Education and Female Empowerment in Intra-Household Resource Allocation Framework

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September 15, 2017

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Abstract

In this paper I investigate how an increase in education can lead to empowerment of women within their households. I study an education reform in the UK that increased the school leaving age by one year. This reform generated cohort level discontinuity in the years of education attained by the students in Britain. I find that the women who belong to post-reform cohorts and therefore have more years of education on average spend more on their children. The increase in spending is not related to higher labour market returns available to the more educated cohorts. I also do not find evidence of assortative matching resulting in higher spending on children. The women in the post-reform cohorts display a higher control over the household resources through which they are able to spend more on their children. I test this theory formally using a Difference-in-Discontinuities design. I use the Child Benefit Scheme which shifted the transfer of unearned income from fathers to mothers in 1979. I find that the women who

were in the treated cohorts spend significantly more compared to women in the untreated cohorts after the mothers become the recipients of this cash transfer. This indicates higher intra-household bargaining power of the more educated cohort.

1 Introduction

In recent times, the research on the merits of education on outcomes different than labour market returns has gained a lot of momentum. The causal link between education and marriage market outcomes (Anderberg et al (2015), Lefgren and McIntyre (2006), Bhaskar and Hopkins (2016), Hener and Wilson(2015); education and teenage pregnancy (Tanya Wilson(2014)); education and domestic violence (Erten and Keskin (forthcoming)) and education and inter-generational transfer of human capital (Kauffman et al (2015), have been well studied. Although these research papers analyze many different outcome measures and different channels of causality(increase in match surplus; incarceration effect; genetic endowment effects), there is still a dearth of research on how education impacts the relative power of an individual within the household. Increasing education is implicitly considered synonymous with empowering a person. Many developing countries around the world focus their education policies towards girls as a measure to empower them. Most of these girls do not join the labour force. In this scenario, whether education has any merit in the lives of these girls, beyond the labour market should be carefully analyzed. The link between education and empowerment is still under studied. In this paper, I attempt to fill this gap by analyzing the causal relationship between education level and bargaining power of women within the household.

It is a challenge to analyze the impact of education on female empowerment as the bargaining power cannot be explicitly measured. Education can affect the bargaining power of an individual in two ways- by increasing access to resources through the labour market or marriage market (resource argument) or by expanding the outside options of an individual. By expanding the resources available to the more educated women the labour market can positively increase her contribution to household resources and therefore increase her bargaining power. Marriage market on the other hand can lead to positive assortative matching on income and education. Thus, the educated women could gain access more resources compared to the less educated women and can therefore achieve preferred household allocations.

A natural question that comes up is whether education has an impact on empowerment by itself or does it impact empowerment only by changing the labour market and marriage market outcomes of the individual.Theoretically, education can increase the bargaining power of a woman within the household even if it does not change her labour market participation or her marital outcomes. It can lead to female empowerment by changing the ability of the woman to potentially participate in labour market if the need arises. Thus, it changes the outside options or the reservation utility of the woman within the household which can increase her intra-household bargaining power.

In this paper, I attempt to isolate the causal impact of education on empowerment from its impact on the labour market and marriage market channels. In order to accomplish this I use an education reform in the UK which raised the school leaving age of students from 14 years to 15 years in 1947 [1]. I use this exogenous increase in the years of education to identify the

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[1]I also present some evidence using the education reform in 1972 that changed the school leaving age from 15 years to 16 years for all the students in the UK

mothers born in cohorts that were not affected by RoSLA (pre-RoSLA) and those that were affected by this policy (post-RoSLA).

I first analyse the spending behaviour of the pre-RoSLA mothers and post-RoSLA mothers on their children. I make a general but reasonable assumption that all the mothers have similar preferences with respect to their children. I analyse if the mothers belonging to the post-ROSLA cohorts spend more on child clothing compared to mothers belonging to the pre-RoSLA cohorts. Child Clothing is chosen as the dependent variable because expenditure on children constitutes a public good within the household. A female who has no independent source of income might have lower access to her husband's resources for personal spending. However, the expenditure on children is a public good as both the parents derive some, albeit different, utility from it. Therefore, expenditure on child clothing is used to estimate female bargaining power within the household. I find that the mothers belonging to the the post RoSLA cohorts spend on average 36 to 45 percent more on child clothing compared to mothers belonging to the pre-RoSLA cohorts(see Columns (1) and (2) of Table 9.1, Panel A). If mothers have similar preferences about their children then the difference in the spending behaviour between the two groups could arise due to three reasons which are discussed below.

First, the educated mothers might have higher labour market returns compared to pre-RoSLA women. As they earn more than pre-RoSLA mothers, they have access to more resources which could be made available to their children. This can imply that they have higher bargaining power as they contribute a higher share of resources to their household compared to other mothers (resource argument). This could also mean that they just have more

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income to spend than other mothers and therefore choose to do so or both. Most research papers that have analysed the labour market returns for women using the 1947 RoSLA policy find zero returns to women in the labour market(see Devereux and Hart (2010)). I also analyze the labor market and find no evidence of higher labour market returns for the women exposed to the RoSLA 1947 policy versus those who were not (Table 9.4).

Second, the mothers who belong to the post-RoSLA cohorts can match assortatively so that their husbands also belong to the post-RoSLA cohorts or earn more than husbands of women in the pre-RoSLA cohorts. If the household resources are different between the two cohorts then the mothers in the post-RoSLA cohort can spend more on their children due to the larger household resources available to her. There is some evidence of women matching assortatively on education (Columns (3) and (4), Table 9.5). However, assortative matching on education does not lead to increase in expenditure on children. Moreover, there is no evidence of women matching assortatively on income (Table 9.7). Thus, increase in resources does not seem to be the main channel through which education impacts bargaining power of women within the household.

The third channel is the increase in the bargaining power of women belonging to the post-RoSLA cohorts. I characterize empowerment as the ability of women to achieve preferred allocations for their children. Even if the pool of household resources available to them is the same as the women in the pre-RoSLA cohorts, the more educated women can extract a higher share of these household resources to spend on their children. I test for the bargaining power theory using a third policy variation- the Child Benefit Scheme which came into effect on 1977.

It is well documented in the literature that if the resources brought by the woman increase then her relative power within the household changes and therefore the household allocations change. Most research papers on bargaining power of women test the impact of an increase in unearned income of women on their bargaining power (Roy (2016), Attanasio et al (2015), Duflo (2003)). One such exogenous increase in the unearned income of women in the UK happened under the Child Benefit Scheme. This scheme led to a shift of resources from the fathers to the mothers in 1979. It is generally accepted that additional income is spent differently by mothers and fathers and that mothers derive a higher utility from spending on their children. Therefore, I expect that once the transfer accrues to mothers, the expenditure on children will increase. Moreover, the expenditure on children is a public good in the household utility function. If the mother is empowered because of her higher education then she should have more control over the household resources copared to mothers in the pre-RoSLA cohorts. Therefore, once the unearned income accrues to her, the change in her allocation should be more than the pre-RoSLA mothers who were not exposed to the education reform and hence not as empowered. This is synonymous with the findings of this paper (see Table 9.9).

While there is much research that uses unearned income or social transfers as a proxy for the bargaining power of women, so far, to my knowledge, there is only one paper by Attanasio et al which analyses the causal impact of social welfare transfers on female empowerment using a lab experiment. In that spirit, my paper contributes to the literature on bargaining power by analysing the causal impact of education on empowerment. The second contribution of this paper relates to the analysis of the marriage market outcomes of females and its impact on the inter-generational outcomes for the first time using the 1947 RoSLA policy.

2   Literature Review

Theoretical models of intra-household resource allocation fall into two broad categories - neoclassical utility theory (or common preference models) introduced by Becker, and individual preference or collective models (Chiappori (1988a), Manser and Brown(1980), McElroy and Horney(1981,1990)). The unitary models assume that the household members maximise one common utility function and therefore changes in resources brought by different members has no impact on the outcomes. It has been well established in empirical literature that the common preference model does not hold (see Lundberg et al, 1997; Thomas, 1990; Hoddinott and Haddad, 1995). The collective models establish that increasing the resources available to an individual in the household changes the outcomes as it changes their relative power within the household. Whilst resources brought by an individual affect his/her bargaining power, education, by increasing outside options should also have the same effect. If I assume that the decision process within the household is cooperative Nash bargaining then being more educated implies a higher reservation utility for the individual and this can lead to a change in the household allocations and individual control on common resources due to the higher bargaining power of that individual. Therefore, the mothers who are exposed to the education policy reform and tend to be more educated would spend more on their children due to their higher intra-household bargaining power compared to females who belong to the cohorts not exposed to this exogenous shock in education. This forms the main hypothesis of this paper.

The impact of bargaining power on various outcome measures like child health, child expenditure, nutrition intake of women, fertility decisions etc. has been well documented (see Duflo (2003), Duflo and Udry(2004), Wu and

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Li (2011), Roy(2015) Brown(2009)). Most of these research papers use an exogenous policy variation or an instrument as a measure of the bargaining power of an individual. Examples include a change in asset ownership, dowry, change in earned and unearned income and general attitudes about women. However, there is limited causal evidence of how these proxies affect the bargaining power of an individual and if they change the relative bargaining power at all.

A recent paper by Attanasio et al (2016) uses a randomised experiment to test if the bargaining power of women increases as a result of targeted cash transfers. They conduct a lab experiment in which they analyse different values for which the woman is indifferent between receiving the transfer and letting her spouse receive it. On average women were willing to sacrifice some household income to gain more power over the resources (Attanasio (2015)). However, the women who resided in municipalities where the conditional cash transfer was directed to them (for three years prior to the lab experiment) instead of the household head showed a lower willingness to sacrifice household income to gain power compared to the women who resided in municipalities where the men were eligible to receive the targeted cash transfer. They conclude that this indicates a higher bargaining power of women who receive the targeted transfers. They are willing to sacrifice less household income because they have higher control over household resources.

My paper adds to this strand of the literature using an exogenous change in education level amongst females in different cohorts. I analyse if education causally impacts the bargaining power of woman and leads to empowerment. While the link between unearned income and bargaining power of an individual is well studied in the literature, there is limited evidence on the link

between education and bargaining power. This paper aims to fill that gap.

I also try to resolve some of the identification issues associated with this literature. One such issue is reverse causality. For example, while looking at woman's land ownership and children's schooling we need to be sure that it is not children's schooling that affects the woman's land ownership. Moreover, attributing the change in outcome measure to higher bargaining power is sometimes based on interpretation which may or may not be accurate. For example, Duflo(2003) finds that grandmothers who receive pension spend more on their granddaughters and attributes this result to their higher bargaining power as a result of increase in their unearned income. Interpreting this result as a function of bargaining power first requires the assumption that the grandmothers prefer spending more on their granddaughters compared to grandfathers. Moreover, it might reflect lower bargaining power of the grandmother as she may not be able to use her resources on herself or the transfer that she used to receive from her children decreased more relative to her spouse after she started receiving pensions which left more resources with the parents for expenditure on their children. This reflects a lower bargaining power of the grandmother instead of higher bargaining power.

By testing for bargaining power using a Difference-in-Discontinuities design and eliminating the other channels (labour market and marriage market) that can also affect bargaining power of an individual due to higher education, I am able to identify the change in relative power of an individual simply due to a change in her reservation utility. Educated mothers are able to extract more from the household resources and direct it towards their children. The 1947 RoSLA policy and the Child Benefit Scheme are appropriate policies for this research.

Below I describe the policies used and the research design and the identification strategy in detail.

3   Brief overview of RoSLA 1947 and 1972 and the Child Benefit Scheme

3.1   Raising of Compulsory School Leaving Age:

The British compulsory schooling laws mention the maximum age at which the child should start school and the minimum age at which the child can leave school. The maximum age at which the child can start school is 5. (Clark and Royer, 2013). The RoSLA policies affected the minimum age at which the child can leave school. In 1939, the government considered raising the school leaving age to 15 but this was delayed due to the onset of the Second World War. The Education Act of 1944 specified the increase in the school leaving age from 14 to 15 and it became effective from 1st April ,1947. The Education Act also gave the Minister of Education the power to raise the compulsory school leaving age to 16 and this came into effect on 1st September, 1972.

Clark and Royer (2013) estimate that the fraction of children who left school at 14 years of age or before, fell by roughly one-half after RoSLA 1947 and the fraction of children who left school at 15 years of age or before, fell by roughly one-quarter after RoSLA 1972 using Health Survey of England data. I use the General Household Survey (GHS) and estimate that the RoSLA 1947 reduced the proportion of girls who left school before the age of 15 years by 26 per cent (see Figure 1)[2].

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[2]I also show the effect of RoSLA 1972 on the proportion of girls who stayed in school after they were 15 years of age and find results similar to Clarke and Royer. See Figure 1A.

Many research papers have used the change in the minimum school leaving age to look at the impact of increased education on adult mortality, teenage pregnancy, labour market outcomes and marriage market outcomes (see Clark and Royer (2013), Wilson (2014), Oreopoulous and Salavanes (2011), Devereux and Hart (2010), Anderberg et al (2015), Grenet(2013)). I use these policy variations to show that mothers born in cohorts affected by the RoSLA spend more on their children's clothing than the mothers born in pre-RoSLA cohorts, under a Regression Discontinuity Design Framework. I first prove that the educated women prefer to allocate more resources to their children. I then analyse whether the mechanism that leads to the higher allocation is the increased bargaining power of these women within their households.

3.2   Child Benefit Scheme

The Child Benefit Act 1975 came into effect from 5th April 1977. It provided a universal unconditional cash benefit to the mother of the child. Prior to 1977 the child benefit scheme consisted of two programs- a taxable Family Allowance paid to the mother and a Child Tax Allowance available to the head of the household as a deduction from the income for tax purposes. The Child Tax Allowance generally resulted in an increase in the father's disposable income. After the Child Benefit Act came into effect, it took the government two years to roll out the scheme and it was fully effective by 1979.

The Child Benefit Act by replacing the Child Tax Allowance made the mother of the child the sole recipient of the cash transfer. It significantly increased the amount of cash transfer to mothers specially in low income families that did not come under the tax brackets earlier. Lundberg et al (1997) estimate that it increased the cash in hand of mothers from 2.3 per cent of average annual male earnings earlier to 8 per cent of average annual male

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earnings. I use this change in the recipient of the transfer to test for the relative power of the more educated and less educated women in the household.

4   Data and Empirical Strategy

I use survey data from the Family Expenditure Survey conducted in the United Kingdom. The Family Expenditure Survey was a continuous annual survey that ran from 1961-2001 after which it was replaced by the Expenditure and Food Survey (EFS) from 2001-02. The basic unit of observation is the household. Each individual in the household is asked detailed questions on personal income and expenditure. It also includes a detailed 14-day expenditure record of every member in the household above 16 years of age. The 14 day expenditure record of each individual is divided by 2 before being recorded, to estimate the expenditure per week in pounds. I use survey data for the years- 1973-76 and 1980-83.

The Family and Expenditure Survey was used to calculate the Retail Price Index in the UK which was subsequently superseded by the Consumer Price Index

4.1   Causality between Mother's Education and Child Expenditure

I first study the link between mother's education and expenditure on child clothing. I analyze if the expenditure on child clothing is causally related to the education level of the mother. In order to do so, I use the Raising of School Leaving Age (RoSLA) 1947 which increased the school leaving age from 14 years to 15 years for all the children in Britain on 1st April 1947. This policy generated a cohort level discontinuity. All the children born before 1st

April 1933 were exempt from the policy while those who were born after this date were subject to this compulsory law. I use the Family Expenditure Survey years from 1973-76 and 1980-83 to test this relationship[3].

The survey measures only the age of people in years and not their month-of-birth. Therefore, the forcing variable is the year-of-birth of an individual. Treatment is defined as 1 for all the individuals born in or after 1934 and is defined as 0 for the people born in or before 1933 [4]. I also restrict the sample to nuclear families with two children who are between 5 and 15 years old. This is because the average number of children in the sample is 2 and the school going children are aged between 5 and 15[5]. The expenditure on child clothing by the mother is a function of the age of her children. The expenditure on child clothing decreases as the children get older. Therefore, I restrict the age of children to the school going years to maintain consistency. I also show the results for different restrictions on the age group of children for robustness. The birth cohorts of the mothers range from 1917 to 1956. This is because the RoSLA 1972 policy affected the cohorts born in 1957. Therefore, I

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[3]The survey years of 1977-79 are not used in the analysis because the Child Benefit Scheme 1977 was rolled out during this time and the transition took place in these two years. I use the Child Benefit Scheme later in this paper to test for the bargaining power of women. Therefore, the transition years have been excluded from the data set. Similar strategy has been adopted by Lundberg, Pollack and Wales(1997) to test the collective model of intra- household resource allocation using the Family Expenditure Survey and the Child Benefit Scheme.

[4]The research papers that use RoSLA 1947 define the threshold at 1933 instead of 1934 (see Oreopolous(2006a); Devereux and Hart(2010)). These papers use either the New Earnings Survey Panel Data (NESPD) in which the age of the individual at 1st of January of the survey year is recorded or they use the General Household Survey (GHS) which has information on the age of the individual and the sampling month available in all the survey rounds. However, in the Family and Expenditure Survey (FES) the information on sampling month is not available and therefore it is difficult to accurately estimate the year-of-birth of the individual. The FES records the age of the individual at last birthday. Year-of-birth is deduced using the age of the individual at the time of the survey. Consider a case in which the sampling month is August 1973. Suppose the individual is 40 years old then. This implies that the year-of-birth is 1933. However, there is no way to decipher if the individual was born in August 1933 or March 1933 using this information. Since Regression Discontinuity Design captures the effect of treatment at the threshold level very precisely, including people born in 1933 as treated will bias our results downward or generate incoherent results. Therefore, I code treatment for cohort 1933 as 0.

[5]Most results apply to families with more than two children as well.

restrict my analysis to cohorts that were born before 1957 for this paper.

I present the Reduced form estimates using this policy in Table 9.1. The age at which an individual left education is not available in the survey years of 1973-83 used in this paper. Therefore, I cannot present the Local Average Treatment Effect estimates. I present results using the global polynomial approximation. This methodology involves using the whole sample and choosing a flexible high-order polynomial to fit the relationship between an outcome Y_i (school leaving age, wages,expenditure etc.) and the forcing variable Xi (cohort), allowing for an intercept shift at the cutoff (Grenet (2013)). This approach has been followed in most research papers using RoSLA (see Oreopolous (2006a), Devereux and Hart (2010) and Grenet (2013)).

The Reduced Form is specified as:

$$Y_i = \alpha + \beta.Treatment_i + \delta_0 f(X_i - c) + \delta_1 Treatment_i * g(X_i - c) + \xi$$

$$(1)$$

where Y_i is the expenditure on clothing per child by the mother, X_i is the year-of-birth and c is the relevant threshold (1934 or 1958); $f(.)$ represents the vector of polynomial functions in the forcing variable. $Treatment_i$ indicates if the female was born in post-RoSLA cohort. Treatment is also interacted with higher order polynomials in year-of-birth to allow for differences in slope on the right and the left of the discontinuity.

The coefficient of Treatment β represents the average effect of the policy on the child clothing expenditure by mothers at the threshold level c. I calculate

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robust standard errors for each regression.

I analyze the labour market and the marriage market channel using the reduced form regression shown in equation (1). The dependent variables I use are labour force participation rate and labour market earnings for the labour market channel and husband's earnings, age gap, whether husband belonged to post-RoSLA etc to analyse the marriage market channel. The strategy for analyzing the empowerment channel is described below.

4.2 Education and Empowerment- Difference-in-discontinuities design

To estimate the bargaining power of pre-RoSLA versus post-RoSLA mothers, I use the Difference-in Discontinuities approach with respect to the Child Benefit Act 1975. As the Child Benefit Act replaced the Family Allowance and Child Tax Allowance program, it significantly increased the purchasing power of women ceteris paribus.

I estimate the change in expenditure on children's clothing after the Child Benefit Act was passed. I then analyse if the change in average expenditure on child clothing is significantly different between the treated and the untreated cohort.

I estimate the following reduced- form regression to test for bargaining power of mothers:

$$Y_i = \alpha + \beta.Treatment_i + \delta_0 f(X_i - c) + \delta_1 Treatment_i * g(X_i - c) + \kappa_0 Post1979$$

$$+\kappa_1 Treatment_i * Post1979 + \kappa_2 Treatment_i * Post1979 * g(X_i - c) + \nu \quad (2)$$

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where κ_1 represents the difference in discontinuities estimate, $Post1979$ represents the change in expenditure post the Child Benefit Act 1975, Treatment is defined as 1 for females born in or after 1934 and 0 for females born before 1934. It is interacted with higher order polynomials in year-of-birth.

The coefficient of interest is κ_1. It represents the difference in child clothing expenditure of post-RoSLA mothers compared to pre-RoSLA mothers once the cash transfer accrues to them instead of the head of the household. Higher bargaining power can then lead to two different results. If the mothers with higher bargaining power were able to achieve their preferred allocations and were at the bliss point prior to the change in resource transfer then higher bargaining power would imply that the change in expenditure is lower for the more educated women comapred to pre-RoSLA mothers. In that case κ_1 should be negative and significant or not significant. However, if there was unmet demand and the mothers were not able to achieve their desired allocations then κ_1 should be positive and significant for the treated mothers i.e. the mothers in the post-RoSLA mothers would display a greater control over the resources that accrue to them once the transfer is made compared to pre-RoSLA mothers. As bliss point is hard to achieve in practice, I expect $kappa_1$ to be positive and significant for the women born in the post-RoSLA cohorts.

The results and the discussion follows.

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5   Results

Figure 2 shows that the expenditure per child per week on clothing jumped at
the threshold for mothers born after 1934. Table 9.1 presents a more formal
estimate of the jump using equation(1). It reports the parametric estimates
using the global polynomial approach and the sample restrictions mentioned in
Section 4 above. The dependent variable is the expenditure by mothers on
clothing per week. The expenditure per week is divided by the number of
children (2 according to the sample restrictions). Thus, the regression reports
results for expenditure per child per week in pounds. Panel A reports
regression results for the sample that includes nuclear families with two
children aged between 5 and 15 years. The year-of birth of mothers ranges
from 1917 to 1956. In addition to that, I restrict the analysis in Panel A to
mothers who are currently married and exclude single mothers unless
specified. This is the normal sample used in all the other specifications that
follow in this paper.

Column(1) of Table 9.1 reports the result for the linear function in
year-of-birth and its interaction with the treatment variable. Column(2)
reports results for quadratic polynomial in year-of-birth and its interaction
with the treatment variable. Column(3) reports the cubic polynomial and
Column(4) reports the quartic polynomial function in year-of-birth. I find that
the mothers who belong to the post-RoSLA cohorts spend on average 44 per
cent more on child clothing than the mothers born in pre-RoSLA cohorts
(Column(1), Panel A). Since the whole sample is included and there is a lot of
variation with respect to mother's age. Therefore, I include a quartic in
mother's age in all the specifications. On average, mothers exposed to RoSLA
1947 policy spend 36 to 62 per cent more on the clothing of their children than

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mothers born in the pre-RoSLA cohorts (Panel A).

In Panel B, I restrict the year-of-birth of mothers from 1921 to 1951. Most papers that analyse the RoSLA 1947 use these birth cohorts (see Devereux and Hart (2010), Grenet (2011)). The results are similar to Panel A. The mothers spend 39 per cent to 75 per cent more on child clothing if they belong to the treated cohorts. In Panel C, the sample is extended to all the mothers irrespective of their marital status. The mothers in the post-RoSLA cohorts spend 36 to 66 per cent more on child clothing. The result that mothers in post-RoSLA cohorts spend more on their children is robust and consistent to different sample restrictions.

In Table 2, I test the robustness of the above regression. I put different restrictions on the age group of the children and estimate equation(1). I restrict the sample to children aged between 10 to 15 years (Panel A); 12 to 17 years (Panel B); 12-15 years (Panel C) and 8-15 (Panel D) years. The same results hold across all these sample restrictions. In the Appendix, I use log of expenditure as the dependent variable (Table A.1) and estimate equation(1). I find that post-RoSLA mothers spend more than pre-RoSLA mothers on children clothing. Therefore, I conclude that the mothers who were subject to the compulsory reform prefer to spend more on their children.

In the subsequent sections, I analyse whether the women in the treated cohorts gain access to more resources due to their higher education that they use to increase expenditure on their children. In order to do so, I look at the labor market channel which could lead to a direct increase the resources available to these women and the marriage market channel which could lead to indirect increase in their resources through their spouse.

5.1   Labour Market Channel

The mothers exposed to the education reform in 1947 could spend more on their children because they may be able to generate higher labor market returns. Figure 3 shows that the labor market income does not jump for mothers born after 1934. I also deflate the income by Retail Price index to account for changes in purchasing power across years. The graph shows no significant jump in the labor market earnings of the women subject to RoSLA 1947.

Table 9.3 presents the parametric estimates for the labor market participation of women belonging to the pre-RoSLA and post-RoSLA cohorts. I report the results for higher order polynomials only. I find that the Labor Force Participation Rate is not significantly different between these two groups. The same result holds for the women who are salaried(Column(3) and (4)) and those who are self-employed (Column(5) and (6)). These results apply to lower order polynomials as well. All the regressions include a quartic in age which controls for the life-cycle differences in the earning patterns of individuals. Overall, there is no significant difference in the the Labour Force Participation between women in the pre-RoSLA and post-RoSLA cohorts.

Next, I analyze if the labor market income is different between these two groups. I regress the earnings per week of the salaried employees (Panel A, Table 9.4) and earnings per week of the salaried and the self-employed on Treatment (Panel B, Table 9.4). The mothers born in the post-RoSLA cohorts may be able to earn more in the labor market due to higher number of years of education. I find that there is no difference in the earnings of the pre-RoSLA and post-RoSLA mothers. The coefficient on Treatment is positive and significant in Column(1) of these tables. However, the result does not hold for

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higher order polynomials. Thus, there is not enough evidence that the post-RoSLA mothers earn more than the previous cohorts. This result is in tandem with no visible difference in the labor market participation rate between the two groups. Other papers that have analysed RoSLA 1947 have also found zero returns to women in the labour market (see Devereux and Hart (2010); Grenet(2011)). These results suggest that the increase in expenditure on child clothing is not a function of higher income of mothers belonging to the post-RoSLA cohorts.

5.2   Marriage Market Channel

The women in the post-RoSLA cohorts can spend more on their children by marrying men with better access to resources. Assortative matching can happen in two ways- the women can either match on the qualification level of the spouse as it is an indicator of higher earnings or they can match at the level of earnings of men. I analyse if the 1947 RoSLA policy resulted in assortative matching on income or education. I then investigate if assortative matching was beneficial for the children.

In Table 9.5, I look at the age gap between the spouses and the probability of marrying men belonging to the post-RoSLA cohorts. Usually the positive age gap between husband and wife is seen as a function of the difference in their fecund periods. Females have shorter fecund periods than males (see Diaz-Gimenez and Giolito (2013)). Anderberg et al use the 1972 RoSLA policy and find that there was a temporary imbalance in the marriage market following the compulsory schooling law. They compare the age gap density for each cohort and find that it decreases around the RoSLA threshold. They conclude that women tend to marry younger men which indicates that education is valued in the marriage market. Thus, any change in the age gap

distribution around the discontinuity should result only when the quality of the spouse improves.

I report the results for non-parametric regression in Table 9.5. This is because the probability of marrying men from the post-RoSLA cohorts should change only for the mothers who are born close to the threshold. The parametric estimates are reported in the Appendix (Table A.4). Table 9.5 reports that the age gap between the husband and wife did not change significantly (Column(1) and (2)). However, the women exposed to the reform were 24 per cent more likely to marry men in the post-RoSLA cohorts (Column(3) and Column(4)). This implies that women in the post-RoSLA cohorts were matching with husbands who have higher number of years of education on average. The women at the threshold were matching assortatively on the level of education.

As the data on the umber of years of education is not available in the Family Expenditure Survey, the above result gives rise to many further questions. Are there any benefits of marrying men who were exposed to the 1947 reform? Is assortative matching on education generating any benefits for the children of the household because fathers and mothers share similar preferences? To answer these questions, I analyse if there are any differential benefits to the post-RoSLA mothers of marrying men who belong to the post-RoSLA cohorts. Table 9.6 shows that the mother's expenditure on child clothing is not affected by the treatment status of the father. In Column(1), I regress expenditure on child clothing by mothers on the treatment status of their spouse. The coefficient is not significant. In Column(2), I include the treatment status of the mother and in Column(3), I interact the treatment status of the mother with the treatment status of the father to see if the expenditure on the child

increases if both the parents belong to the post-RoSLA cohorts. In all the specifications, the coefficient on on the treatment status of the father and the interaction term is not significant. The coefficient on treatment status of the mothers is positive and significant. Thus, the treatment status of the father is not a significant predictor of expenditure on child clothing by mothers. It might be the case that the treatment status of the father affects the household expenditure on children instead of the mother's expenditure on children. In the appendix, I regress the household expenditure on child clothing on the treatment status of the father and find no significant effect (Table A.5).

The next question that arises is whether the women in the treated cohorts are matching assortatively on the earnings of men and if higher male earnings result in more expenditure on children by these women. I regress the earnings per week of men on the treatment status of women (Table 9.7). I also include a quadratic in age of the men to account for life-cycle patterns in earnings. In Column(1), the coefficient on Treatment is positive and significant implying that the women in the post-RoSLA cohorts matched assortatively on income. However, this result does not hold for quadratic or higher order polynomials in Columns(2)-(4). Thus, I do not find robust evidence of assortative matching on income. The graphical analysis is presented in Figure 5. It reports the same finding.

Even under the assumption that the husbands of the post-RoSLA mothers earn more, Table 9.8 shows that the earnings of their husbands is not a significant determinant of expenditure on child clothing. In Columns(1)-(3) of Table 9.8, I regress the expenditure on clothing on income of the spouse. The coefficient on income of the fathers is positive and significant. However, the coefficient is not economically significant. If the income of the husband

increases by 1 pound per week then the expenditure on child clothing would increase by 0.3 percent. Moreover, the coefficient loses significance once I add the interaction between the treatment status of the mothers and the income of the fathers. This term is added to check if the increase in expenditure is a function of the treatment status of the mothers instead of the income of the fathers.The coefficient on this interaction is positive and significant and similar to the coefficient on income of fathers in the earlier regressions. In the Appendix, Table A.7 shows that the male earnings do not affect even the household expenditure on child clothing.

Although, the husband's earnings do not matter, an interesting observation arises from Column(4)-(6) of Table 9.8. In these columns, I include an interaction term between the treatment status of the mother and the earnings of the father. I find that if the wife is treated then she is able to divert more resources to her children irrespective of the income of the father. Although this accounts for only 0.5 percent increase in the expenditure on child clothing, this result does point to a story of higher bargaining power of the post-RoSLA mothers. The mothers belonging to the post-RoSLA cohorts are able to extract more resources from their partners compared to mothers in the pre-RoSLA cohort.

I test the bargaining power theory more formally in the next subsection.

5.3   Education and Empowerment

In the above sections, I tested the labor market channel and the marriage market channel to analyze if education affects the resources available to the post-RoSLA women which they use to increase their expenditure on their children. I found that the labor force participation rate and the labor market

income is not different between the post-RoSLA and the pre-RoSLA mothers. Also, I found no marriage market effects that lead to a significant gain in the resources available to these women. The last channel I test in this paper is the bargaining power channel. I use a Difference-in-Discontinuities approach to test if women belonging to the post-RoSLA cohorts had more intra-household bargaining power compared to women belonging to the pre-RoSLA cohorts.

Since the earned income is not a good indicator for testing the bargaining power of individuals (Lundberg et al(1997); Duflo (2003)), I look at a policy that changed the unearned income of women. Most of the unearned income under the Child Benefit and Family Tax Allowance was passed on to the head of the household prior to 1977 who was primarily the father. Post 1979 the mothers became the sole recipients of the cash transfer. This led to a huge increase in their unearned income. Once the mothers became the recipients of the cash transfer, higher intra- household bargaining power could have resulted in two different scenarios. First, if the mothers with higher bargaining power were close to their satiation point prior to this policy then it should have had no effect on their expenditure patterns. Second, if they were not close to their satiation point then the mothers with higher intra-household bargaining power should have spent significantly more than the mothers with lower bargaining power. As satiation point is hard to achieve in practice, I expect that the women with higher bargaining power would have spent significantly more than mothers with lower bargaining power once the cash transfer accrues to them. If I hypothesize that education affects the bargaining power of women then the mothers subject to the compulsory education reform should have higher bargaining power. This implies that the change in their expenditure should be higher than mothers born in the pre-RoSLA cohorts post the policy shift in 1979. To test this hypothesis, I interact the treatment

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status of the mothers with the years in which the transfer was given to the mothers(1980-83) instead of the fathers (1973-76). I expect the coefficient on the interaction term to be positive and significant.

Table 9.9 reports the regression results for equation (2). Column(1) regresses expenditure per child on $Post1979$ which takes the value of 1 for years from 1980 to 1983. The coefficient on $Post1979$ is positive and highly significant implying that the change in the transfer policy significantly increased the expenditure by mothers on the clothing of their children. The expenditure by mothers increases by 86 percent once the cash transfer accrues to them. However, in Column(2), once I add the treatment status of the mother and the interaction term, the coefficient of $Post1979$ becomes insignificant. The coefficient on the interaction term is positive and significant which means that the expenditure increased post the policy reform only for women who were in the treated cohort. In Column(3), I add the second order polynomial in cohort with the interaction term. The results remain the same. The coefficient on $Post1979$ is not significant which implies that the policy change only benefited the women in the post-RoSLA cohorts. These regressions do not include a quartic polynomial in the age of the mothers as controlling for the year fixed effects would bias the results in this specification once I add $Post1979$. Columns(4)and (5) estimate the same equation for higher order polynomials proving the robustness of this finding.

One can argue that the increase in the bargaining power of women was a function of a change in their resources rather than a change in their education. However, if that was the case than the coefficient on $Post1979$ should have been positive and significant for all the women and not just the women in the treated cohorts. Moreover, I find no labor market or marriage market effects.

Therefore, there is no evidence of direct or indirect increase in the resources of the post-RoSLA women compared to the pre-RoSLA women. Yet their expenditure on children was higher in both the periods before and after the cash transfer policy. This is because the women in the post-RoSLA cohorts enjoy higher bargaining power than the women in the pre-RoSLA cohorts.

I also estimate equation(2) non-parametrically using the optimal bandwidth chosen according to the Imbens Kalyanaraman method. The results shown are shown in Table 9.10 confirm the same findings. The discussion follows.

6   Discussion

In this paper, I find that the expenditure on child clothing is higher for women who belong to the post-RoSLA cohorts compared to the women who belong to the pre-RoSLA cohorts. These women were exposed to the compulsory raising of school leaving age in 1947 which increased the school leaving age from 14 to 15 years. The probability that these women had higher number of years of education compared to the women born in previous cohorts jumped at the threshold by 25 per cent. This difference in the years of education is the main reason for the observed differences in their expenditure patterns. I analyse three different channels to see how increasing education can increase expenditure on children. The women in the post-RoSLA cohorts might be earning more in the labour market because of higher number of years of education. Therefore, I test if there is any difference in the labour market participation or the labor market earnings of these two groups. I find that the labour market earnings for the women in the post-RoSLA cohorts is not significantly different compared to those in the pre-RoSLA cohort. Thus, the labour market does not lead to an increase in the resources of these women

which they spend on their children. The second explanation is that they might have matched assortatively on education or income of men and hence had more resources to spend on their children. I find evidence that post-RoSLA women tend to marry men from the post-RoSLA cohorts. However, the expenditure on children does not depend on whether the father belongs to the post-RoSLA cohorts. It is only affected by the treatment status of the mother. Moreover, I find no evidence of assortative matching on the income of spouse. Thus, I find no evidence of increase in resources available to the post-RoSLA mothers through the labor market or the marriage market channel.

Finally, I test the theory that the bargaining power of the more educated cohorts is higher within the household compared to women in the pre-RoSLA cohorts. I specify a Difference-in-Discontinuities model and find evidence for the bargaining power channel. The women from the post-RoSLA cohorts have greater control over household resources compared to women in the pre-RoSLA cohorts. They were able to divert their cash transfer to increase expenditure on their children while the women in the pre-RoSLA cohorts were not able to do so. This is an important result. Till now, most research papers have focused on the link between resources controlled by an individual and his/her bargaining power within the household. By making use of an education reform and a Difference-in-Discontinuities design, this paper establishes the link between education and empowerment. The resource channels that can affect bargaining power of an individual via education are mute for RoSLA 1947. I find no evidence of education affecting expenditure through the labor market or the marriage market route. Therefore, education leads to empowerment of women within their households. This result is important because many developing nations focus on women's education who may or may not achieve improvements on the labor market or marriage market

front. Even then the inter-generational effects of education are persistent.

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8   Graphs

Figure 1: Proportion of Women Leaving School before Age 15
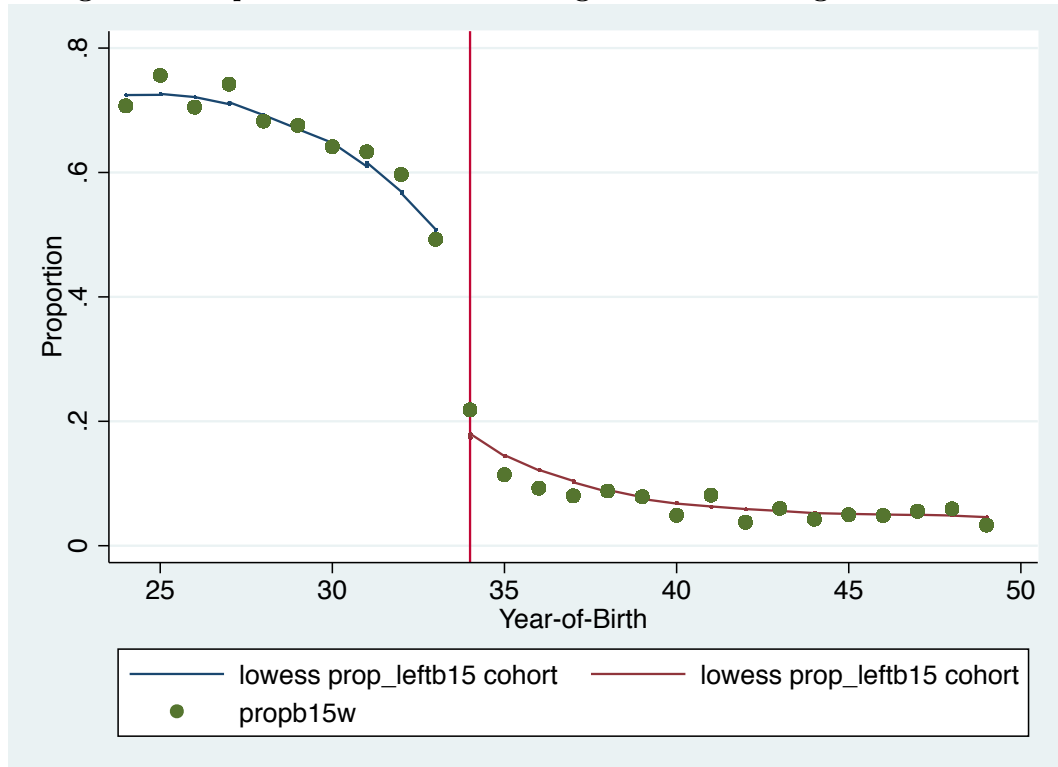
Source: General Household Survey (1973-76). The cut-off point is 1934. The sample consists of married women. The graph shows the proportion of women who left school before they were 15 years of age.

Figure 1A: Proportion of Women Staying in School after Age 16
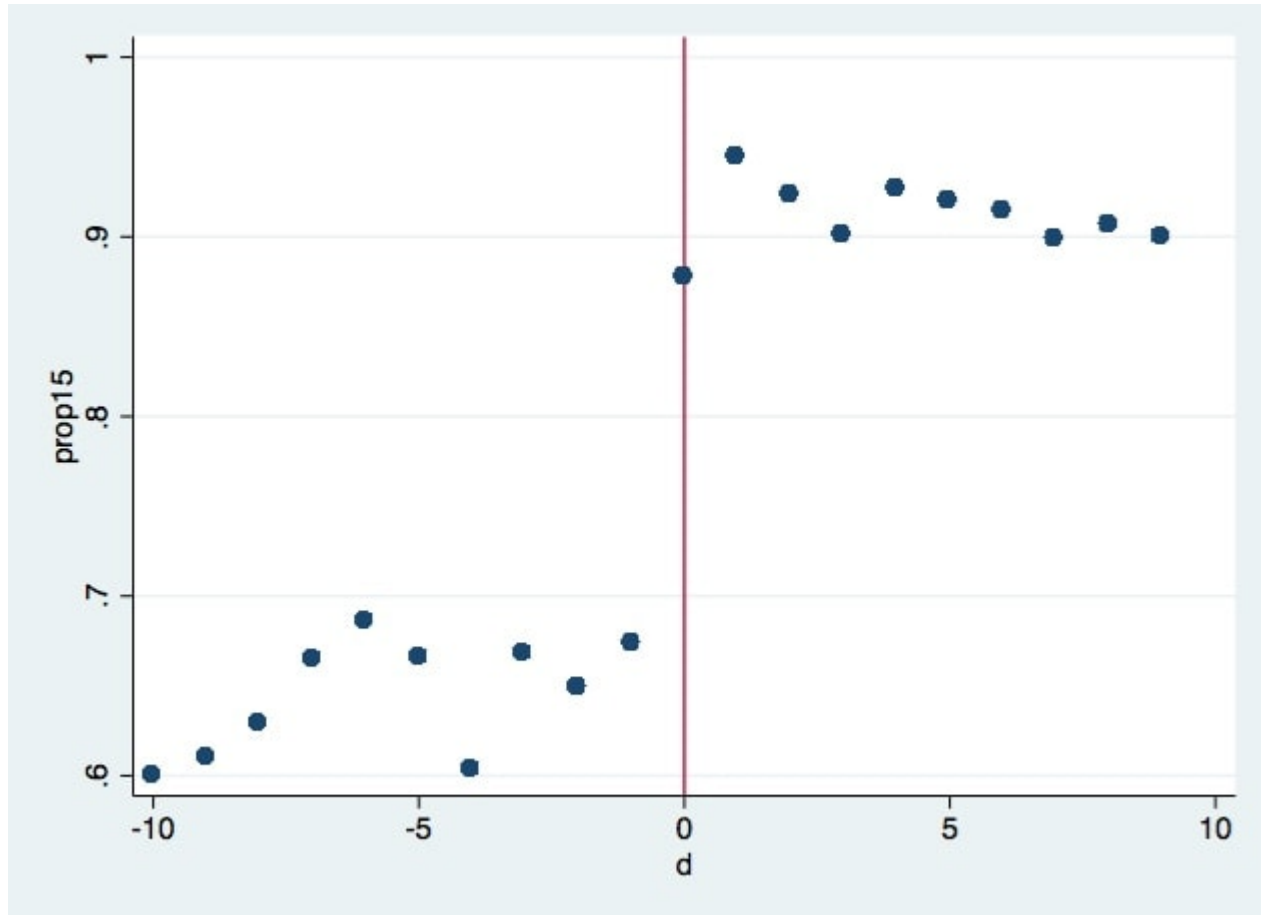
Source: Family Expenditure Survey (1988-93). The cutoff point is 1958. The sample consists of married women. The graph shows the proportion of women who stayed school after they were 15 years of age.

Figure 2 : Children's Clothing Expenditure by Mothers (in pounds)
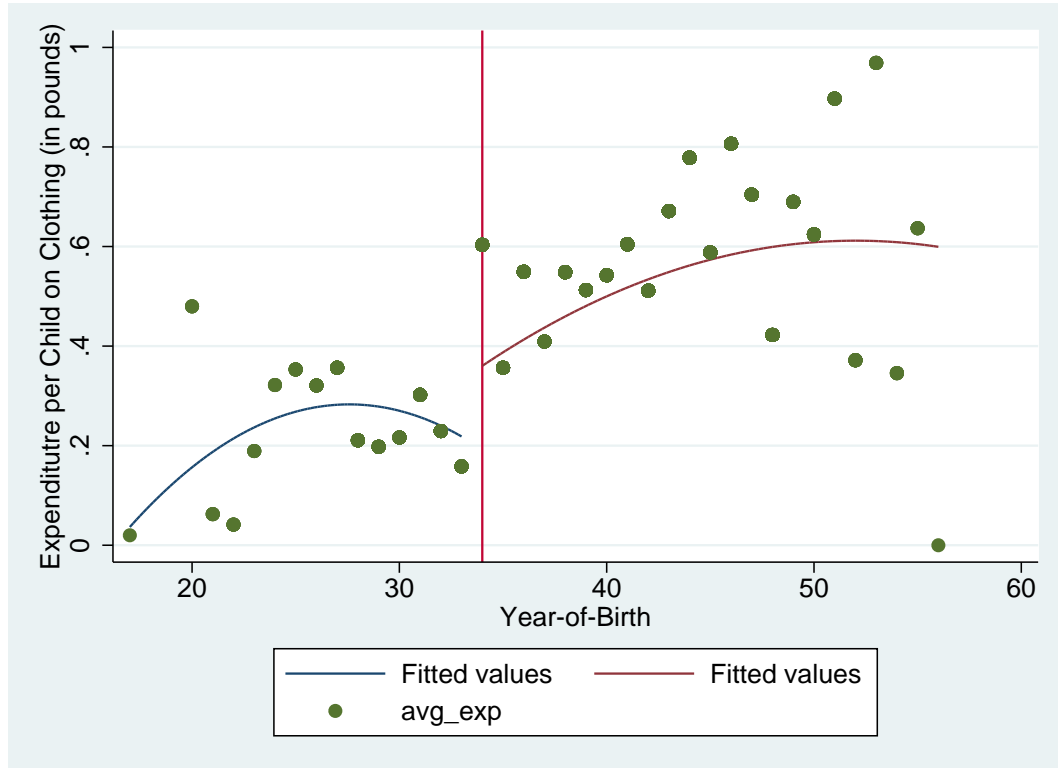
Source: Family Expenditure Survey (1973-76; 1980-83). The cut-off point is 1934. The sample consists of married women born between 1917 to 1956 with two children in the age group of 5-15 years. The graph plots the quadratic regression of mother's expenditure on child clothing on their year-of-birth.

Figure 3 :Labour Market Income of Women
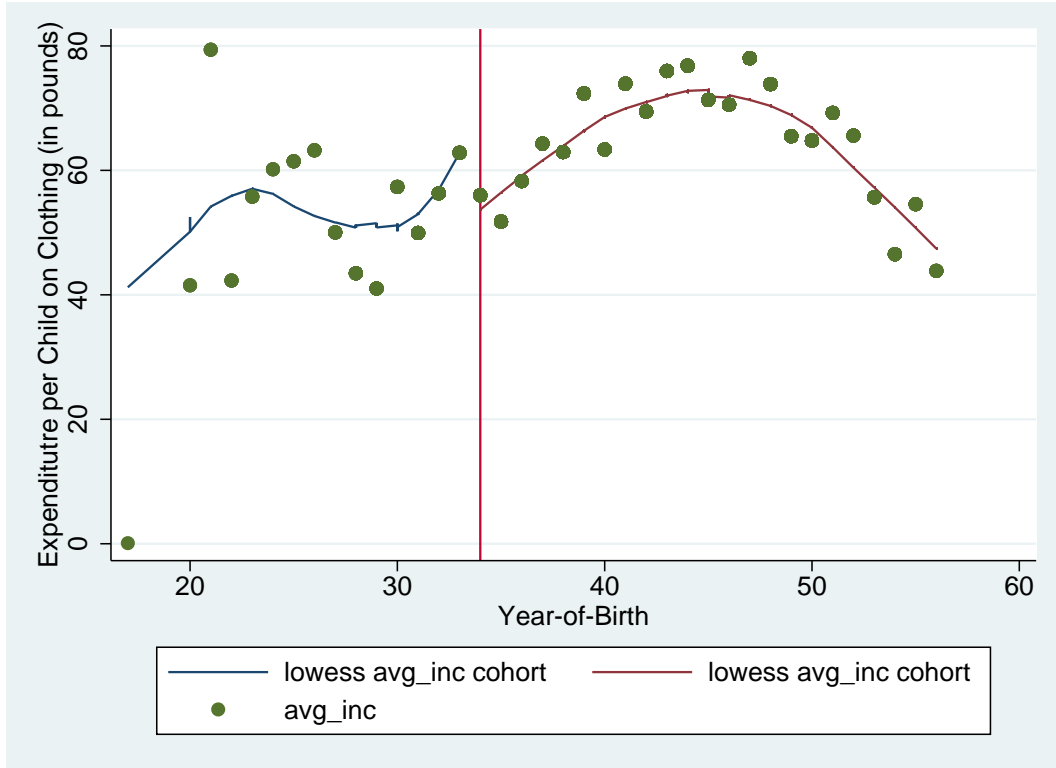
Source: Family Expenditure Survey (1973-76; 1980-83). The cut-off point is 1934. The sample consists of married women born between 1917 to 1956 with two children in the age group of 5-15 years. The graph plots the quadratic regression of weekly earnings of women on year-of-birth.

Figure 4 :Labour Market Income of Women Deflated by Retail Price
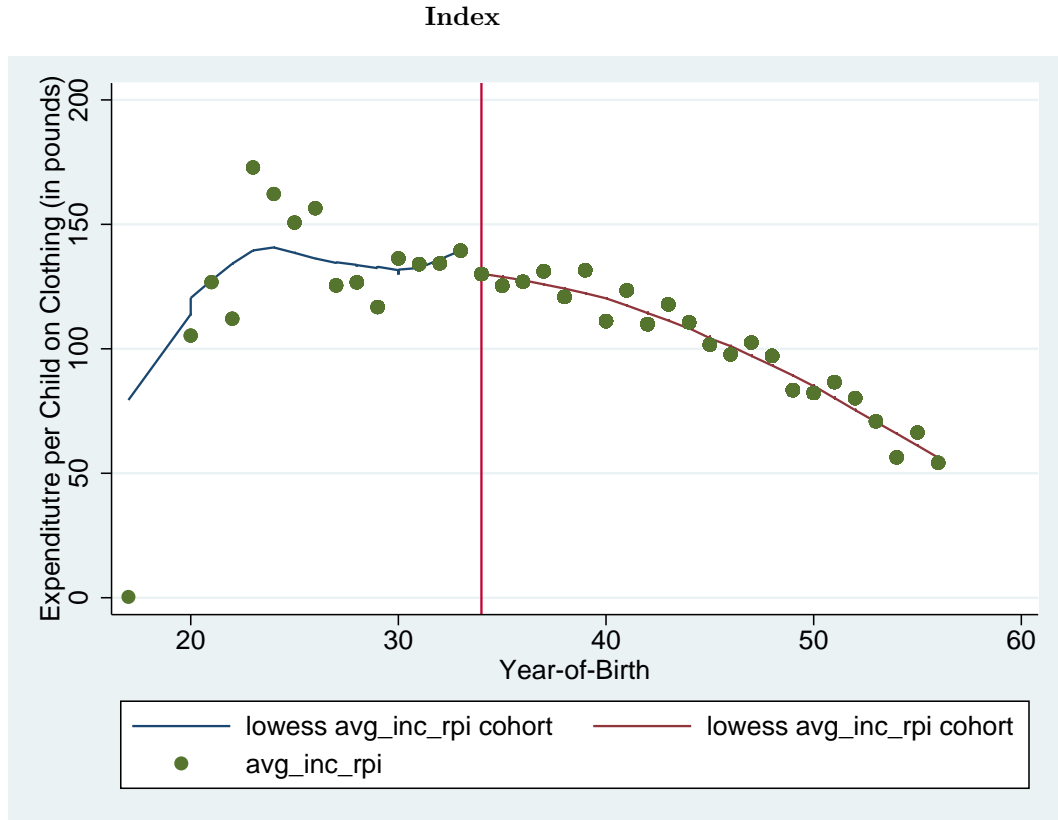
Index

Source: Family Expenditure Survey (1973-76; 1980-83). The cut-off point is
1934. The sample consists of married women born between 1917 to 1956 with
two children in the age group of 5-15 years. The graph plots the quadratic
regression of weekly earnings of women deflated by RPI on year-of-birth.

Figure 5:Labour Market Income of the Spouse
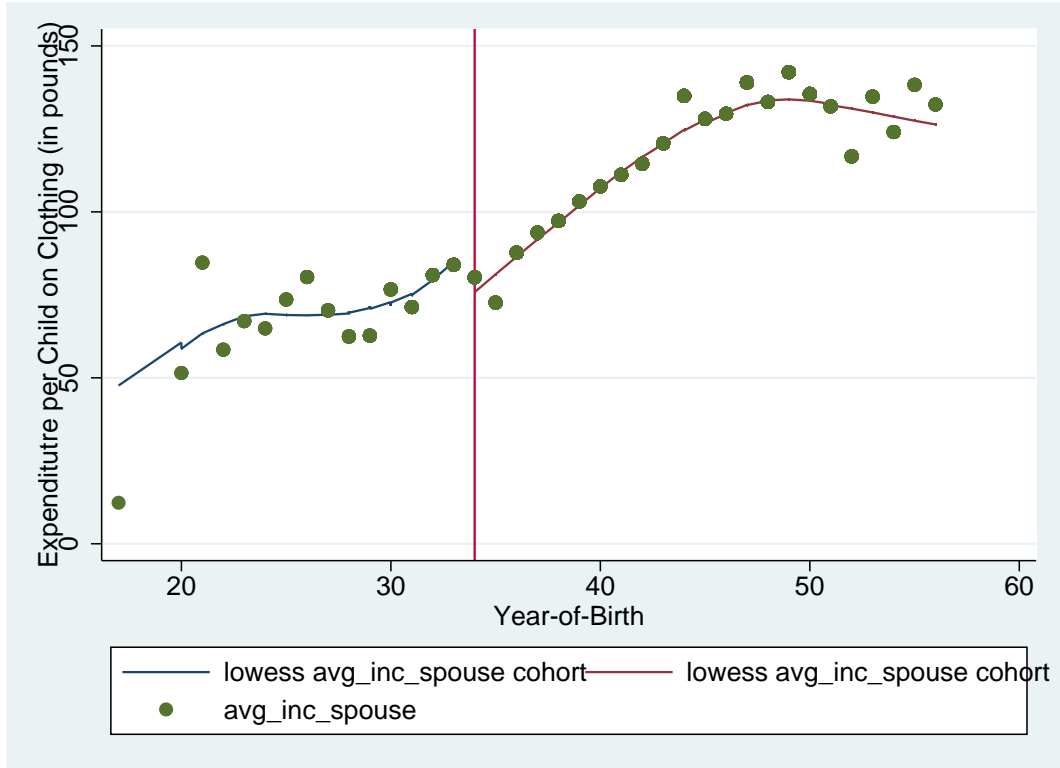
Source: Family Expenditure Survey (1973-76; 1980-83). The cut-off point is
1934. The sample consists of spouses of married women born between 1917 to
1956 with two children in the age group of 5-15 years. The graph plots the
quadratic regression of weekly earnings of spouses on year-of-birth of the
mothers.

9 Regression Tables

Table 9.1: Reduced Form Effect of RoSLA 1947 on Expenditure on Clothing

|	(1)	(2)	(3)	(4)
Panel A: Normal Sample				
Treatment	0.226***	0.183**	0.256**	0.320**
	(0.075)	(0.085)	(0.102)	(0.152)
N	3400	3400	3400	3400
Mean of Dependent Variable	0.511	0.511	0.511	0.511
Panel B : Birth Cohorts from 1921 to 1951				
Treatment	0.202***	0.234***	0.229*	0.396**
	(0.074)	(0.088)	(0.119)	(0.186)
N	3234	3234	3234	3234
Mean of Dependent Variable	0.510	0.510	0.510	0.510
Panel C: Including Single Mothers				
Treatment	0.180**	0.215**	0.253**	0.328**
	(0.075)	(0.087)	(0.114)	(0.163)
N	3702	3702	3702	3702
Mean of Dependent Variable	0.508	0.508		0.508
Polynomial Degree	1	2	3	4
Age Controls	Quartic	Quartic	Quartic	Quartic

Data Source: Family Expenditure Survey (1973-76 1980-83). The dependent variable is Expenditure on Child Clothing per week (in pounds). Assignment variable is year-of-birth. Treatment=1 for mothers born in or after 1934. Treatment=0 for mothers born in or before 1933.
Panel A: The regression includes all mothers born between 1917 to 1956, who are currently married and have two children in the age group of 5-15 years.
Panel B: The regression includes all mothers born between 1921 to 1951, who are currently married and have two children in the age group of 5-15 years.
Panel C: The marital status is not restricted to mothers who are currently married. Single mothers and separated mothers are included in this specification.
Year fixed effects are included in all specifications. Robust standard errors in parenthesis. Significance levels: * p<0.1, ** p<0.05, *** p<0.01

Table 9.2: Reduced Form Effect of RoSLA 1947 on Expenditure on Clothing

	(1)	(2)	(3)	(4)
Panel A: Children between 10-15 years				
Treatment	0.385***	0.347***	0.309**	0.200
	(0.109)	(0.126)	(0.150)	(0.195)
N	1178	1178	1178	1178
Mean of Dependent Variable	0.597	0.597	0.597	0.597
Panel B: Children between 12-17 years				
Treatment	0.193**	0.156*	0.229*	0.139
	(0.082)	(0.091)	(0.117)	(0.155)
N	1129	1129	1129	1129
Mean of Dependent Variable	0.432	0.432	0.432	0.432
Panel C: Children between 12-15 years				
Treatment	0.564***	0.500***	0.664***	0.598**
	(0.160)	(0.167)	(0.201)	(0.262)
N	494	494	494	494
Mean of Dependent Variable	0.601	0.601	0.601	0.601
Panel D: Children between 8-15 years				
Treatment	0.302***	0.289***	0.332***	0.382**
	(0.087)	(0.099)	(0.117)	(0.171)
N	2005	2005	2005	2005
Mean of Dependent Variable	0.548	0.548	0.548	0.548
Polynomial Degree	1	2	3	4
Age Controls	Quartic	Quartic	Quartic	Quartic

Note: Data Source: Family Expenditure Survey (1973-76 1980-83).Assignment variable is year-of-birth. Treatment=1 for mothers born in or after 1934. Treatment=0 for mothers born in or before 1933. The regression includes all mothers born between 1917 to 1956, who have two children in the age groups mentioned in the Panels. Year fixed effects are included in all specifications. Robust standard errors in parenthesis. Significance levels: * $p<0.1$, ** $p<0.05$, *** $p<0.01$

Table 9.3: Reduced Form Effect of RoSLA 1947 on Labor Force Participation

	LFPR		Employee		Self-Employed	
	(1)	(2)	(3)	(4)	(5)	(6)
Treatment	0.037	-0.026	-0.008	-0.089	0.038	0.139
	(0.101)	(0.146)	(0.079)	(0.119)	(0.084)	(0.127)
N	3400	3400	2478	2478	2478	2478
Mean of Dependent Variable	0.729	0.729	0.094		0.881	0.881
Polynomial Degree	3	4	3	4	3	4
Age Controls	Quartic	Quartic	Quartic	Quartic	Quartic	Quartic

Note: Data Source: Family Expenditure Survey (1973-76 1980-83).Assignment variable is year-of-birth. Treatment=1 for mothers born in or after 1934. Treatment=0 for mothers born in or before 1933.

The regression includes all mothers born between 1917 to 1956, who are currently married and have two children in the age group of 5-15 years. The marital status is not restricted to mothers who are currently married.

Year fixed effects are included in all specifications. Robust standard errors in parenthesis.

Significance levels: * $p<0.1$, ** $p<0.05$, *** $p<0.01$

Table 9.4: Reduced Form Effect of RoSLA 1947 on Labour Market Returns

	(1)	(2)	(3)	(4)
Panel A: Income of Salaried Employees				
Treatment	4.603*	-0.396	-1.992	-1.452
	(2.507)	(3.437)	(4.980)	(7.504)
N	3239	3239	3239	3239
Mean of Dependent Variable	22.020	22.020	22.020	22.020
Panel B: Income of Salaried and Self-Employed				
Treatment	4.647*	-1.166	-2.645	-1.229
	(2.523)	(3.488)	(5.007)	(7.510)
N	3400	3400	3400	3400
Mean of Dependent Variable	22.343	22.343	22.343	22.343
Polynomial Degree	1	2	3	4
Age Controls	Quartic	Quartic	Quartic	Quartic

Note: Data Source: Family Expenditure Survey (1973-76 1980-83).Assignment variable is year-of-birth. Treatment=1 for mothers born in or after 1934. Treatment=0 for mothers born in or before 1933.

The regression includes all mothers born between 1917 to 1956, who are currently married and have two children in the age group of 5-15 years.

Year fixed effects are included in all specifications. Robust standard errors in parenthesis.

Significance levels: * $p<0.1$, ** $p<0.05$, *** $p<0.01$

Table 9.5: Reduced Form Effect of RoSLA 1947 on Age Gap

	(1)	(2)	(3)	(4)	
Treatment	-0.354	-0.647	0.242*	0.245*	
	(0.862)	(1.864)	(0.130)	(0.132)	
N	728.000	728.000	389.000	389.000	height
Mean of Dependent Variable	2.113	2.113	0.411	0.411	
Polynomial Degree	1	2	1	2	
Age Controls	Quartic	Quartic	Quartic	Quartic height	

Note: Data Source: Family Expenditure Survey (1973-76 1980-83).Assignment variable is year-of-birth. Treatment=1 for mothers born in or after 1934. Treatment=0 for mothers born in or before 1933. The regression includes all mothers born between 1917 to 1956, who are currently married and have two children in the age group of 5-15 years.

Year fixed effects are included in all specifications. Robust standard errors in parenthesis.

Significance levels: * p<0.1, ** p<0.05, *** p<0.01

Table 9.6: Does the Expenditure on Clothing Increase if Husband is from Treated Cohorts?

	Expenditure on Clothing					
	(1)	(2)	(3)	(4)	(5)	(6)
Husband is Treated	0.075	0.043	0.013	0.013	0.018	0.017
	(0.050)	(0.049)	(0.094)	(0.095)	(0.094)	(0.094)
Treatment		0.206***	0.199**	0.174*	0.249**	0.312**
		(0.075)	(0.081)	(0.093)	(0.106)	(0.150)
Both are Treated				0.033	0.014	0.017	0.015
				(0.109)	(0.111)	(0.110)	(0.110)
N	3400	3400	3400	3400	3400	3400
Mean of Dependent Variable	0.511	0.511	0.511	0.511	0.511	0.511
Polynomial Degree			1	1	2	3	4
Age Controls	Quartic	Quartic	Quartic	Quartic	Quartic	Quartic

Note: Data Source: Family Expenditure Survey (1973-76 1980-83).Assignment variable is year-of-birth. Treatment=1 for mothers born in or after 1934. Treatment=0 for mothers born in or before 1933.
The regression includes all mothers born between 1917 to 1956, who are currently married and have two children in the age group of 5-15 years.
Year fixed effects are included in all specifications. Robust standard errors in parenthesis.
Significance levels: * p<0.1, ** p<0.05, *** p<0.01

Table 9.7: Assorttaive Matching on Income

| | Income of the Husband | | | |
	(1)	(2)	(3)	(4)
Treatment	11.731**	-9.884	-9.770	-15.470
	(5.637)	(7.079)	(9.654)	(14.700)
N	3400	3400	3400	3400
Mean of Dependent Variable	110.557	110.557	110.557	110.557
Polynomial Degree	1	2	3	4
Age Controls	Quartic	Quartic	Quartic	Quartic
Age Controls for Men	Quadratic	Quadratic	Quadratic	Quadratic

Note: Data Source: Family Expenditure Survey (1973-76 1980-83).Assignment variable is year-of-birth. Treatment=1 for mothers born in or after 1934. Treatment=0 for mothers born in or before 1933.

The regression includes all mothers born between 1917 to 1956, who are currently married and have two children in the age group of 5-15 years.

Year fixed effects are included in all specifications. Robust standard errors in parenthesis.

Significance levels: * $p<0.1$, ** $p<0.05$, *** $p<0.01$

Table 9.8: Do Earnings of the Husband Matter?

	Expenditure on Clothing					
	(1)	(2)	(3)	(4)	(5)	(6)
Earnings per Week(Men)	0.002***	0.002***	0.002***	-0.000	-0.001	-0.001
	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)
Treatment		0.278***	0.351**		0.053	0.103
		(0.105)	(0.157)		(0.116)	(0.176)
Treated Women*Earnings(Men)				0.003***	0.003***	0.003***
				(0.001)	(0.001)	(0.001)
N	3400	3400	3400	3400	3400	3400
Mean of Dependent Variable	0.511	0.511	0.511	0.511	0.511	0.511
Polynomial Degree		3	4		3	4
Age Controls	Quartic	Quartic	Quartic	Quartic	Quartic	Quartic

Note: Data Source: Family Expenditure Survey (1973-76 1980-83).Assignment variable is year-of-birth. Treatment=1 for mothers born in or after 1934. Treatment=0 for mothers born in or before 1933.
The regression includes all mothers born between 1917 to 1956, who are currently married and have two children in the age group of 5-15 years.
Year fixed effects are included in all specifications. Robust standard errors in parenthesis.
Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 9.9: Reduced Form Effect of 1947 RoSLA on Bargaining Power of Women

| | Expenditure on Clothing | | | | |
	(1)	(2)	(3)	(4)	(5)
Post 1979	0.437***	0.108	0.104	0.104	0.104
	(0.039)	(0.120)	(0.118)	(0.118)	(0.119)
Treatment		0.063	0.167*	0.199**	0.248*
		(0.061)	(0.086)	(0.100)	(0.147)
Treatment*Post 1979		0.529***	0.485**	0.557**	0.729**
		(0.153)	(0.209)	(0.274)	(0.314)
N	3400	3400	3400	3400	3400
Mean of Dependent Variable	0.511	0.511	0.511	0.511	0.511
Polynomial Degree		1	2	3	4
Age Controls	None	None	None	None	None

Note: Data Source: Family Expenditure Survey (1973-76 1980-83).Assignment variable is yer-of-birth. Treatment=1 for mothers born in or after 1934. Treatment=0 for mothers born in or before 1933.
The regression includes all mothers born between 1917 to 1956, who are currently married and have two children in the age group of 5-15 years.
Year fixed effects are included in all specifications. Robust standard errors in parenthesis.
Significance levels: * $p<0.1$, ** $p<0.05$, *** $p<0.01$

Table 9.10: Non-Parametric Estimation of the Effect of 1947 RoSLA on Bargaining Power of Women

	Expenditure on Clothing				
	(1)	(2)	(3)	(4)	(5)
Post 1979	0.609***	-0.002	-0.002	-0.002	-0.002
	(0.179)	(0.109)	(0.109)	(0.109)	(0.109)
Treatment		0.323**	0.394	0.899**	0.899**
		(0.134)	(0.304)	(0.393)	(0.393)
Treatment*Post 1979		0.629**	0.573*	0.580*	0.580*
		(0.293)	(0.296)	(0.299)	(0.299)
N	560	560	560	560	560
Mean of Dependent Variable	0.387	0.387	0.387	0.387	0.387
Polynomial Degree		1	2	3	4
Age Controls	None	None	None	None	None

Note: Data Source: Family Expenditure Survey (1973-76 1980-83).Assignment variable is yer-of-birth. Treatment=1 for mothers born in or after 1934. Treatment=0 for mothers born in or before 1933. The regression includes all mothers born between 1931 to 1937, who are currently married and have two children in the age group of 5-15 years. The optimal IK bandwidth is 7. Year fixed effects are included in all specifications. Robust standard errors in parenthesis. Significance levels: * p<0.1, ** p<0.05, *** p<0.01

A   Appendix

Table A.1: Reduced Form Effect of RoSLA 1947 on Expenditure on Clothing (in logs)

| | Expenditure on Clothing (in logs) | | | |
	(1)	(2)	(3)	(4)
Panel A: Normal Sample				
Treatment	0.449**	0.667**	0.580	0.974*
	(0.206)	(0.291)	(0.399)	(0.589)
N	1767	1767	1767	1767
Panel B: Cohorts from 1921 to 1951				
Treatment	0.418**	0.727**	0.627	0.910
	(0.209)	(0.310)	(0.474)	(0.719)
N	1684	1684	1684	1684
Panel C: Includes Single Mothers				
Treatment	0.359*	0.710**	0.568	0.937
	(0.201)	(0.287)	(0.396)	(0.584)
N	1905	1905	1905	1905
Mean of Dependent Variable				
Polynomial Degree	1	2	3	4
Age Controls	Quartic	Quartic	Quartic	Quartic

Data Source: Family Expenditure Survey (1973-76 1980-83). The dependent variable is Expenditure on Child Clothing per week (in logs). Assignment variable is year-of-birth. Treatment=1 for mothers born in or after 1934. Treatment=0 for mothers born in or before 1933.
Panel A: The regression includes all mothers born between 1917 to 1956, who are currently married and have two children in the age group of 5-15 years.
Panel B: The regression includes all mothers born between 1921 to 1951, who are currently married and have two children in the age group of 5-15 years.
Panel C: The marital status is not restricted to mothers who are currently married. Single mothers and separated mothers are included in this specification.
Year fixed effects are included in all specifications. Robust standard errors in parenthesis. Significance levels: * p<0.1, ** p<0.05, *** p<0.01

Table A.2: Labour Market Income for Salaried (Deflated by RPI)?

	Income Deflated by RPI			
	(1)	(2)	(3)	(4)
Treatment	6.228	3.064	-1.611	1.871
	(5.286)	(7.860)	(11.517)	(17.346)
N	3239	3239	3239	3239
Mean of Dependent Variable	37.543	37.543	37.543	37.543
Polynomial Degree	1	2	3	4
Age Controls	Quartic	Quartic	Quartic	Quartic
Age Controls for Men	Quadratic	Quadratic	Quadratic	Quadratic

Note: Data Source: Family Expenditure Survey (1973-76 1980-83).Assignment variable is year-of-birth. Treatment=1 for mothers born in or after 1934. Treatment=0 for mothers born in or before 1933.
The regression includes all mothers born between 1917 to 1956, who are currently married and have two children in the age group of 5-15 years.
Year fixed effects are included in all specifications. Robust standard errors in parenthesis.
Significance levels: * $p<0.1$, ** $p<0.05$, *** $p<0.01$

Table A.3: Labour Market Income for Salaried and Self-Employed (Deflated by RPI)?

	Income for Salaried and Self-Employed Deflated by RPI			
	(1)	(2)	(3)	(4)
Treatment	3.621	-0.944	-4.557	3.354
	(5.506)	(8.121)	(11.605)	(17.160)
N	3400	3400	3400	3400
Mean of Dependent Variable	37.999	37.999	37.999	37.999
Polynomial Degree	1	2	3	4
Age Controls	Quartic	Quartic	Quartic	Quartic
Age Controls for Men	Quadratic	Quadratic	Quadratic	Quadratic

Note: Data Source: Family Expenditure Survey (1973-76 1980-83).Assignment variable is year-of-birth. Treatment=1 for mothers born in or after 1934. Treatment=0 for mothers born in or before 1933.
The regression includes all mothers born between 1917 to 1956, who are currently married and have two children in the age group of 5-15 years.
Year fixed effects are included in all specifications. Robust standard errors in parenthesis.
Significance levels: * $p<0.1$, ** $p<0.05$, *** $p<0.01$

Table A.4: Reduced Form Effect of RoSLA 1947 on Age Gap and Probability that Husband Belongs to the Treated Cohort

	Age Gap				Husband Belongs to Treated Cohort			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treatment	-0.848*	-0.773	0.206	-0.296	0.466***	0.231***	0.070	0.085
	(0.495)	(0.656)	(0.976)	(1.357)	(0.039)	(0.057)	(0.084)	(0.114)
N	3400	3400	3400	3400	3400	3400	3400	3400
Mean of Dep. Variable	2.546	2.546	2.546	2.546	0.818	0.818	0.818	0.818
Polynomial Degree	1	2	3	4	1	2	3	4
Age Controls	Quartic	Quartic	Quartic	Quartic	Quartic	Quartic	Quartic	Quartic

Note: Data Source: Family Expenditure Survey (1973-76 1980-83).Assignment variable is year-of-birth. Treatment=1 for mothers born in or after 1934. Treatment=0 for mothers born in or before 1933.
The regression includes all mothers born between 1917 to 1956, who are currently married and have two children in the age group of 5-15 years.
Year fixed effects are included in all specifications. Robust standard errors in parenthesis.
Significance levels: * p<0.1, ** p<0.05, *** p<0.01

Table A.5: Does the Household Expenditure on Clothing Increase if Husband is from Treated Cohorts?

	(1)	(2)	(3)	(4)	(5)	(6)
Husband is Treated	0.031	-0.052	0.011	0.044	0.062	0.062
	(0.125)	(0.132)	(0.206)	(0.203)	(0.201)	(0.201)
Treatment		0.497***	0.511***	0.593***	0.784***	0.772**
		(0.177)	(0.197)	(0.221)	(0.258)	(0.327)
Both are Treated			-0.071	-0.164	-0.173	-0.174
			(0.253)	(0.257)	(0.257)	(0.257)
N	3400.000	3400.000	3400.000	3400.000	3400.000	3400.000
Mean of Dependent Variable	1.180	1.180	1.180	1.180	1.180	1.180
Polynomial Degree		1	1	2	3	4
Age Controls	Quartic	Quartic	Quartic	Quartic	Quartic	Quartic

Note: Data Source: Family Expenditure Survey (1973-76 1980-83).Assignment variable is year-of-birth. Treatment=1 for mothers born in or after 1934. Treatment=0 for mothers born in or before 1933.
The regression includes all mothers born between 1917 to 1956, who are currently married and have two children in the age group of 5-15 years.
Year fixed effects are included in all specifications. Robust standard errors in parenthesis.
Significance levels: * p<0.1, ** p<0.05, *** p<0.01

Table A.6: Assortative Matching on Income (Deflated by RPI)?

	Income of Husband Deflated by RPI			
	(1)	(2)	(3)	(4)
Treatment	2.304	-5.924	2.202	-7.346
	(11.409)	(15.275)	(21.695)	(33.308)
N	3400	3400	3400	3400
Mean of Dependent Variable	188.083	188.083	188.083	188.083
Polynomial Degree	1	2	3	4
Age Controls	Quartic	Quartic	Quartic	Quartic
Age Controls for Men	Quadratic	Quadratic	Quadratic	Quadratic

Note: Data Source: Family Expenditure Survey (1973-76 1980-83).Assignment variable is year-of-birth. Treatment=1 for mothers born in or after 1934. Treatment=0 for mothers born in or before 1933.
The regression includes all mothers born between 1917 to 1956, who are currently married and have two children in the age group of 5-15 years.
Year fixed effects are included in all specifications. Robust standard errors in parenthesis.
Significance levels: * p<0.1, ** p<0.05, *** p<0.01

Table A.7: Does Earning of the Husband Affect Household Expenditure on Child Clothing?

	Household Expenditure on Child Clothing					
	(1)	(2)	(3)	(4)	(5)	(6)
Earnings per Week(Men)	0.002***	0.000	0.002***	0.002***	0.001	0.001
	(0.000)	(0.001)	(0.000)	(0.000)	(0.001)	(0.001)
Treatment			0.388***	0.392**	0.232	0.221
			(0.129)	(0.170)	(0.161)	(0.196)
TreatedWomen*Earning(Men)		0.002**			0.002*	0.002*
		(0.001)			(0.001)	(0.001)
N	3400	3400	3400	3400	3400	3400
Mean of Dependent Variable	0.590	0.590	0.590	0.590	0.590	0.590
Polynomial Degree		3	4		3	4
Age Controls	Quartic	Quartic	Quartic	Quartic	Quartic	Quartic
Age Controls for Men	Quadratic	Quadratic	Quadratic	Quadratic	Quadratic	Quadratic

Note: Data Source: Family Expenditure Survey (1973-76 1980-83).Assignment variable is year-of-birth. Treatment=1 for mothers born in or after 1934. Treatment=0 for mothers born in or before 1933.
The regression includes all mothers born between 1917 to 1956, who are currently married and have two children in the age group of 5-15 years.
Year fixed effects are included in all specifications. Robust standard errors in parenthesis.
Significance levels: * p<0.1, ** p<0.05, *** p<0.01

Table A.8: Reduced Form Effect of RoSLA 1947 on Age Gap

	Household Income Deflated by RPI			
	(1)	(2)	(3)	(4)
Treatment	8.773	0.494	-11.831	-11.482
	(13.994)	(19.229)	(27.105)	(41.456)
N	3400.000	3400.000	3400.000	3400.000
Mean of Dependent Variable	255.861	255.861	255.861	255.861
Polynomial Degree	1	2	3	4
Age Controls	Quartic	Quartic	Quartic	Quartic

Note: Data Source: Family Expenditure Survey (1973-76 1980-83).Assignment variable is year-of-birth. Treatment=1 for mothers born in or after 1934. Treatment=0 for mothers born in or before 1933.
The regression includes all mothers born between 1917 to 1956, who are currently married and have two children in the age group of 5-15 years.
Year fixed effects are included in all specifications. Robust standard errors in parenthesis.
Significance levels: * p<0.1, ** p<0.05, *** p<0.01

Table A.9: Reduced Form Effect of 1947 RoSLA on Bargaining Power of Women

	Expenditure on Child Clothing (in logs)				
	(1)	(2)	(3)	(4)	(5)
Post 1979	0.918***	0.380	0.361	0.352	0.374
	(0.068)	(0.325)	(0.316)	(0.319)	(0.318)
Treatment		0.180	0.682**	0.433	0.874
		(0.210)	(0.300)	(0.407)	(0.591)
Treatment*Post 1979		0.678*	0.560	0.774*	0.802*
		(0.354)	(0.387)	(0.430)	(0.459)
N	1767	1767	1767	1767	1767
Mean of Dependent Variable	-0.685	-0.685	-0.685	-0.685	-0.685
Polynomial Degree		1	2	3	4
Age Controls	None	None	None	None	None

Note: Data Source: Family Expenditure Survey (1973-76 1980-83). Assignment variable is yer-of-birth. Treatment=1 for mothers born in or after 1934. Treatment=0 for mothers born in or before 1933.
The regression includes all mothers born between 1917 to 1956, who are currently married and have two children in the age group of 5-15 years.
Year fixed effects are included in all specifications. Robust standard errors in parenthesis.
Significance levels: * p<0.1, ** p<0.05, *** p<0.01