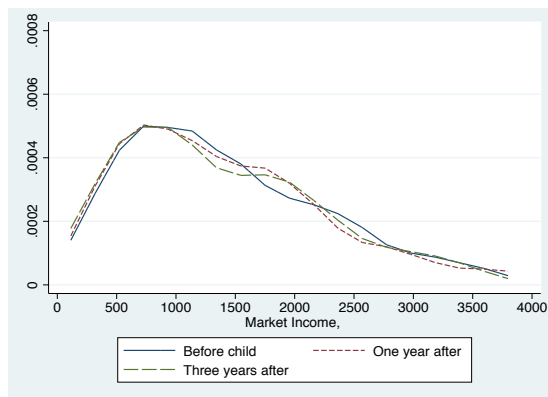
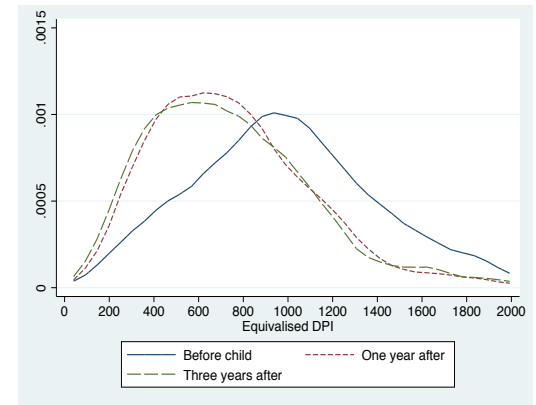
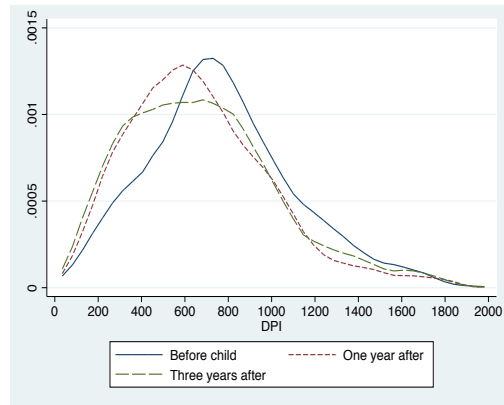
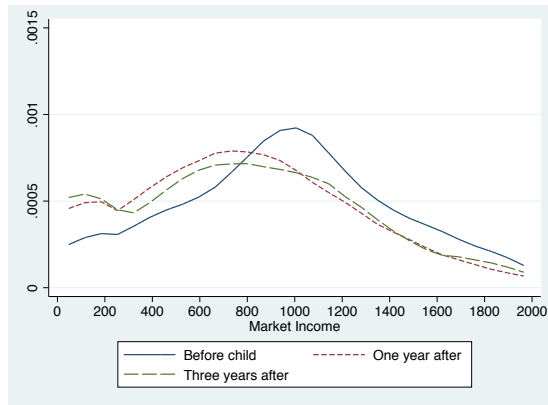
Sample: all women observed to become a first time parent.

US: 3,982 individuals, 21,398 observations.

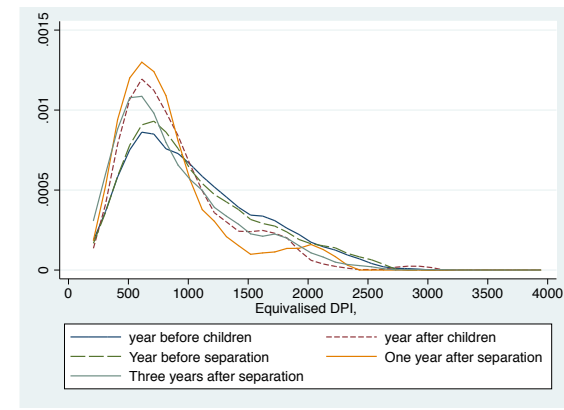
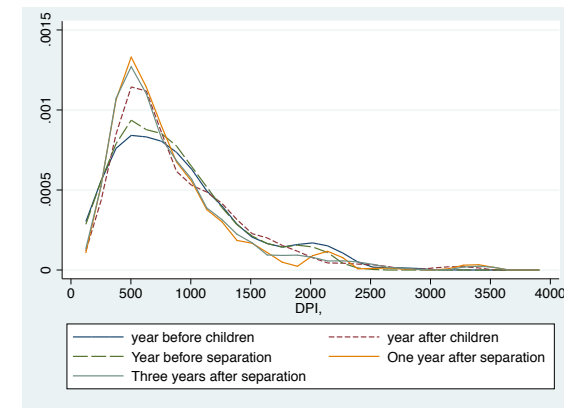
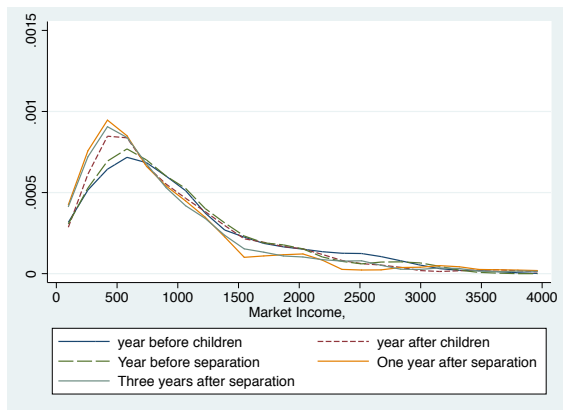
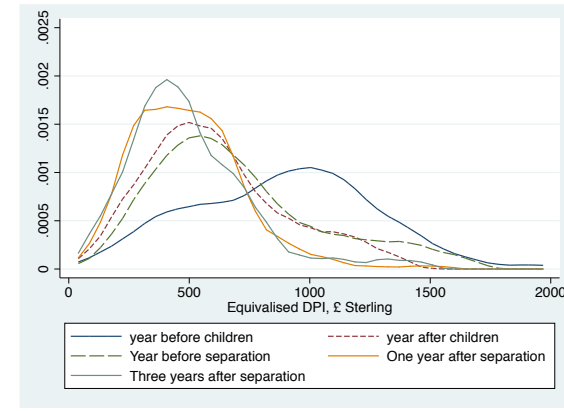
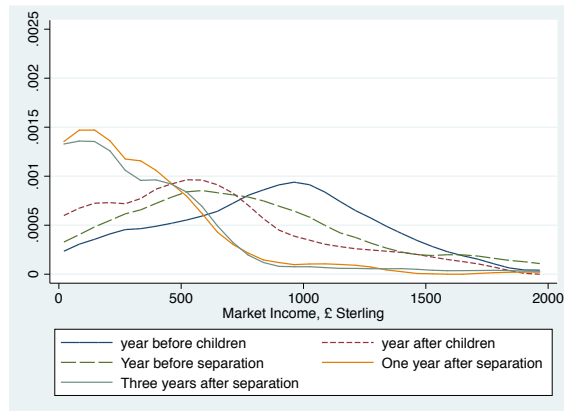
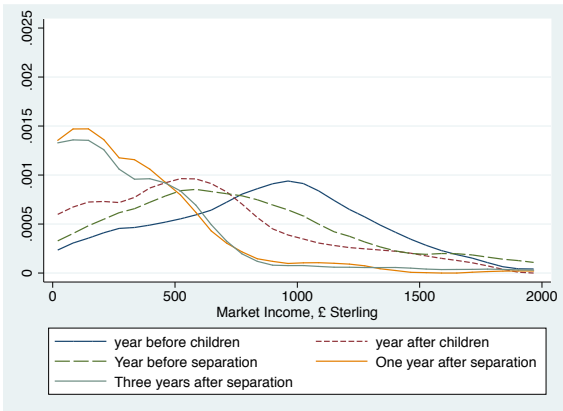
UK: 1,293 individuals, 12,864 observations.

UK sample observed for ca. 14 years, 10 years since first birth and 7 as lone mother. Similar for US.

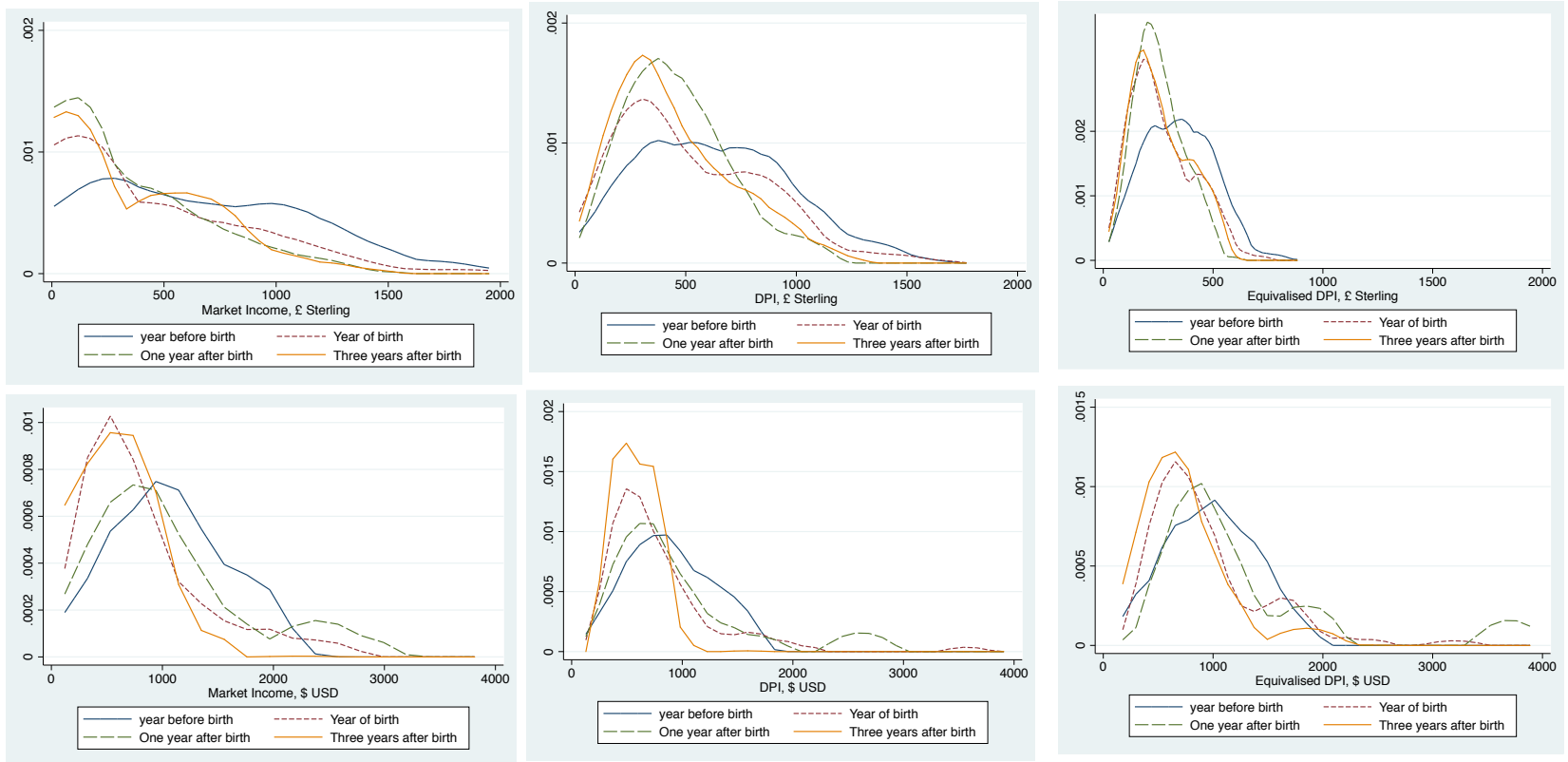
Effect of Kids on MI, DPI and eqDPI (top – UK, bottom, US)



adds separation



add birth to lone mother



Methods

Two parts:

- Look at the effect of demographic change on income & poverty risks
- To see how behavioral responses combine to influence overall resource losses, examine changes in individual income components.
 - Decompose changes into those due to changes in:
 - i. own earnings,
 - ii. spouse earnings,
 - iii. other income,
 - iv. taxes and benefits, and,
 - v. needs.

Step 1: FE regressions

Income and Poverty

Methods

Step 1: Fixed effect models, of the form

$$Y_{it} = X_{it} \alpha + Child_{it} \beta + YChild_{it} \gamma + BLP_{it} \delta + YBLP_{it} \eta + SLP_{it} \phi + YSLP_{it} \theta + \varphi_t + \varepsilon_{it}$$

Y_{it} : logged own earnings, head and spouse earnings, market income, disposable income and equivalised disposable income; and poverty risk.

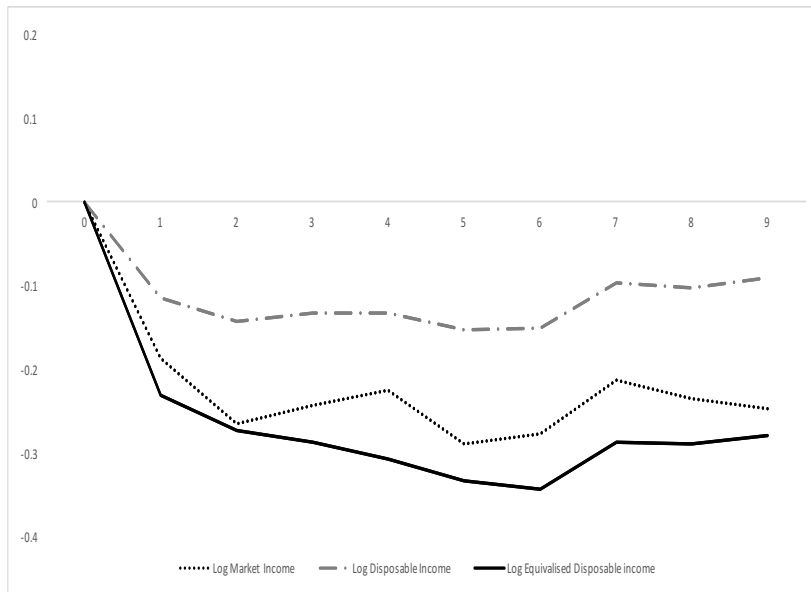
X_{it} : quadratic in age, number of additional children, re-partnering, single no children and living with parent dummy variables, year of interview and a dummy variable for (post-welfare reform * lone parent).

Children and partnership: association with log disposable income, log equivalised income and poverty

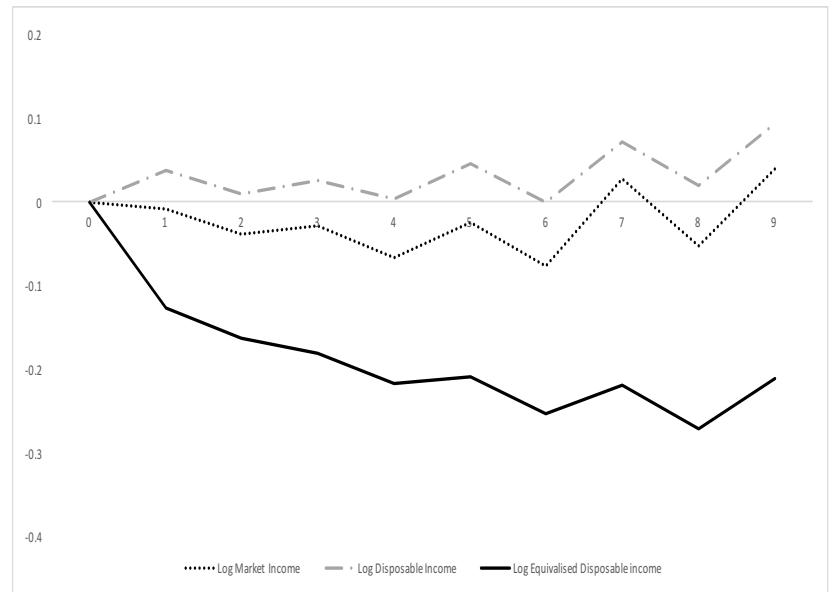
	US			UK		
	Disposable Income	Equivalised disposable income	Poor (DPI)	Disposable Income	Equivalised disposable income	Poor (DPI)
Children						
First birth	.086**	-.038**	-.034**	-.073**	-.294**	.055**
Time since first birth	-.034**	-.026**	.009**	-.017**	-.015**	.003
Lone motherhood						
First birth while single	-.053	-.042	.082+	-.179**	-.077	.198**
Time since first birth while single	-.015*	-.008	-.004	-.001	-.003	-.004
Separation	-.164**	-.115**	.101*	-.478**	-.342**	.246**
Time since separation	.025**	.013*	-.003	-.006	-.003	-.006
Other						
Re-partner	.288**	.201**	.160**	.346**	.251**	.202**
Number more children	.056**	-.056**	.038**	.014	-.117**	.040**
Live with parent	.672**	.392**	.235**	.631**	.308**	.162**

Change in income following a first birth (MI, DPI and Eq. DPI)

UK



US



Combined effect of children and partnership on income and poverty

	US			UK		
	Disposable Income	Equivalised disposable income	Poor (DPI)	Disposable Income	Equivalised disposable income	Poor (DPI)
Children						
First birth	9%	-4%	-3%	-7%	-25%	6%
Lone motherhood (combined effect)						
First birth while single	+3%	-.8%	+5%	-22%	-31%	25%
Separation	-.8%	-15%	+7%	-42%	-48%	30%

Adding individual specific growth effects

	US				UK			
	Market income	Disposable Income	Equivalised disposable income	Poor (DPI)	Market income	Disposable Income	Equivalised disposable income	Poor (DPI)
Children								
First birth	-.001	.008	-.108**	.009	-.357**	-.087**	-.287**	.044**
Time since first birth	-.097**	-.076**	-.082**	.019	.015	-.050**	-.046**	.004
Lone motherhood								
First birth while single	-.291*	-.270*	-.127	.182	-1.104*	.003	.050	.182**
Time since first birth while single	-.023	.047	.031	.047	.217	.059+	.045	-.009
Separation	-.188	-.132	-.118	.032	-	-.538**	-.408**	.276**
Time since separation	.075	.024	.038	-.048	.262+	.038+	.025	-.020

Summary so far

- Children and lone parenthood have small effects on disposable income, and only a weak association with poverty in the US.
- In the UK demography is much more important for income and poverty risks.
- Why?

Effect on earnings and market
income

UK Children and partnership: Earnings and market income (probability >0)

	UK					
	Pr. female earnings >0	Log female earnings (>0)	Pr. head and spouse earnings >0	Log head and spouse earnings (>0)	Pr. market income >0	Log market income (>0)
First birth	-0.204**	-0.542**	-0.047**	-0.270**	-0.016**	-0.190**
Years since first birth	0.015**	-0.031**	-0.002	-0.029**	-0.002	-0.010
Single at birth	-0.034	-0.227	-0.240**	-0.859**	-0.193**	-0.993**
Years since first birth, single	0.000	0.003	0.012*	0.017	0.002	-0.013
Separation	0.019	-0.137	-0.150**	-0.773**	-0.102*	-1.007**
Time since separation	0.000	0.002	-0.002	-0.000	-0.004	-0.040+
Number more children	-0.095**	-0.261**	-0.033**	-0.068**	-0.020**	-0.035
Live with parents	0.054*	0.005	0.020	-0.153**	0.120**	0.843**
Repartner	0.035	0.115	0.193**	0.418**	0.169**	0.750**

US Children and partnership: Earnings and market income (probability >0)

	US				
	Pr. female earnings >0	Log female earnings (>0)	Pr. head and spouse earnings >0	Log head and spouse earnings (>0)	Log market income
First birth	-0.101**	-0.297**	-0.006	-0.054*	-.039*
Years since first birth	0.009**	-0.015*	0.007**	-0.032**	-.014**
Single at birth	-0.012	0.215+	-0.048*	-0.332**	-.292**
Years since first birth, single	0.002	0.010	-0.003	0.006	-.006
Separation	0.046	-0.035	-0.075**	-0.639**	-.400**
Time since separation	0.000	-0.009	0.006	0.006	.025**
Number more children	-0.025**	-0.056**	0.001	-0.002	.031**
Live with parents	-0.048**	0.448**	-0.087**	0.233**	.915**
Repartner	-0.028	-0.180*	0.004	0.280**	.318**

Decomposing income and poverty changes

Step 2: Income decomposition

- Run regressions, as in Step 1, on **normalised income components**:
 - Income and its components are normalised by equivalised median disposable income.
 - Equivalisation scale assumes a family of 4:
 - $\text{Scale} = 2/\sqrt{\text{family size}}$
 - Income components: (i) own labour market income; (ii) head and spouse labour income; (iii) other income; (iv) net tax and benefit income.
 - **Sum of the regression coefficients = effect on disposable personal income.**
 - Coefficients interpreted in % change relative to median equivalised income.
 - Finally, we look at the effect of changes in needs by running the regression on equivalised income.

Decomposing income changes

Decomposing income changes

		1	2	3	Sum: 1 to 3	
	Own earnings	Head and spouse earnings	Other income	Tax and benefits	Disposable income	Equivalised disposable income
United States						
Children	-11%**	-9%**	10%**	1%	2%	-16%**
Children, single	2%	-30%**	8%*	10%**	-13%**	-15%**
Separation	-1%	-45%**	14%**	10%**	-21%**	-16%**
United Kingdom						
Children	-28%**	-27%**	6%**	12%**	-9%**	-43%**
Birth to single parent	2%	-61%**	12%+	19%**	-30%**	-17%**
Lone parent, separation	0%	-58%**	-1%	23%**	-36%**	-30%**

Other demographic covariates (UK)

UK	(1) Female earnings	(2) Head and spouse earnings	(3) Other market income	(4) Tax and benefits	(5) Disposable income (sum of col. 2-4)	(6) Equivalised income
First birth	-0.280**	-0.268**	0.064**	0.117**	-0.086**	-0.429**
First birth to lone mother Separation	0.016 -0.003	-0.607** -0.576**	0.115+ -0.013	0.191** 0.225**	-0.301** -0.364**	-0.169** -0.296**
Re partner	0.022	0.251**	0.099*	-0.097**	0.252**	0.222**
Number additional children	-0.102**	-0.046*	0.001	0.048**	0.003	-0.138**
Live with parents	0.009	0.033	0.845**	-0.124**	0.754**	0.479**

Other demographic covariates (US)

US	(1) Female earnings	(2) Head and spouse earnings	(3) Other market income	(4) Tax and benefits	(5) Disposable income (sum of col. 2-4)	(6) Equivalised income
First birth	-0.111**	-0.088**	0.097**	0.007	0.016	-0.161**
First birth to lone mother	0.018	-0.299**	0.076*	0.098**	-0.125**	-0.150**
Separation	-0.013	-0.447**	0.138**	0.102**	-0.208**	-0.157**
Re partner	-0.065*	0.130**	0.089**	-0.075**	0.144**	0.132**
Number additional children	-0.014*	0.057**	-0.021**	-0.000	0.035**	-0.055**
Live with parents	0.150**	0.179**	0.715**	-0.202**	0.692**	0.525**

Poverty decomposition

- Examine changes in individual income components and their influence on poverty before and after birth / separation.
- Compute change in equivalised income as a result of change in needs and changed income components.

$$\frac{MI_2}{\sqrt{S_2}} - \frac{MI_1}{\sqrt{S_1}} = \left(\frac{1}{\sqrt{S_2}} - \frac{1}{\sqrt{S_1}} \right) MI_1 + \frac{1}{\sqrt{S_2}} (MI_2 - MI_1)$$

United Kingdom						
	All	Couples at birth	Single at birth	<u>Separating lone mother</u>		
				Birth	Separation	Combined effect
Poverty year before children / separated	7.3	6.1	19.1	10.1	24.2	10.1
Poverty year after child born / separated	13.8	11.0	42.6	24.2	37.3	36.6
Change	+6.5	+4.9	+23.5	+14.1	+13.1	26.5
Due to:						
1. Needs	4.4	+3.8	+10.3	+12.2	-1.0	+10.9
2. Own earnings	9.2	+8.9	+11.8	9.1	+0.9	+10.8
3. Spouse earnings	0.0	+0.1	-	+7.0	+42.5	+33.6
4. Other income	3.3	1.3	+20.6	-1.9	0.0	+7.9
5. Tax and Benefits	-	-9.3	-19.2	-12.2	-29.3	-36.6
	10.5					
N	865	785	68	99	99	99

United States						
	All	Couples at birth	Single at birth	<u>Separating lone mother</u>		
				Birth	Separation	Combined effect
Poverty year before children / separated	14.8%	14.5%	16.2	33.7	44.5	34.7
Poverty year after child born / separated	20.0%	19.2%	23.8	44.6	47.8	50.0
Change	+5.2%	+4.7%	+7.6%	10.9	3.3	15.3
Due to:						
1. Needs	6.8%	+6.1%	+9.7%	5.4	1.1	7.1
2. Own earnings	5.0%	+5.1%	+4.3	3.3	2.2	6.2
3. Spouse earnings	-6.4%	-5.7%	-9.0	-3.3	-1.1	-7.2
4. Other income	4.6%	3.6%	+9.1	13.1	5.4	17.3
5. Tax and Benefits	4.6%	-4.2%	-8.7%	-1.2	1.1	2.1
N	1024	839	185	98	98	98

Other findings

- Education differences – slightly smaller effects of children for graduates
- Pre and post welfare reform – similar earnings effects (but +ve coefficient on income for lone parents post welfare reform)

Conclusions

- Adds to growing literature linking lone parenthood poverty rates and maternal employment.
 - We show substantial differences between the UK and US in income composition and routes to poverty upon becoming parent or a lone mother.
- In the UK reducing the earnings penalty to motherhood could reduce poverty by up to 10%
 - Loss of earnings upon motherhood also drives up poverty in the UK, but the effects are less substantial.
- Taxes and transfers matter too, and much more for poverty reduction in the UK than then US.
 - While enabling low labour income, they don't however appear to lead to low earnings among lone mothers in the UK (or lead to increased earnings in the US).
- Separation or becoming a lone parent by birth does not appear to have a different effect on outcomes.

Thank-you

s.harkness@bath.ac.uk