The Long Run Impact of Welfare

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Abstract: We estimate the long-run impact of means-tested cash transfers (welfare) on children's longevity, and on their educational attainment and income in adulthood. To do so, we collected individual-level administrative records of applicants to the Mothers' Pension program, the first government-sponsored welfare program in the US (1911-1935) and matched them to death certificates, WWII enlistment and 1940 Census records. The impact of the program is estimated by comparing male children of mothers who received transfers to those whose mothers applied for transfers at the same time and place but were denied. We find that boys of mothers who were accepted lived a year longer, received one-third more years of schooling, were less likely to be underweight, and had higher income in early adulthood as compared to boys whose mothers did not receive transfers.

One Sentence Summary: Boys of poor mothers who received welfare during the early part of the twentieth century lived longer and had higher education and income relative to boys whose mothers applied but were denied.

I. Introduction

More than one in five US children was living in poverty as recently as 2010 (*1*). A growing literature documents that early-life exposure to disease, nutritional deprivation and other factors can have adverse long-term effects on education, labor market outcomes, and ultimately, mortality (*2*). In the United States and elsewhere, welfare programs—broadly defined as cash transfers to poor families—were established primarily to help children. While parental income has been shown to be one of the strongest predictors of educational attainment (*3, 4*) and adulthood health (*5*), it is still not known whether cash transfers to poor families improve children's lifetime outcomes.

We answer the question of whether welfare improves children's long-run outcomes by studying the Mothers' Pension (MP) program - the first government sponsored welfare program for poor families with dependent children in the United States (1911-1935). The intent of the MP program was to improve the conditions of "young children that have become dependent through the loss or disability of the breadwinner" (*6*). The transfers generally represented 12-25% of family income, and typically lasted for 3 years. In 1935, the MP program was replaced by the federal Aid to Dependent Children (ADC, later Aid to Families with Dependent Children, and now TANF).

One of the main challenges in evaluating whether cash transfers (or any public program) improve outcomes is identifying a plausible counterfactual: what would children's lives have been like in the absence of receiving transfers? Our strategy is to use the children of mothers who applied for transfers but were denied as a comparison group. This strategy of comparing accepted and rejected applicants for program evaluation has been used successfully in studies of disability insurance (*7*). Its validity depends on the extent to which accepted and rejected mothers and their children differ on unobservable characteristics. We document that rejected mothers were on average slightly better-off based on observable characteristics at the time of application, consistent with the information in administrative records that applicants were most often rejected because they were deemed to be in less need of assistance. Under the assumption that accepted and rejected applicants are otherwise similar, the outcomes for boys of rejected mothers provide a best case scenario (upper bound) for what could be expected of beneficiaries in the absence of transfers. Thus our estimates are likely, if anything, to understate the benefits of the program. We also construct alternative counterfactual groups to examine the robustness of our findings.

The second challenge is to obtain data that includes both welfare receipt and long-term outcomes for a large sample of recipients and plausible comparison groups. Survey data have small samples of recipients and high attrition rates: for example, in the NLSY and PSID surveys, forty percent of children who received welfare are lost to follow-up after twenty years. Instead we collected individual-level data from administrative records on thousands of children whose mothers applied for MP benefits between 1911 and 1930 in 11 states. We matched these records to death certificates to determine the children's eventual age at death, and to WWII enlistment and 1940 census records to assess their education and other outcomes in young adulthood. Our analysis uses the population of boys (N~16,000) born between 1900 and 1925 living in counties that collected information on rejected applicants. Most members of these cohorts have died by 2012 (*9*), enabling us to evaluate the impact of the program on mortality and other lifetime outcomes (*10*). Our econometric methods explicitly account for attrition, and for measurement error in matching administrative databases.

We find that receiving cash transfers increased longevity by about a year. These results are very robust to alternative specifications and because income transfers were the *only* major public benefit that poor children were eligible for until 1950 (with the exception of public schooling), we can interpret our results as the effect of cash transfers alone. We also document that cash transfers reduced the probability of being underweight by half, increased educational attainment by .4 years, and increased income by 14 percent during adulthood (ages 20-45). Previous literature documents that education, malnutrition and income all have positive and independent effects on mortality—thus these are likely mechanisms that explain the large increases in longevity we observe.

We conclude that cash transfers to the poor ameliorated early life conditions enough to improve both medium- and long-term outcomes and argue that this finding is very much relevant to current US policy. We based this on the following two observations. First, both the MP program and the current welfare programs target children in female headed households. This group of children were, and continue to be, the poorest children. Second, historical comparisons reveal that income has always played an important role in producing positive child outcomes, both today and at the beginning of the 20th century, when the MP program operated. This suggests that cash transfers to poor families today are also likely to lead to positive long-term outcomes for the children of recipients. Yet cash transfers to the poor have been falling in real terms since at least 1980. Currently, US policies favor in-kind transfers (such housing, Food

stamps and Medicaid) to poor families instead. This largely reflects a concern that unrestricted cash transfers to poor mothers will not necessarily be spent in ways that benefit the children (*11*). Our results suggest that on average, this concern may be unfounded. We further discuss the implications of our results and how they relate to existing work and current policy in the last section.

II. Mothers' Pension Programs: History and Characteristics

The MP program was a needs-based program, established on a state-by-state basis between 1911 and 1931. It lasted until it was replaced by ADC in 1935, at which time 200,000 children were receiving MP benefits (*12*). Several factors prompted the enactment of MP legislation. At the time, children of destitute parents were routinely sent to orphanages, and these children were thought to fair very poorly (*13*). Moreover, among those who remained with their mothers, prominent judges of juvenile courts (*14*) argued that maternal absence, due to full-time employment, was the main reason why many of these children became delinquent (*15*). MP programs were seen as a cheaper (*16*) and better alternative for children since transfers would allow mothers to care for their children (*17*). There was also a growing sense that poverty was not sufficiently being addressed by private charity. The spirit of the legislation is well captured in Colorado's law, declaring, "This act shall be liberally construed for the protection of the child, the home and the states and in the interest of public morals, and for the prevention of poverty and crime."

States had complete discretion in establishing the program, setting specific eligibility criteria and providing funding. Moreover, the state MP laws only established guidelines—it was up to individual counties to create, fund and administer their own programs. As a result, there was both substantial cross-state and within-state variation in program characteristics. Below we describe how the programs in the 11 states we study varied in terms of eligibility, generosity, duration and conditions for receipt, for 1922, the median application year in our data (Table 1) (*18*).

Eligibility. All states required the mother to be poor and for her husband to be either missing or incapacitated (physically or mentally), but neither income nor property thresholds were specified. All states made widows eligible, but varied with respect to deserted or divorced women or women whose husbands were in prison or hospitalized. Citizenship was not required in most states, but even when it was, the intention to become a citizen was sufficient to qualify.

Evidence suggests that by limiting eligibility to mothers with dependent children, the MP program succeeded in targeting the poorest children. Examining data from the 1915 Iowa census—the only individual survey of households that collected income prior to 1940, we find that boys under the age of 18 growing up in households without a married male (11% of all boys) were significantly poorer. They had half the income and were substantially more likely to be at the bottom of the income distribution than boys in households with a married male present (Table S1).

Generosity. The state-legislated maximum benefit for the first child varied across states from a low of 10 dollars in Iowa, to a high of 35 dollars in Ohio, with the total monthly amount increasing non-linearly with the number of children in the family. In practice, generosity in benefit levels varied widely within states, across counties as well (*19*).

Duration. In most states the transfers would be given until the pension was revoked, but five states required reapplication. The shortest re-application duration was in Montana and Oregon (3 months) and the longest was in Minnesota and Washington (1 year).

Additional Requirements or Conditions. While most states required the mother to stay at home, Illinois, Minnesota, Montana, Ohio, Oregon and Wisconsin allowed counties to require or regulate maternal work. Many laws explicitly required that the mother be of "good morals." However, in the records that include information on reason for discontinuation (Table 3), there are very few instances in which a mother or child's failure to comply with conditions is listed as the reason for discontinuation. We conclude that the MP programs we study should, in general, be considered as an unconditional cash transfer.

III. Data

a. MP Records

We have attempted to collect all the MP records that survive. Our efforts have yielded approximately 80,000 individual records of MP recipients who applied between 1911 and 1935 in 11 states: Connecticut, Idaho, Illinois, Iowa, Minnesota, North Dakota, Ohio, Oklahoma, Oregon, Washington and Wisconsin. These data include the full universe of families who received MP benefits in the county, state and year. For some states we have the full universe of counties that provided MP benefits, while for others we have only a subset of counties—but if a county has records, the universe of records is available. These data appear to be representative of

the MP population at the national level based on a comparison of our data for 1930 with published statistics for the nation in 1931 (Table S2) (*20*).

From the MP records, we observe each mother's first and last name, the county or town of her residence, the full names of her children, their dates of birth, the reason for her application (widowed, abandoned, etc.), and whether the application was accepted or rejected. If the application is accepted, we observe the monthly amount of the pension, and dates of receipt. For some counties we have additional information, such as the reason why transfers were discontinued. For a single county (Clay, MN) we have data from a detailed 1930 study based on nurse home visits to all 62 families in the MP program at that time.

b-Sample Selection

For this analysis we keep only male children (under age 18) born 1900-1925, whose mothers applied to the program prior to 1930. By imposing these restrictions, we have a sample of individuals that are most likely deceased by 2012 and who did not apply as a result of the Great Depression. We drop individuals without a year of birth or year of application as well as those without a first or last name. We only keep counties where data on rejected applicants are available. We limit our analysis to males because matching females based on names is substantially more difficult since women often change their names upon marrying. Table 2 shows the final sample which includes about 16,000 males in 60 counties from 11 states. Among those, 14 percent were rejected applicants, with the share rejected ranging from a low of 5 percent in Minnesota, to a high of 17 percent in Ohio, which is also the state for which we have the largest number of records, accounting for 34 percent of our sample.

The average transfer ranges from 10 to 30 dollars per month. To better understand the generosity of the benefits, we compare the monthly transfers to the average wages in manufacturing in the state (Table S3). The average monthly MP transfer was equal to 17% of weekly manufacturing wages and never exceeded 29% (*21*). However, relative to maternal income, which was considerably lower, evidence suggests that MP transfers represented a greater share of income. In a subsample of counties in Illinois which collected information on maternal income, MP transfers represented about 29% of the median maternal monthly income of $60 (*22*). Overall these comparisons suggest that MP transfers represented a substantial source of income for poor mothers, but did not move them into the middle class. We cannot say

definitively whether or how MP transfers may have crowded-out private transfers, but the historical evidence does not support strong crowd-out (*23*).

c-Mortality Data and Matching

Each male child of every MP applicant was matched to records from the Social Security Death Master File (DMF). The DMF contains name, date of birth, date of death, and Social Security number for 88 million individuals whose deaths were reported to the SSA from 1965 until 2012. In a study of the completeness of the DMF, Hill and Rosenwaike (2001) conclude that reporting has increased over time and is nearly complete for older individuals (age 65 and older) since the early 1970s (*24*). We matched individuals based on their first name, last name, middle name, as well as day, month and year of birth. Details of the matching procedure are in Appendix I.

We were able to match 48% of our sample to a unique SSA death record, 4% to multiple records, and 48% have no match, providing us with information on age at death for 52% of our sample (Figure S1). Using life tables, we computed the number of individuals who would be expected to die prior to the existence of comprehensive DMF data (around 1975). These calculations suggest that about 32% of those in the MP records should have died prior to the DMF; therefore we find at least one match in the DMF for more than 77% of the individuals whose death records should be in the DMF, assuming the MP applicants are a representative sample (*25*). However, given that these families are poor and existing evidence links poverty to shorter life expectancy, one would reasonably expect a smaller share of the MP applicants to be found in the DMF files.

d-Other State and County Data

We include as controls all the time-varying characteristics of the MP laws described previously and listed in Table 1. We also include state-level, time-varying characteristics that we believe might have affected the existence or generosity of the program: the ratio of state manufacturing earnings to national manufacturing earnings, laws governing school attendance, and expenditures on social programs, education and charitable institutions, hospitals and prisons (*26*). For Ohio we were also able to obtain county-level expenditures for several years, including expenditures on total relief, outdoor relief, and children's homes (see Appendix II for details). These data allow us to rule out possible confounding and bias in the estimates if MP program

characteristics (ie, generosity and rejection rate) are influenced by other resources available for the poor in the county.

IV. Empirical Strategy and Identification of the Effects of Transfers

a. Basic Empirical Model

We estimate the effect of cash transfers on outcomes using the following Logit model:

$$P(\text{survived to age } a=1)_{iftcs} = f(\theta_0 + \theta_1 MP_f + \theta_2 X_{if} + \theta_3 Z_{st} + \theta_c + \theta_t + \varepsilon_{if}) \quad (1)$$

where the outcome is the probability of surviving past age *a* for individual *i* in family *f* born in year *t* living in county *c (state s)*. MP_f , is defined as an indicator for whether the child's family received MP benefits, and *X* is a vector of relevant family characteristics (marital status, number of siblings, etc), and child characteristics (year of birth and age at application). We can also control for county-level characteristics in 1910, and state characteristics in the year of application (Z_{st}). In our preferred specification we include county fixed effects (θ_c) and cohort fixed effects (θ_t). Thus, the effect of the program θ_1 is identified by comparing the average survival of accepted boys to rejected boys within county and year of birth, conditional on other observables. Because we have multiple children per family, standard errors are clustered at the family level. We also estimate an Accelerated Failure Time (AFT) hazard model of longevity of the type:

$$Log(\text{Age at death})_{ifts} = \theta_0 + \theta_1 MP_f + \theta_2 X_{if} + \theta_3 Z_{st} + \theta_c + \theta_t + \varepsilon_{if} \quad (2)$$

where the dependent variable is the log of the age at death for a given individual, and all other explanatory variables are defined as in equation (1).

Using matched administrative data poses three challenges. The first is attrition. Based on evidence from life tables, it is reasonable to assume that those without a match in the DMF were deceased by 1975 (the start of comprehensive reporting in the DMF) and to include them in our estimation sample for survival (but not the AFT hazard models because we cannot observe age at death for this group). We can then compare survival regression results using the full sample to results when using only individuals matched in the DMF to assess the extent to which attrition affects the results.

In addition to missing matches (ie, attrition), we have multiple matches for a few records (4%), as well as possible measurement error in matching (i.e., even if we find a unique match,

we are not certain that it is the correct match.) We developed estimation procedures to account for both multiple matches and measurement error in estimating (1) and (2) (*27)*. We also present our results using only the unique matches, as is typically done in the literature, for comparison.

b. Identification Strategy: Rejected Applicants

For identification of causal effects, we use rejected applicants as the counterfactual. This strategy has been used by others to estimate program impacts (*7, 8*). The rationale for using rejected applicants is that they are likely similar to recipients on observable and unobservable characteristics. Not only are they likely to face similar economic conditions at the time of application, but they are also likely to share the same level of (unobserved) factors such as "motivation" and knowledge of the MP program (*28*). To assess the comparability of these groups, we investigate reasons for rejection, and we compare the observed characteristics of accepted and rejected applicants.

Table 3 reports the distribution of rejection reasons for those for whom this information was reported (about 60% of rejected applicants). The most common reason for rejection was insufficient need (35%), in which case the rejected applicants represent an upper bound on what could be expected of the beneficiaries in the absence of pension receipt. Marriage or remarriage is a common reason for rejection, while ineligibility due to insufficient length of residency and non-citizenship appear very uncommon. Case studies that examined reasons for rejection from specific counties are consistent with the statistics we report. For instance in Chicago during 1911-1927, it was reported that sufficient means accounted for half of all rejected and most cancelled pensions (*29*). In Clay County, Minnesota, where we have detailed information for all families, the most commonly reported reason for discontinuation of a pension was that the family was judged capable of self-support.

On observables, accepted and rejected applicants look similar but not identical. On average, rejected applicants were slightly older, came from somewhat smaller families, and the average age of the children in the family was higher, particularly the age of the youngest child (Table 4). Marital status of the mothers also differed. Among the accepted, there are more children of widows and fewer children of mothers with unknown/unreported marital status. Interestingly, among accepted children, the date of birth of the child is more likely to be missing. We speculate that this could be a potential marker for illiteracy, given that heaping (rounding) in reports of age is correlated with illiteracy (*30*). When we examine which family characteristics

are associated with acceptance and, conditional on acceptance, generosity of transfer received in a regression framework, the same patterns emerged (Table 5). Large families with younger children were more likely to be accepted, were given more money and (for those for whom we observe the duration) were helped for longer periods. Illiterate mothers (as proxied by missing DOB of the child) were also helped more.

To assess whether these differences in family characteristics correlate with differences in family income, we estimate the income of accepted and rejected MP applicants based on observable characteristics of the family using the 1915 Iowa census data. Specifically, we regress family income on the family characteristics we observe in the MP records (family size, age of all siblings, maternal marital status, length of family name) (*31*). With these coefficient estimates (Table S5), we then predict average income (in 1915) for accepted and rejected applicants based on their observable characteristics. We find that on average, rejected mothers have predicted income that is 35 percent higher than that of accepted mothers, consistent with the reasons for rejection (*32*).

A related concern with this strategy of comparing accepted and rejected applicants is evidence of racial discrimination in the MP program. In a 1931 survey and analysis of the MP program, the U.S. Department of Labor determined that 96% of MP recipients were white despite the fact that black mothers were at least as likely to be in need. Only in Ohio and Pennsylvania did black mothers appear to receive MP benefits at expected rates (*6*). Without information on race in the applications, this raises the possibility that blacks may be disproportionately represented among the rejected applicants, biasing our estimates. We present evidence from multiple sources that suggest this is not the case in our sample. First, as shown above, accepted applicants appear to be worse off on observables than the rejected, which is inconsistent with a large share of blacks being disproportionately found among the rejected. Second, we observe the race of accepted and rejected applicants who are linked with their 1940 census or WWII enlistment records (both of which contain race). Third, we present results in which we drop from the sample all counties with a disproportionate share of black residents and fourth, we present results for Ohio only, one of just two states in which blacks received MP benefits at appropriate rates according to the Children's Bureau 1933 report (*6*). All four exercises suggest that blacks do not constitute a large share of rejected applicants and therefore are not biasing our results (*33*).

c. Differential Attrition and Matching to Mortality Records

Next we investigate the possibility of differential attrition and matching to the mortality records based on observable characteristics of the mother and child. Table 4 presents summary statistics by accepted/rejected status for the entire sample, the sample with a match to mortality data, and for the sub-sample with unique matches. The characteristics of individuals we find are very similar across samples of rejected or accepted applicants. Thus, conditional on acceptance/rejection, there appears to be no systematic difference in the characteristics of those with a match in the mortality records and those without a match. However, the accepted are 8% more likely to be found in the mortality records (Panel A of Table 6), and this is true with or without controlling for covariates. This can be explained by either lower mortality rates among the accepted, or identical mortality but rejected children being harder to find in the mortality records. Later, we present evidence in favor of the lower mortality explanation.

V. Mortality Results

a- Preliminary Visual Evidence

Accepted boys lived on average to age 73.3, about 0.8 of a year longer than rejected boys (Table 4). We estimate the density of the age at death for accepted and rejected applicants, using all matches (Figure 1a), and using unique matches only (Figure 1b). Both Figures show that the distribution of the age at death of accepted applicants is shifted to the right of the distribution of rejected applicants, suggesting that accepted applicants lived longer. The distributions are statistically different at the 5% level. The largest differences are observed between ages 60 and 80, where the distributions are the densest.

b-Main Results

We start by presenting estimates of the effect of the MP program on the probability of survival past age 60, 70 and 80, using all matches and assuming those without a match died prior to 1975 (Panel A, Table 7). Column 1 includes only state and cohort dummies, column 2 adds all individual controls, county characteristics in 1910 and state characteristics at the time of application. Column 3 adds county fixed effects. The results are not very sensitive to the covariates we include. The implied marginal effects suggest statistically significant increases in

the probability of survival past age 70 (10 -20 percent), and the probability of survival past age 80 (9-15 percent).

We perform a number of robustness checks. These include using the date of birth from the death certificate instead of the one from the MP records, which occurs in less than 10% of our sample (column 4) (*34*), dropping those without age at death instead of assuming they died (column 5), or using unique matches only (column 6). In the last column, we drop counties with a share of blacks in the top quarter for the state (never higher than 5 percent). The effects remain positive and are somewhat larger for surviving past age 60. Next we abandon the arbitrarily chosen cutoffs of ages 60, 70 and 80 and estimate our survival model using ML and the fully saturated specification for each age at death between 58 and 88, which correspond to the 10^{th} and 90^{th} percentiles of the distribution of the age at death. Figure 2 shows the marginal effects as a percentage of the survival rate of rejected applicants, computed using coefficients from estimation with and without imputing the missing observations as 0s. All coefficients are positive and significant after age 67, regardless of whether we impute missing values as 0.

In panel B of Table 7 we present estimates for longevity from the AFT hazard model. This analysis is based on all matched records, dropping those with no match (i.e., missing date of death). Again the coefficient on acceptance is positive in all specifications and the implied effects are large: acceptance increased life expectancy by about a year, relative to a mean of 72.48, among the rejected. The estimates range from 0.7 to 1.35 years of life depending on the specification and sample.

We also present estimates that take advantage of our ability to predict family income using the 1915 Iowa census to further limit our comparison to accepted and rejected applicants who appear most similar in terms of resources (income) available to them. To do so, we split the sample into low income (below median predicted income) and high income (above median predicted income) and compare accepted and rejected within these two broad income groups. The effect of the MP program appears to be much larger among those poorest in the sample (Figure 3). Table 8 presents the estimates separately by predicted income, for survival (Panel A) and age at death (Panel B). Two observations are worth noting. First, the average survival rates and age at death are always larger for the sample that is predicted to have larger incomes, which suggests that our predicted income is indeed correctly classifying individuals into income categories, since income is a well-known predictor of mortality. Second, the results confirm that

the poorest individuals in the sample benefitted substantially more than those coming from relatively richer households. For the poorest boys, the gain in longevity is about 1.5 years of life.

c-Additional Robustness

We conduct several additional robustness checks for the probability of survival past 70, (Table S5). The results are robust to using a standard Logit models (Panel A) or to using the Logit maximum likelihood model we develop to properly account for multiple matches and measurement error (Panel B); to using only unique matches, using the highest quality matches or using all matches; to allowing for measurement error; to matching accepted and rejected on propensity scores; and to dropping individuals with three or more matches from the sample. Although the coefficients differ in magnitude when we change the sample, the marginal effects remain similar across all specifications. In addition, we find that the positive effects of the programs are not a function of the number of rejected applicants or their share.

d-Results for Ohio

We present separate estimates for the state of Ohio (34% of our sample) as a final robustness check for three reasons. First, as the 1931 Children's Bureau study reported, there was no evidence of discrimination against black women in Ohio's MP program (*6*). If the estimates are unchanged when we limit the sample to the state of Ohio, this would suggest that discrimination against blacks in other MP programs is not driving the results (*35*).

Second, for Ohio we can include data on county expenditures on social programs at the time of application, eliminating a potential source of bias in our estimates if counties are more likely to reject applicants when there are other sources of support in the community.

The results, presented in Panel C of Table S5 with and without controls show that the estimated effects are essentially unchanged, though perhaps slightly larger, for the Ohio sample. Thus, we conclude that discrimination against black mothers and potential correlation with other social programs are not biasing our results.

Finally, Ohio maintains death records going back to 1958, allowing us to match Ohio boys to earlier death records. We also manually searched for unmatched children of accepted and rejected Ohio MP applicants on Ancestry.com, a database that includes deaths from WWII and other wars, as well as other death records (eg, cemetery listings). When we do this we increase our match rate to 60%. (Figure S1, Panel C). There are three notable results from this exercise.

First, the estimates are unchanged when we extend our records in this way. This is visible in Figure 4, which depicts the densities of the age at death, and in Table S6, Panel C which reports the estimates for surviving past 70. Second, we continue to find death records for accepted applicants at higher rates, suggesting that the higher match rate does indeed correspond to a real mortality effect (Table 6, Panel B). Third, the age at death among rejected applicants whom we did not find in the DMF records is 66.28, compared to age at death among accepted applicants of 67.16 (a difference of one year of life). Since this is exactly what we estimate using the full data, this suggests that our inability to link the MP applicants to death records prior to the mid-1970s is in fact related to the higher mortality of the rejected applicants.

About 60 percent of the newly found death records show deaths prior to age 70, but only about 30% died before age 60. We conclude that the assumption that the missing are dead is reasonable for survival past 70, but not for survival at younger ages, which might explain why our results for survival past age 60 are small and sometimes insignificant.

e-Alternative Counterfactuals from the 1900-1930 Censuses

For comparison, we constructed two alternative "control" groups from the 1900, 1910, 1920 and 1930 censuses and matched them with their death certificates (see Appendix III for detail) (*36*). The two alternative counterfactual groups are orphans and children of ineligible mothers (e.g., single or divorced mothers in states that excluded these groups). We discuss results based on each in turn.

Orphans are identified as children living in institutions in the census. Since MP programs were developed in large part to prevent institutionalization of children by allowing them to remain home, orphans represent an appropriate counterfactual in this context. We find that the orphans are very similar to the rejected applicants in terms of longevity, with both living shorter lives than accepted applicants (Panel A, Figure 5).

The second counterfactual group is comprised of children of single or divorced women drawn from the census, in states where these women were not eligible for the MP program. We compare this group of ineligible women to accepted MP children whose fathers are disabled or institutionalized (but not widows) because on observables these children appear more similar. Children of accepted women lived longer than this alternative control group of ineligible children of single and divorced women (Figure 6 Panel B) (*37*).

VI. Results for Educational Attainment, Health and Income in the Medium-Term

We explore potential mediating factors to understand the ways in which income transfers in childhood improved long-term mortality. Previous work has shown a significant relationship between education, income and being underweight with mortality. More specifically, an increase in schooling of 0.25 years is associated with a 0.15 year increase in longevity in OLS regressions (*38*); those with income in the top 5% of the distribution live 25% longer than those in the bottom 5% (*39*); and being underweight in adulthood is associated with a relative risk of mortality that ranges from 1.38 to 2.3 (*40*). In this section we estimate the effect of the MP program on these medium-term adulthood outcomes by linking the MP sample with WWII enlistment records and 1940 census records.

a. WWII Enlistment Records

We can match the MP records with WWII enlistment records for individuals who enlisted in the Army during 1938 -1946 (*41*). For all enlistees we observe education, marital status, and two health measures (weight and height), which are markers of nutritional deprivation in childhood. Height, in particular, has been linked with childhood nutrition, as well as adult cognitive ability and labor market outcomes (*42*).

The WWII results should be viewed as suggestive rather than definitive for two reasons. First, our match rate is quite low—lower than our match rate for mortality (Table 6). This is because WWII records do not contain date of birth, though they contain state of birth, which we add to our matching criteria. Second, the WWII records are not a complete or random subset of the male population because of induction rules and exemptions. Appendix Table 4 shows that our matched sample is younger—this is to be expected because males aged 18-25 in 1942 served at much higher rates than older men (*43*) and they are also likely otherwise healthier given the mental and physical requirements of enlistment. Consistent with this positive selection into the WWII records, we find accepted applicants at higher rates than rejected applicants (Table 6, Panel C).

Evidence of the effects on educational attainment from WWII records is presented in Figure 6 and Table 9. The education outcome is censored below at 8 years of schooling (the minimum), and is also censored for those still in school. We find that children of accepted families are 20%

more likely to have more than 8 years of school (Table 9, column 1 without controls and column 2 with controls). When we estimate a censored model that accounts for the two sources of censoring, we find that MP recipients complete a third of a year more school than rejected applicants, and the effect is marginally significant (*44*). However, when we include the full set of controls, the point estimates generally remain similar, but are no longer precisely estimated, which is not surprising given the small sample size for this analysis.

MP receipt also significantly reduces the probability of being underweight (Figure 8). Estimates in Table 9 imply a statistically significant 50% reduction, with similar results with and without controls. The estimates for height, weight and BMI (measured continuously) are positive but not significant. Our results showing the greatest impact of MP receipt at the lower tail of the distribution of weight suggest that the effects of cash transfers may be greatest for the most disadvantaged. The detailed records from Clay county nurse visits noted malnutrition as one of the most commonly observed health problems among families in the MP program. These results suggest that the transfers helped families improve the nutrition of their children. Finally, in the last row of Table 9 we show that, in WWII records, accepted applicants are more likely to be black than rejected applicants. Although this difference is not statistically significant it is consistent with previous results that suggest that black children are not over-represented among rejected applicants.

b. 1940 Census Records

We present the distribution of longevity, education, income and ln(income) for accepted and rejected MP applicants matched to 1940 census data in Figure 8 (*45*). The distributions of income for accepted and rejected applicants are significantly different, with the accepted applicants less likely to be found in the bottom half of the distribution of income and more likely to be found in the top half of the income distribution (Figure 7). The results from regression analyses presented in Table 10 suggest that MP recipients have nearly 14% greater income than their rejected counterparts in 1940, when they are young adults (Panel A, Table 10). The results with respect to years of schooling are similar to those from WWII records (.4 more years of school). We also examine whether rejected applicants are more likely to be black using the 1940 census records which contain race – again, we find no large or significant relationship between race and rejection in these records.

VII. Interpretation and Policy Relevance

Recent theoretical and empirical work (*46*, *47*) on the development of human capital emphasizes the importance of conditions in early childhood in determining long-term outcomes. Evidence from a randomized trial with primates shows that deprivation in early-life has large effects on long-term health (*48*). Bleakley (2007) estimates large effects of a public health de-worming campaign on children in the American South on their educational outcomes and adult income (*49*), and these estimates are consistent with those from randomized de-worming campaigns in Kenya (*50*). Even earlier, prenatal conditions, have long-term consequences for children's health (51) and socio-economic outcomes.

This raises the question: what programs and policies can most effectively and efficiently alleviate adverse early-life conditions so as to improve the long-run health and human capital of poor children? Current aid to poor women takes the form of in-kind and cash transfers, with the US generally favoring in-kind transfers. Proponents of in-kind transfers argue that cash transfers need not encourage consumption of goods and services that benefit children (*11*). In addition, welfare receipt can be stigmatizing and can create incentives for parents to modify their behaviors in order to remain eligible for program benefits by, for example, remaining unmarried or out of the labor force, or by having more children (*52*, *53*). On the other hand, cash transfers have the advantage of being less costly to deliver and of not constraining recipient consumption choices, allowing families to respond to unforeseen shocks as necessary.

There is little existing evidence on the effectiveness of cash transfers in improving child outcomes. Recent related work has found positive effects of food stamps and cash transfers through the tax code on pregnancy outcomes and child test scores, respectively (*54, 55, 56*) (*57*). This is the first study to document positive long-term, lifetime consequences of providing welfare to mothers of poor children on their longevity, and suggests that underlying health, educational attainment and income in adulthood are all likely mediating factors.

Are these results relevant to the current public policy debate regarding effective programs to improve outcomes of disadvantaged children? We present two pieces of evidence that suggest that they are. First, just as they did at the beginning of the 20th century, single mothers today represent the most impoverished group of families. In fact, the income gap between children in two-parent versus single-mother families has only grown over time (Table 11). Second, even though conditions prevailing in the early part of the 20th century differ substantially from current

conditions, the relationship between parental income and the development of child human capital appears to be similar across these two periods. Using census data from 1915, 1940, 1960, 1980 and 2010, we estimate the relationship between ln(real family income) and child grade in school for all children ages 7-14 (Table 12). The relationship between parental income and child human capital in 2010 is remarkably similar to that found in 1915 (*58*). Together with our results, this evidence suggests that today's welfare policies targeting female-headed families can have significant positive effects on the health and human capital of children and that on net, these benefits exceed the potential costs (stigma, perverse incentives, and the misallocation of funds). Future research should assess the relative cost-effectiveness of cash and in-kind transfers so that policy-makers can develop programs that improve the health and well-being of disadvantaged children most effectively and efficiently.

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13. The conditions in institutions were also often questionable for children "the year before the Foundling Asylum was closed the death rate of foundling babies in the asylum was fifty-nine out of a hundred. After the Associated Charities put the babies into foster-homes, where they are given a mother's care, the death rate dropped to six out of a hundred." The 1914 Kingsbury commission inspected 38 institutions for children in NYC and found, 26 of them to be substandard "institutions in which beds were alive with vermin, in which antiquated methods of punishment prevailed and in which the children were given little else save religious instruction."

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17. White House Conference on the Care of Dependent Children came out with a strong recommendation to allow poor children to stay at home, justifying this with the claim that the "best person to care for a child, save in exceptional cases, is its own mother" (Thirteen states now have laws pensioning mothers. *New York Times*, May 11, 1913).

18. Comparing the characteristics of the programs in our 11 states with the characteristics of MP programs in states for which we were unable to obtain individual records suggest that they are similar (Table S1) and thus the MP programs examined here are representative of the existing programs.

19. For example, we calculate that across counties in Ohio in 1925, the level of benefits for a family of 3 ranged from a low of $3 per month to a high of $38 per month.

20. Published statistics by state are available in 1921 for selected states, and in 1928, but the most detailed and comprehensive statistics are available for 1931.

21. Alternatively in 1919, MP transfers ranged from 8 to 22% of the total household income in urban two parent households or 20-60% of a farm laborer's income.

22. In real terms (1982 dollars), MP transfers were half the size of 2010 transfers, (Table S3). However in some states, like Iowa, the MP transfers were very close in real terms to current TANF benefit levels, whereas in others, like Connecticut, TANF transfers are much larger today. It is worth noting that the relative generosity of states during this period mirrors the generosity of the welfare transfers today.

23. For example, in Pennsylvania, the 1926 survey of families receiving MP pensions showed that only 11% of families received any support from private charity (Lundberg 1928). E.O. Lundberg, Progress of mothers aid administration. *Social Service Review*, **2**, 435-458 (September 1928). If present, crowd-out would lead to a downward bias in the estimated effects of the transfer.

24. By the early 1970s, the authors conclude that 95% of deaths of persons 65 years of age and older and 75% of deaths of those ages 25-64 were included in the DMF.

25. For comparison, we computed follow-up rates for the 2 data sets that have been used for evaluating the effects of welfare on children's outcomes: the National Longitudinal Study of Youth 1979 (NLSY hereafter) and the Panel Study of Income Dynamics (PSID hereafter). We kept only male children whose mother was receiving welfare when they were first interviewed and used the latest wave of the survey to see how many had died and what the follow-up rate is in these prospective samples. There are about 1400 boys in the NLSY and 1066 in the PSID (born between 1951 and 1968 in the case of the PSID) and present in whose mothers received welfare during their childhood, and within 20 years about 40% are lost to follow-up, and none are known to have died. Thus, these samples are substantially smaller and suffer from much larger attrition than our data.

26. These state level variables were available for several of the years we study and we interpolated in between cross sections.

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32. The county characteristics, as measured in 1910, are roughly similar for the accepted and rejected applicants (Table 4, Panel B). Since we restrict our sample only to counties with both accepted and rejected applicants, the mean differences reported here reflect underlying differences in the shares of accepted and rejected across counties. Accepted applicants are more likely to be in urban counties, implying the acceptance rate was higher in urban counties, but otherwise the characteristics are similar.

33. The most likely explanation is that the discrimination was such that black women did not bother to even apply to the program, knowing that they would be rejected.

34. If the date of birth in the MP and DMF records differ, it is sometimes the case that the DOB occurs later in the MP records. We believe this is likely due to mothers underreporting the age of their children in an effort to increase

35. Most likely, this would indicate that the discrimination against blacks was such that black mothers didn’t bother applying to the MP program and thus are not disproportionately represented among the rejected.

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Table 1. Mothers' Pension Program Characteristics in 1922

	Eligibility					Requirements			Benefits		
State (year MP enacted)	Deserted/ divorced	Husband in institution	Child age eligibility	Resid ency	Citizen	Prop limit	Work	Re-apply	1st child	Add'l child	Max
CT (1919)	No	No	16	No	No				**	**	No
ID (1913)	No	Yes	15	Yes	No				10	5	No
IL[a] (1911)	No	Yes	14	Yes	Yes	Yes	yes		25	15	60
IA (1913)	No	Yes	16	No	No				12	12	No
MN (1913)	Yes	Yes	16	Yes	Yes	Yes	yes	yes	20	15	No
ND (1915)	No	No	14	Yes	No				15	15	No
OH (1913)	Yes	Yes	16	Yes	No		yes	yes	35	10	No
OK (1915)	No	Yes	14	Yes	No				10	5	No
OR (1913)	No	Yes	16	Yes	Yes	Yes	yes	yes	15	10	60
WA (1913)	No	No	15	Yes	No			yes	15	5	No
WI (1913)	Yes	Yes	14	Yes	No	Yes	yes		15	10	No

Source: Children's Bureau (1922c)
a. larger amounts were given in counties with populations more than 300,000.
b. additional amounts were specified for the second child (15), third child (10) and every additional child (5)
"Work regulated" refers to laws that specified that maternal employment could be demanded and constrained in temrs of the number of days/hours at work
"Citizenship" refers to requirements of citizenship or intention to become one.

Table 2. Data on Number of Children in Families Receiving Mothers' Pensions 1911-1930
All children born 1900-1925, under age 19 at the time of application

	All records collected (boys and girls in all counties with records collected)					Boys in counties with rejected applicants (estimation sample)	
State	counties	children receiving transfers	families receiving transfers	average monthly allowance	rejected applicants	rejected	accepted
Connecticut	1	192	67	12.1	20	10	89
Idaho	19	3,117	1,112	20.35	179	78	776
Illinois	10	2,271	829	17.95	116	56	670
Iowa	8	2,957	841	31.92	174	73	739
Minnesota	17	3,276	1,023	23.62	176	26	527
North Dakota	8	1,390	484	33.03	163	67	563
Ohio	24	13,643	5,607	12.42	2131	978	4,825
Oklahoma	5	1,504	582	13.27	181	72	701
Oregon	12	3,351	1,499	23.13	736	308	1,128
Washington	23	10,681	4,661	22.67	911	535	3,977
Wisconsin	7	1,079	497	23.95	34	16	77
Total	126	42,071	17,201		4,658	2,219	14,070

Note: We collected an additional 40,000 records which are not included here because the application date is after 1930, the cohorts are out of the specified range, the state/county did not collect information on rejected applicants, or the amount or date of application is missing.

Table 3. Reasons for Rejection
Distribution in all records and in estimation sample

	A. All records		B. Boys in sample	
	Reason MP denied	Reason MP ended	Reason MP denied	Reason MP ended
Other means	35.26%	17.38%	37.42%	20.01%
Ineligible				
Ineligible, reason unspecified	29.53	43.13	19.24	39.97
Married or husband returns	7.95	27.25	6.97	25.34
Moved from county	3.58		6.52	
No children eligible	2.03		2.12	
Doesn't meet residency requirement	1.36		2.73	
Not a citizen	0.32		0.76	
Other Reasons				
Withdrew	8.29		3.64	
Application incomplete	4.09		6.97	
Immoral/unfit	3.80	3.22	4.24	4.39
Not dependent for long enough	1.93		5.61	
Mother lied in application	0.51		1.36	
Child delinquent		1.62		
Divorced	0.70		1.06	
Mother died/hospitalized/in prison	0.64	4.23	1.36	4.11
N observations with data	*3,738*	*13,794*	*660*	*4,692*

Panel A includes information from any record with non-missing values in original MP data. Panel B includes information only from those records with non-missing values, from boys born between 1900-1925 who applied before 1930 and in counties with records from rejected applicants

Table 4: Summary Statistics for Estimation Sample
Boys ages 0-18, Born 1900-1925 in Counties with Rejected Applicants Only

	Full sample		Sample matched to death certificate		Sample with unique matches	
	Rejected	Accepted	Rejected	Accepted	Rejected	Accepted
Age at death	72.58	73.34	72.58	73.34	72.53	73.34
A. Individual characteristics						
Year of application	1920.8	1921.7	1921.0	1921.9	1921.0	1921.9
YOB of child	1912.1	1913.4	1912.2	1913.6	1912.2	1913.6
Child age (years)	8.72	8.22	8.84	8.3	8.84	8.31
Number of kids in family	3.6	3.77	3.52	3.74	3.54	3.73
Age of oldest kid in family	11.86	11.48	11.82	11.48	11.85	11.47
Age of youngest kid in family	5.59	4.81	5.65	4.84	5.63	4.85
Length of family name	6.39	6.45	6.33	6.35	6.35	6.36
Widow	0.51	0.54	0.53	0.55	0.53	0.55
Divorced	0.04	0.03	0.03	0.03	0.03	0.03
Husband abandoned/prison/hospital	0.18	0.19	0.18	0.19	0.18	0.19
Mother's marital status unknown	0.27	0.25	0.26	0.23	0.26	0.23
Missing age at death	0.54	0.49	0	0	0	0
Day or month of birth missing	0.02	0.03	0.01	0.03	0.01	0.02
Number of matches	0.48	0.54	1.04	1.06	1	1
Quality of merge with DMF file	1.19	1.18	1.19	1.18	1.18	1.17
B. 1910 county characteristics						
Duncan Socio-Economic Index	24.21	24.43	24.31	24.71	24.33	24.94
Std. Dev. of Socio-Economic Index	20.85	20.52	20.79	20.55	20.81	20.72
% living in urban areas	0.34	0.4	0.36	0.42	0.36	0.42
% females that are widowed	0.06	0.06	0.06	0.06	0.06	0.06
% under 16 living with only mom	0.06	0.06	0.06	0.05	0.06	0.06
% workers with SEI<20th %	0.11	0.11	0.11	0.1	0.11	0.1
% women 16+ in the labor force	0.18	0.18	0.18	0.18	0.18	0.18
% children 10-15 working	0.07	0.07	0.07	0.07	0.07	0.07
Average value of farm land	84.46	92.82	81.48	94.11	81.49	95.15
Duration of transfers in years	3.09	4.13	3.2	4.26	3.2	4.27
Monthly amount - 1982 dollars	0	311.21	0	311.5	0	311.38
Number of children	2219	14070	1,028	7,217	995	6,914
Number of families	1,353	8,131	640	4,229	616	4031
Number of counties	75	75	75	65	75	64
Number of observations	2,264	14,514	1,073	7,661	995	6,914

Table 5. Determinants of Acceptance and Generosity of Transfers

Dependent variable:	Accepted =1	Log(monthly amount)	Log(duration in years)	Log(lifetime transfer)
Model:	Logit	OLS	OLS	OLS
Child age (years)	-0.00218	0.00830**	-0.0160	-0.0173
	[0.003]	[0.003]	[0.011]	[0.012]
Number of kids in family (imputed)	0.00348	0.111***	0.0407***	0.132***
	[0.003]	[0.005]	[0.011]	[0.013]
Age of oldest kid in family record	0.000344	0.000641	0.00997*	0.0178***
	[0.002]	[0.002]	[0.006]	[0.006]
Age of youngest kid in family record	-0.0053**	-0.0251***	-0.0327***	-0.0551***
	[0.002]	[0.002]	[0.005]	[0.006]
Length of family name	0.00132	-0.000570	0.00365	0.00328
	[0.002]	[0.003]	[0.008]	[0.009]
(Widowed is the excluded category)				
Divorced	-0.0589**	0.000729	-0.106	-0.100
	[0.025]	[0.022]	[0.066]	[0.073]
Husband abandoned, in prison/hospital	-0.00990	0.00104	-0.116***	-0.0922**
	[0.011]	[0.013]	[0.039]	[0.043]
Mother's marital status unknown	-0.0962**	-0.0303	-0.000755	-0.00595
	[0.040]	[0.040]	[0.105]	[0.120]
Day or month of birth missing	-0.0185	0.0594*	0.415**	0.519***
	[0.030]	[0.035]	[0.185]	[0.199]
County and cohort FE?	yes	yes	yes	yes
State characteristics (year of application)	yes	yes	yes	yes
Mean of Y	0.864	5.511	1.306	6.647
Number of individuals	16,288	13,963	6,868	6,806

* p<0.10, ** p<0.05. State characteristics at the time of application include manufacturing wages, education/labor laws (age must enter school age can obtain a work permit and whether a continuation school law is in place), state expenditures in logs (education, charity and total expenditures on social programs) and state laws concerning MP transfers (whether citizenship is required, whether there is a residency period in county required, the maximum legislated amount for the fits child and the legislated amount for each additional child).

Table 6: Differential Attrition and Matching of Males in MP Records

	Coefficient on Accepted =1 from Logit specification				
Panel A: MP matched to DMF					
Missing match=1	-0.200**	-0.174**	-0.176**	-0.130**	-0.110**
(M=0.527, N=16,288)	[0.051]	[0.052]	[0.052]	[0.053]	[0.055]
More than one match=1					
(M=0.0718, N=8,247)	0.261	0.271	0.0687	0.0851	0.0808
	[0.192]	[0.193]	[0.205]	[0.205]	[0.216]
Panel B: Ohio MP matched to additional death records					
Missing match=1	-0.206**	-0.198**	-0.200**	-0.126	-0.160*
(M=0.205 N=5,469)	[0.088]	[0.089]	[0.089]	[0.093]	[0.095]
More than one match=1 (M=0.578,					
N=3,495)	-0.167	-0.168	-0.179	-0.205*	-0.243**
	[0.107]	[0.109]	[0.109]	[0.112]	[0.115]
Panel C: MP matched to WWII records					
Missing match=1	-0.212**	-0.193**	-0.199**	-0.231**	-0.149**
(M=0.848, N=16,288)	[0.068]	[0.069]	[0.069]	[0.071]	[0.075]
More than one match=1 (if matched)					
(M=0.139, N=2,895)	0.144	0.147	0.152	0.224	0.232
	[0.177]	[0.178]	[0.178]	[0.183]	[0.205]
Individual Characteristics		x	x	x	x
Match Quality			x	x	x
State-year & 1910 county controls				x	x
County and cohort dummies					x

* p<0.10, ** p<0.05. Individual controls include child age at application, age of oldest and youngest in family, number of siblings, number of letters in name, year of application, and dummies for the marital status of the mother. Match controls include a dummy for whether date of birth is incomplete. County controls for 1910 include all characteristics listed in Panel B of Table 4. State characteristics at the time of application include manufacturing wages, education/labor laws (age must enter school age can obtain a work permit and whether a continuation school law is in place), state expenditures in logs (education, charity and total expenditures on social programs) and state laws concerning MP transfers (whether citizenship is required, whether there is a residency period in county required, the maximum legislated amount for the fits child and the legislated amount for each additional child).

Table 7: Welfare and Long-Term Mortality

	1	2	3	4	5	6	7
	Main results (DOB from MP records)			DOB From DMF	drop missing DOD	unique matches only	counties with few blacks
Panel A: Effects on survival, Logistic model							
P(survived to 60)	0.192***	0.111**	0.0984*	0.0912*	0.0440	0.0558	0.112*
	[0.047]	[0.049]	[0.051]	[0.051]	[0.118]	[0.118]	[0.058]
N	16,289	16,288	16,288	16,288	8,244	7,908	11,694
% effect	11%	6%	6%	5%	1%	1%	7%
P(survived to 70)	0.263***	0.199***	0.201***	0.185***	0.252***	0.266***	0.242***
	[0.052]	[0.053]	[0.055]	[0.055]	[0.075]	[0.075]	[0.063]
N	16,289	16,288	16,288	16,288	8,244	7,908	11,694
% effect	19%	14%	14%	13%	10%	11%	18%
P(survived to 80)	0.229***	0.182***	0.170**	0.171**	0.146*	0.152*	0.206**
	[0.066]	[0.067]	[0.070]	[0.071]	[0.080]	[0.080]	[0.080]
N	16,289	16,288	16,288	16,288	8,244	7,908	11,694
% effect	20%	16%	15%	15%	10%	11%	18%
Panel B: Effects on longevity, AFT model							
Log(age at death)	0.0101	0.0089	0.0117*	0.0100*		0.0177***	0.0139*
	[0.007]	[0.007]	[0.007]	[0.006]		[0.006]	[0.008]
effect (yrs)	1.01	1.01	1.01	1.01		1.02	
N	8,255	8,254	8,254	8,251		7,908	5,820
State FE	Y						
Cohort FE	Y	Y	Y	Y		Y	Y
State charac.		Y	Y	Y		Y	Y
County 1910 char.		Y					
County FE			Y	Y		Y	Y
Individual controls		Y	Y	Y		Y	Y

* p<0.10, ** p<0.05. % effects computed relative to the average for rejected boys. Individual controls include child age at application, age of oldest and youngest in family, number of siblings, number of letters in name, a dummy for whether date of birth is incomplete, year of application, and dummies for the marital status of the mother. County controls for 1910 include all characteristics listed in Panel B of Table 4. State characteristics at the time of application include manufacturing wages, education/labor laws (age must enter school age can obtain a work permit and whether a continuation school law is in place), state expenditures in logs(education, charity and total expenditures on social programs) and state laws concerning MP transfers (work required, reapplication required, the maximum legislated amount for the first child and the legislated amount for each additional child).

Table 8: Effects of Welfare by Initial Family Income

	Poorest	Richest
Panel A: Effects on survival, Logistic model		
P(survived to 60)	0.109*	0.0563
	[0.061]	[0.097]
N	11,982	4,557
Mean for rejected	0.397	0.463
% effect	6.57%	3.02%
P(survived to 70)	0.212***	0.107
	[0.066]	[0.101]
N	11,982	4,557
Mean for rejected	0.267	0.326
% effect	15.54%	7.21%
P(survived to 80)	0.194**	0.105
	[0.085]	[0.127]
N	11,982	4,557
Mean for rejected	0.132	0.178
% effect	16.84%	8.63%
Panel B: Effects on longevity, AFT model		
Log(age at death)	0.0198**	-0.0091
	[0.008]	[0.012]
N	6,080	2,425
Mean for rejected	71.88	73.95
effect (years)	1.423224	-0.67295

* p<0.10, ** p<0.05. Both panels estimates models like those in column 3 of Table 7. Panel A uses the MLE procedure we developed, using all matches, imputing missing observations as dead and controlling for all observables. Panel B estimates models using the GMM method we developed, does not include individuals with missing age at death and include all controls in the estimation.

Table 9: The MP program and Medium-Term Outcomes:
Education and Health from WWII records
Unique matches, OLS or Logit coefficients reported

Dependent variable	No Controls	All controls	N	Mean rejected
A. Education				
Has exactly 8 years of school	-0.0677**	-0.0355	2,446	0.330
	[0.030]	[0.032]		
Education -- left and right censored	0.348*	0.238		10.38
	[0.196]	[0.209]		
B. Anthropometrics				
Height (cms)	1.346	1.142	1844	174.5
	[1.067]	[1.229]		
Weight (pounds)	3.879*	3.417	1706	144.7
	[2.157]	[2.330]		
BMI	0.537*	0.464	1706	22.06
	[0.299]	[0.355]		
Underweight	-0.690**	-0.638*	1706	0.09
	[0.272]	[0.336]		
Obese	0.416	0.998	1706	0.03
	[0.474]	[0.612]		
C. Race				
Black=1	0.282	0.0284	1691	0.038
	[0.352]	[0.381]		

* p<0.10, ** p<0.05. Model in Column 2 is estimated using county and cohort fixed effects and include individual characteristics at the time of application. State characteristics at the time of application include manufacturing wages, education/labor laws (age must enter school age can obtain a work permit and whether a continuation school law is in place), state expenditures in logs (education, charity and total expenditures on social programs) and state laws concerning MP transfers (work required, reapplication required, the maximum legislated amount for the fits child and the legislated amount for each additional child).

Table 10: The MP program and Medium-Term Outcomes: Education and Income from 1940 Census Records Coefficient on Accepted reported. OLS models

Dependent variable	No Controls	All controls	N	Mean rejected
A. Income and Education				
Annual Income in 1939	76.76	89.50*	1,960	666.2
	[50.053]	[48.461]		
Years of schooling	0.464**	0.368*	2,058	9.363
	[0.181]	[0.197]		
B. Race				
Black =1	0.00440	0.00319	2099	0.008
	[0.006]	[0.007]		
C. Effect on age at death				
Log age at death	0.0281**	0.0357***	2,099	69.34
	[0.012]	[0.013]		

* p<0.10, ** p<0.05. Subsample of MP applicants matched to the preliminary release of the 1940 census. Estimation sample restricted to 1900-1925 cohorts in states and counties with rejected applicants. All models are estimated using county and cohort fixed effects and include state characteristics at the time of application. State characteristics at the time of application include manufacturing wages, education/labor laws (age must enter school age can obtain a work permit and whether a continuation school law is in place), state expenditures in logs (education, charity and total expenditures on social programs) and state laws concerning MP transfers (work required, reapplication required, the maximum legislated amount for the fits child and the legislated amount for each additional child).

Table 11: Relationship Between Single Parenthood and Income 1915-2010

	1915 Iowa		1940 US		1960 US		1980 US		2010 US	
	Single	**2 parent**	**Single**	**2 parent**	**Single**	**2 parent**	**Single**	**2 parent**	**Single**	**2 parent**
Family income ($2013)	14,918	25,831	8,502	21,068	20,458	53,191	28,030	74,623	32,664	99,648
Average Rank Within State (1-lowest income 100-highest income)	33	53	28	51	18	54	20	56	23	55
Share bottom 20% of income distbn.	0.48	0.15	0.51	0.19	0.71	0.15	0.63	0.13	0.56	0.13
Income relative to poverty line	NA	NA	NA	NA	84%	188%	127%	273%	147%	301%
share of children by family type:	4%	96%	4%	96%	6%	94%	14%	86%	17%	83%

Calculated from the 1915 Iowa census and the 1940, 1960. 1980, and 2010 decennial censuses.

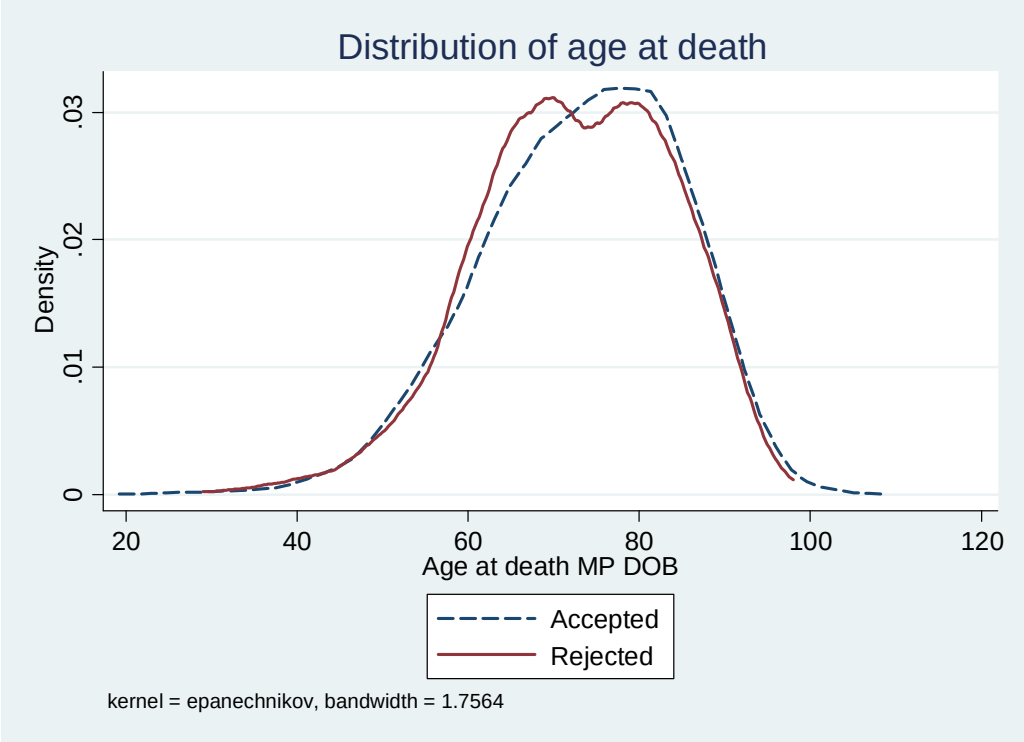
Table 12: Relationship between Family Income and Child Grade in School, Children ages 7-14

	1915	1940	1960	1980	2010
Panel A: US (and Iowa for 1915)	(Iowa)	US	US	US	US
Ln(family income)	0.0144***	0.00693***	0.045***	0.035***	0.0209***
	[0.00339]	[0.000937]	[0.00120]	[0.000490]	[0.000564]
Constant	4.314	6.984	6.447	6.611	7.101
	[0.0337]	[0.0108]	[0.0134]	[0.00562]	[0.00658]
Observations	7,768	135,078	275,491	1,438,268	929,414
R-squared	0.762	0.746	0.86	0.895	0.895
	1915	**1940**	**1960**	**1980**	**2010**
Panel B: Iowa Only	(Iowa)	(Iowa)	(Iowa)	(Iowa)	(Iowa)
Ln(family income)	0.0144***	0.00282	-0.00603	0.0261***	0.0239***
	[0.00339]	[0.00657]	[0.00660]	[0.00505]	[0.00668]
Constant	4.314	7.236	7.019	6.582	7.051
	[0.0337]	[0.0729]	[0.0743]	[0.0569]	[0.0756]
Observations	7,768	1,998	4,385	17,952	9,306
R-squared	0.762	0.788	0.89	0.914	0.913

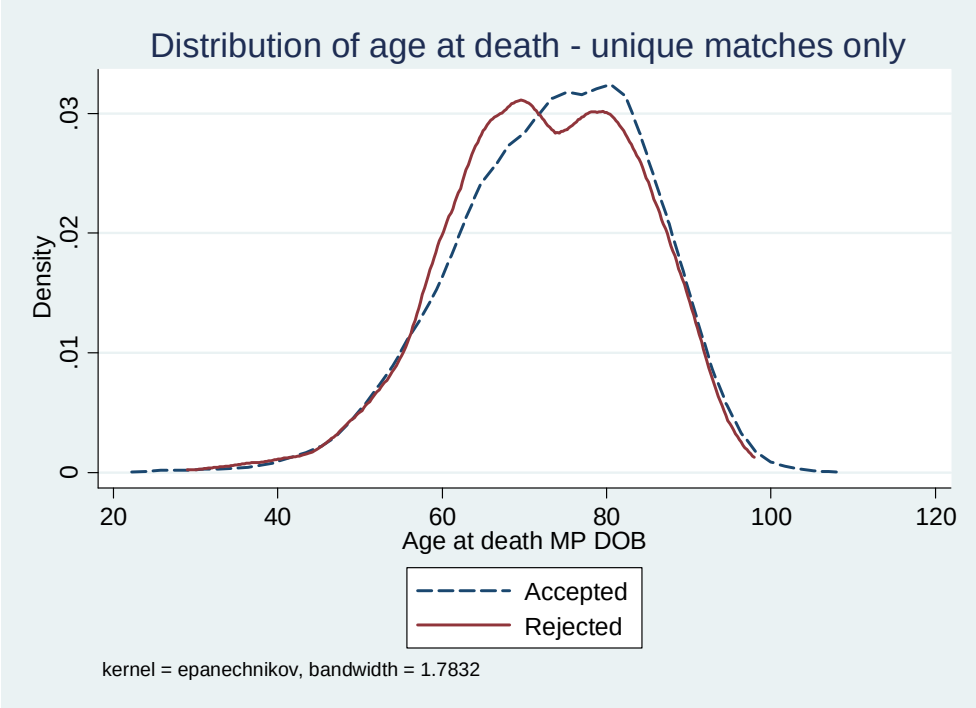
***p<0.01, ** p<0.05, * p<0.1. Standard errors in brackets. Each column reports the coefficient of ln(family income) on grade in school. Regressions include gender and single year of age dummies.

Fig. 1: Distribution of age at death. Boys of accepted and rejected applicants

a. All matches

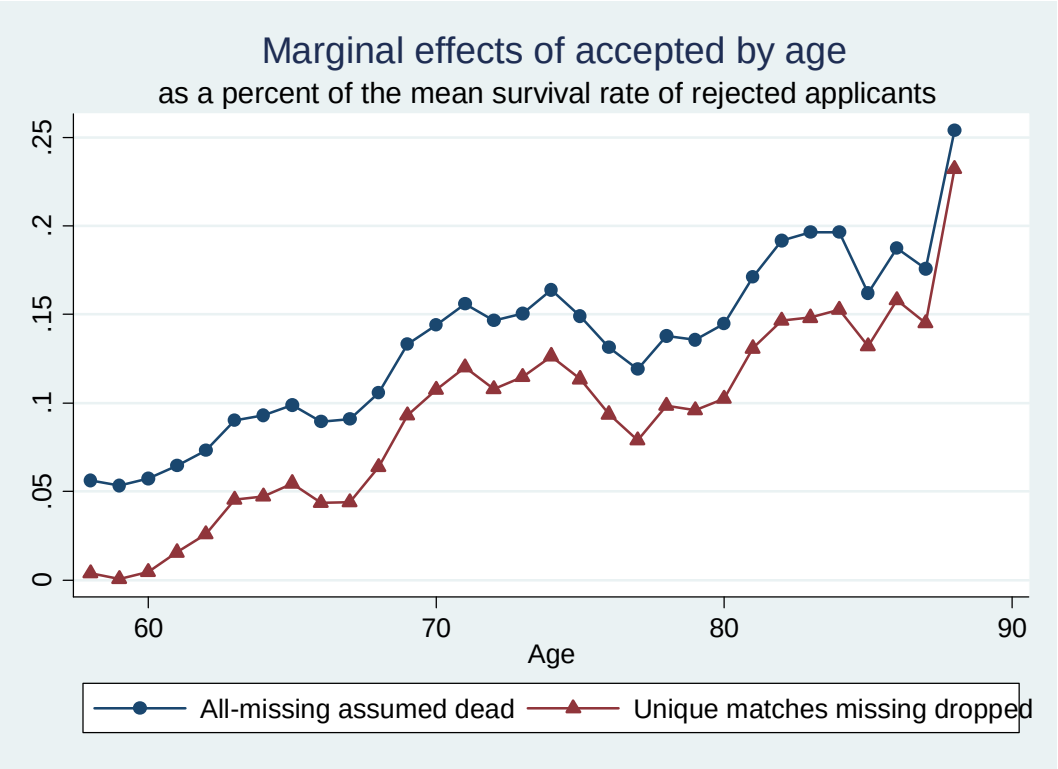


b. Unique matches



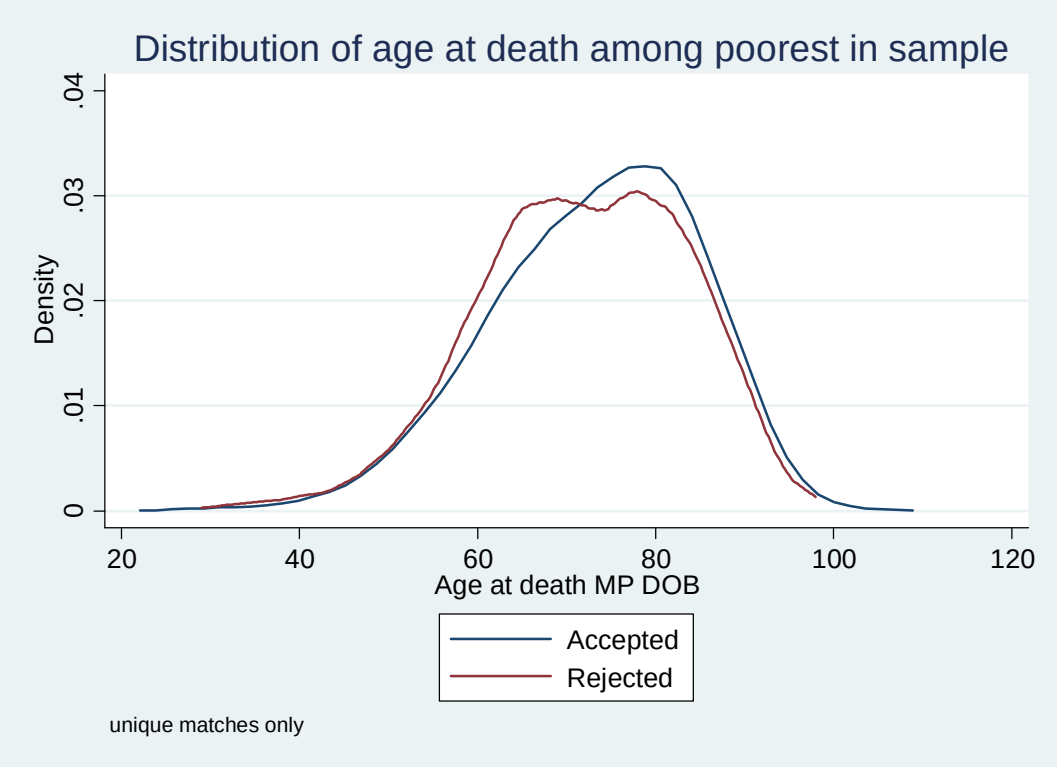
We reject the null that the distributions are the same using a Wilcoxon rank-sum test (unique matches).

Fig. 2: Effects by Age



Each dot represents the marginal effect of "Accepted = 1" as a percent of the survival rate to a given age. Coefficients for surviving past ages 63 are all significant at the 10 percent or higher for both sets of estimates.

Fig. 3: Estimates by predicted family income



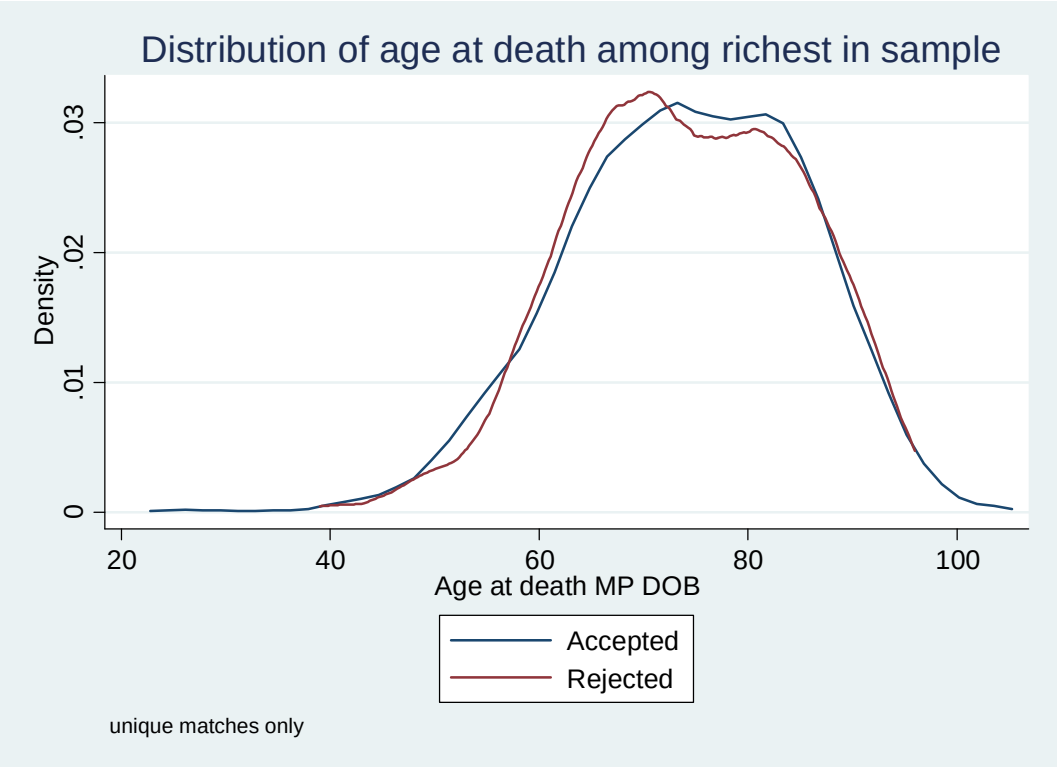
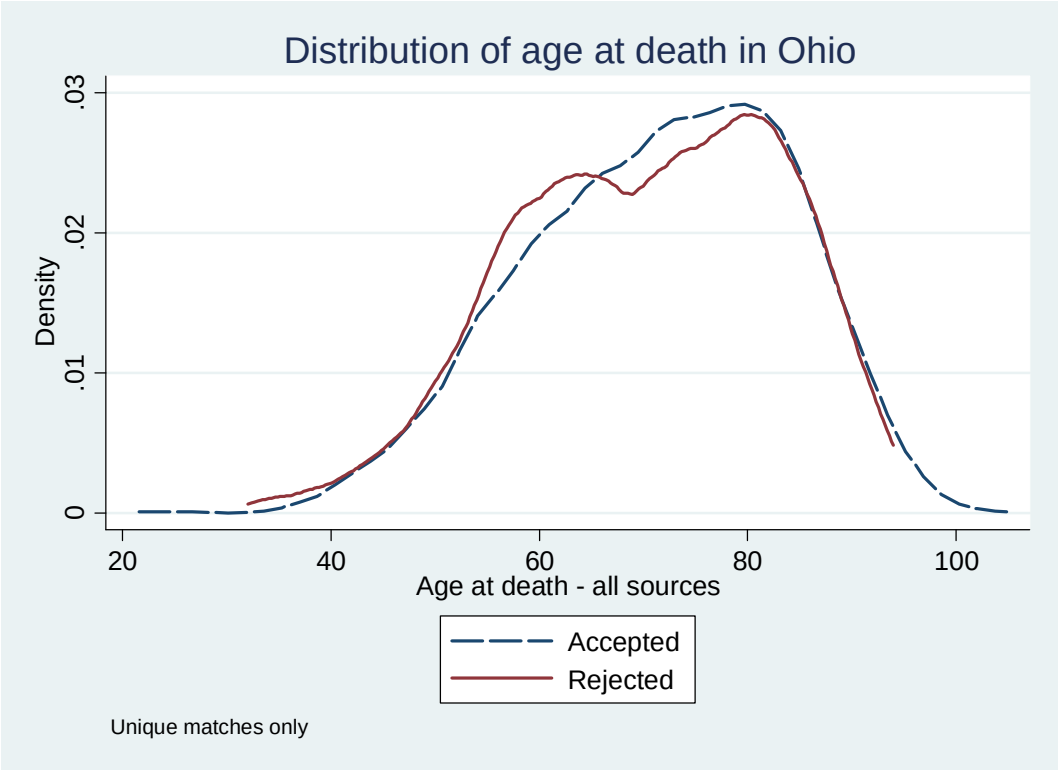


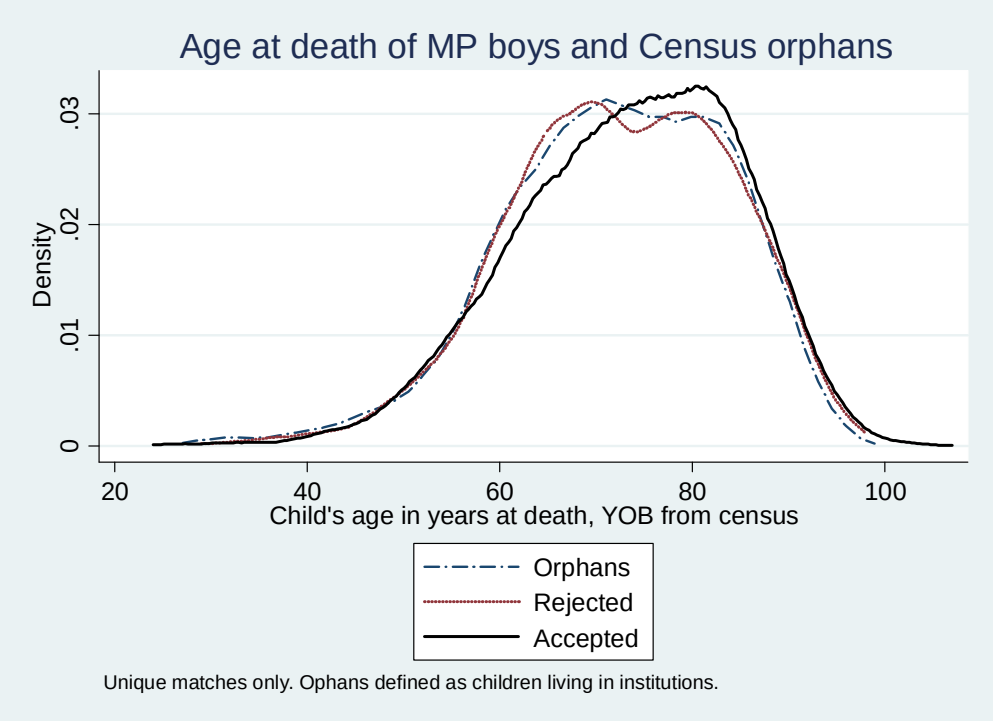
Fig. 4: Ohio, matching to additional death records.



Records matched first to Death Mortality Files (DMF). Unmatched records were then manually imputed by searching individual records in Ancestry.com. Unmatched records were then matched to Ohio and Illinois state death records.

Fig. 5: Alternative counterfactuals

Panel A: Orphans from the 1900-1930 Census



Panel B: States where single and divorced are ineligible

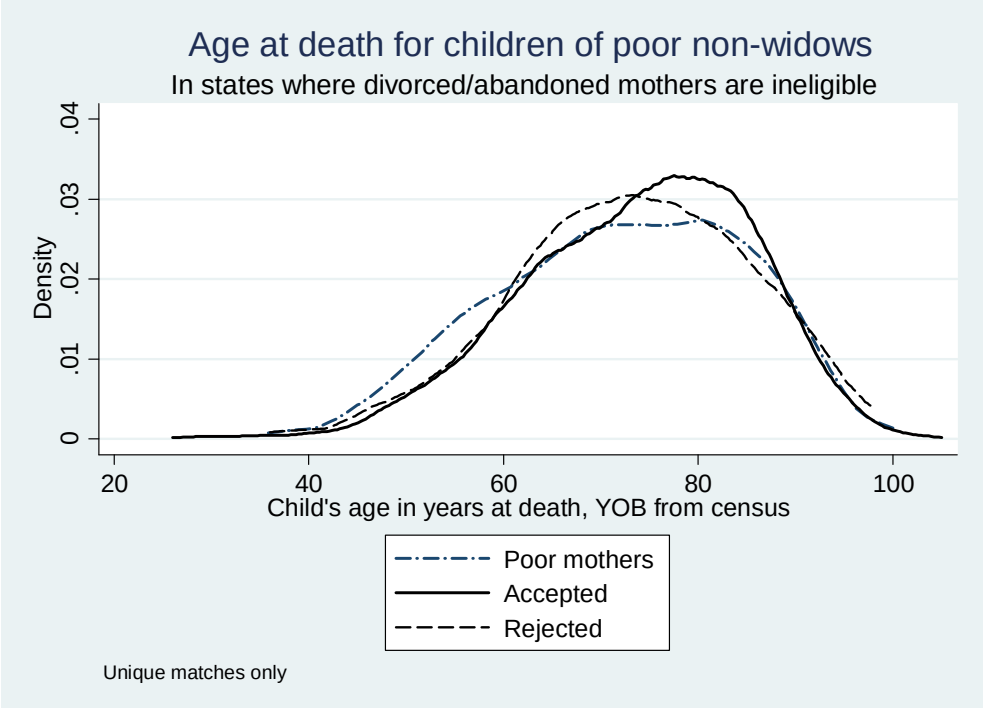
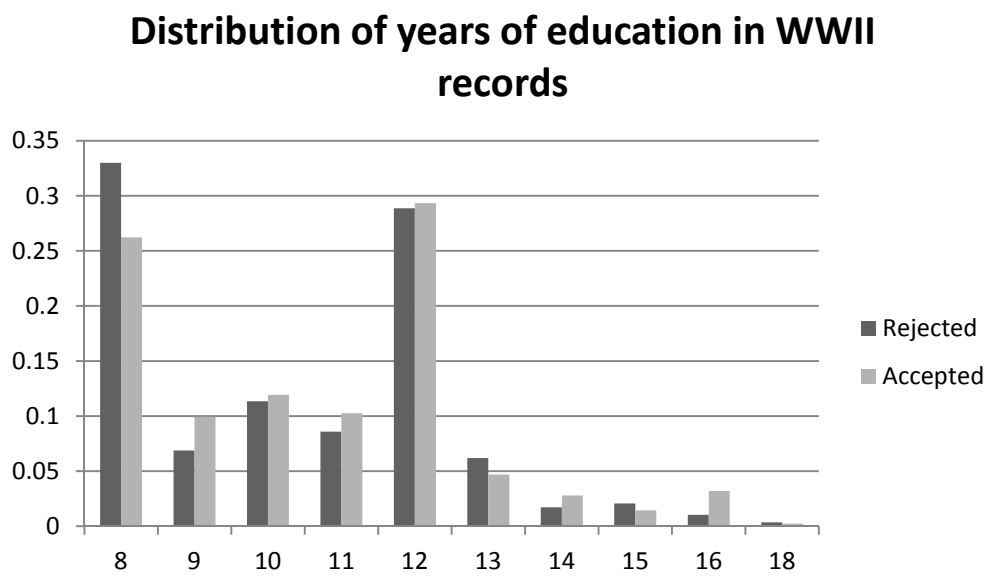


Fig. 6: Effect of MP on outcomes from WWII records



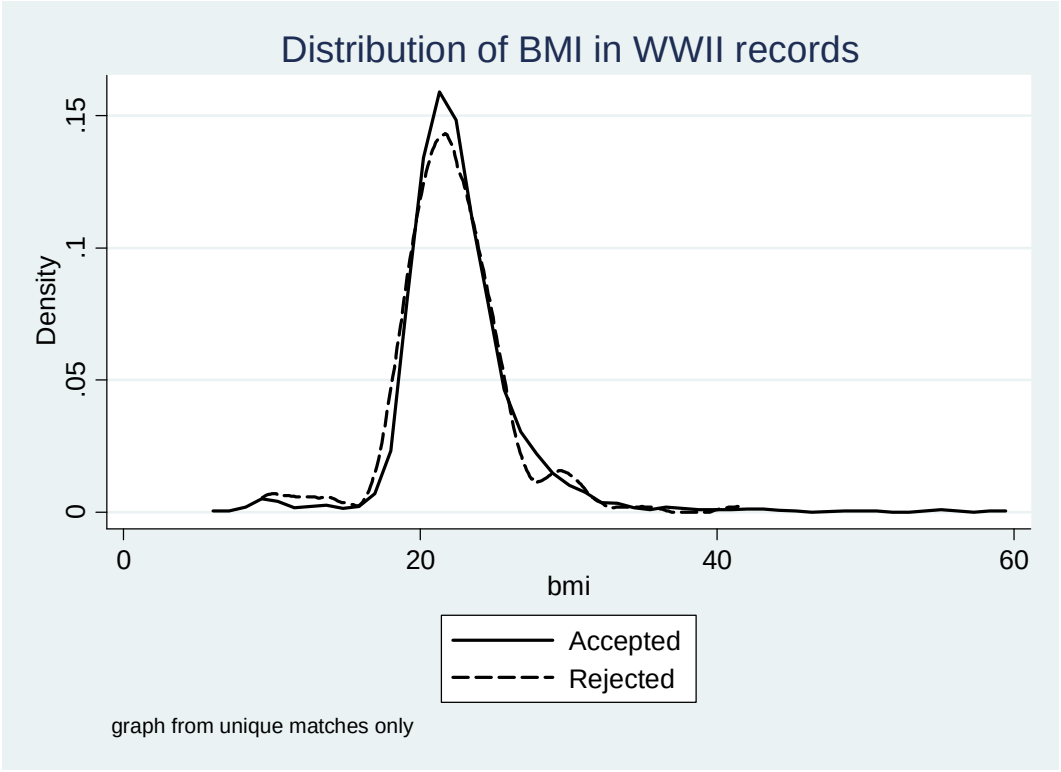
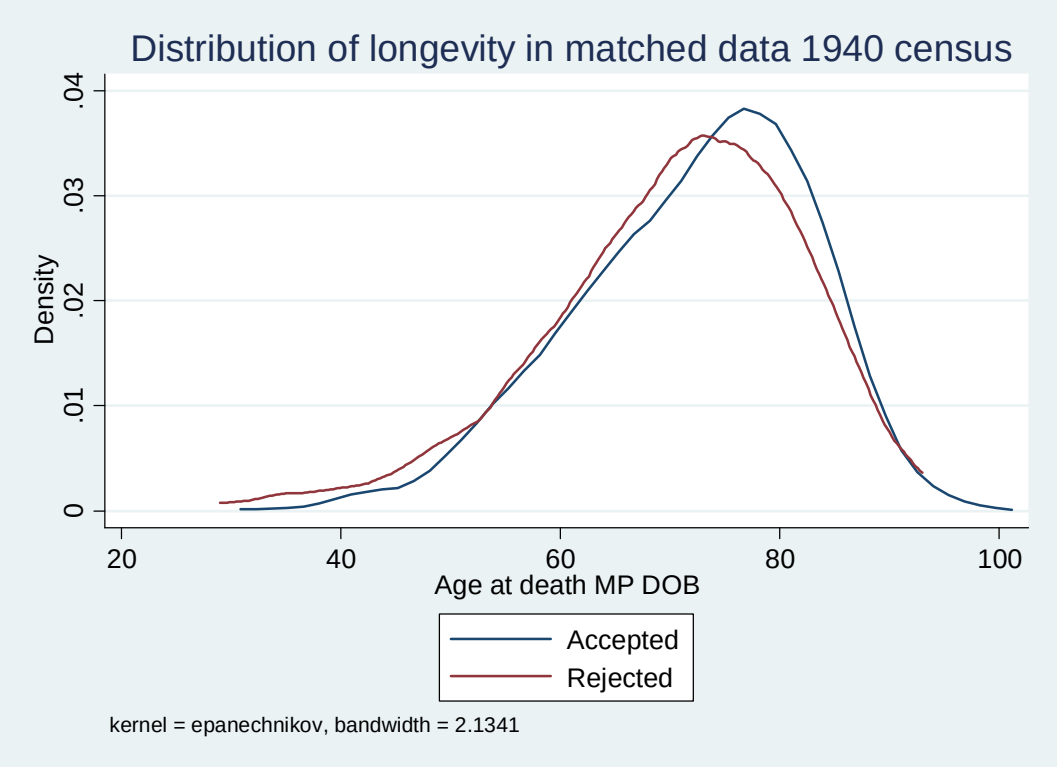
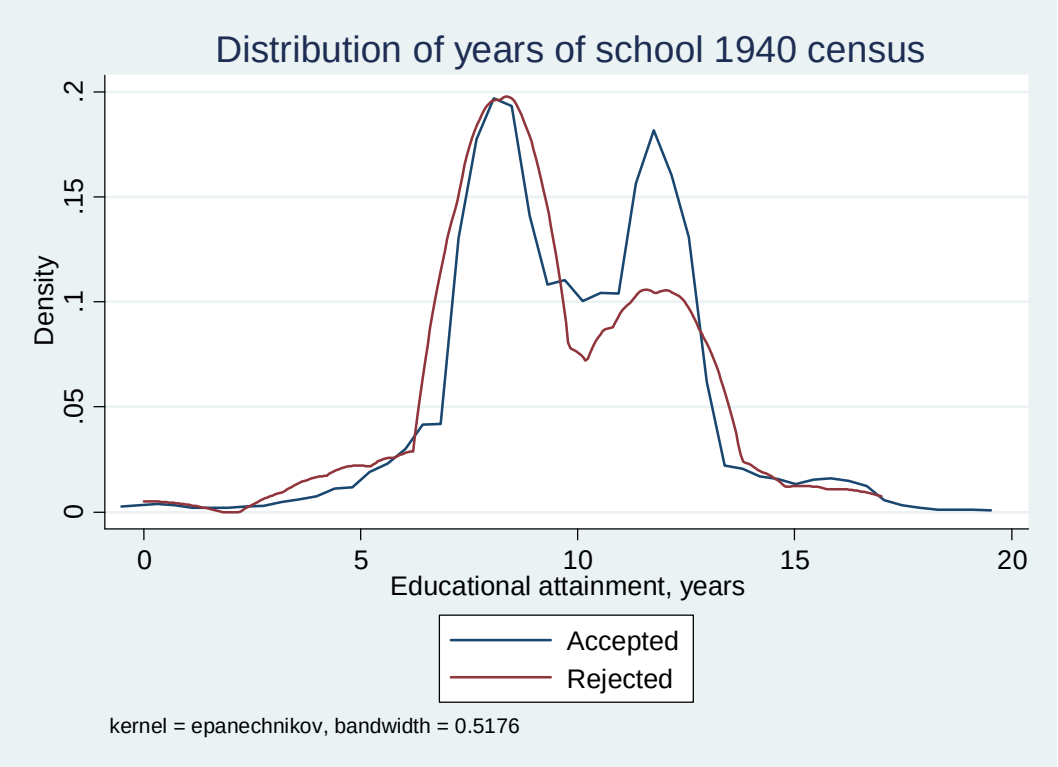
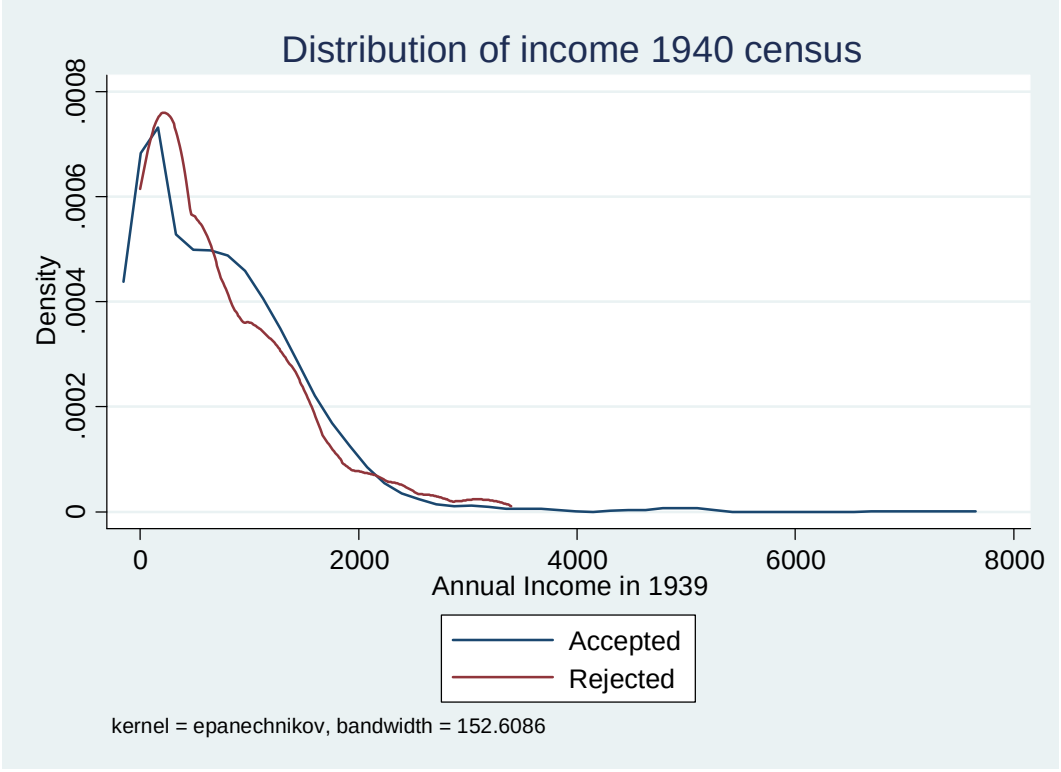
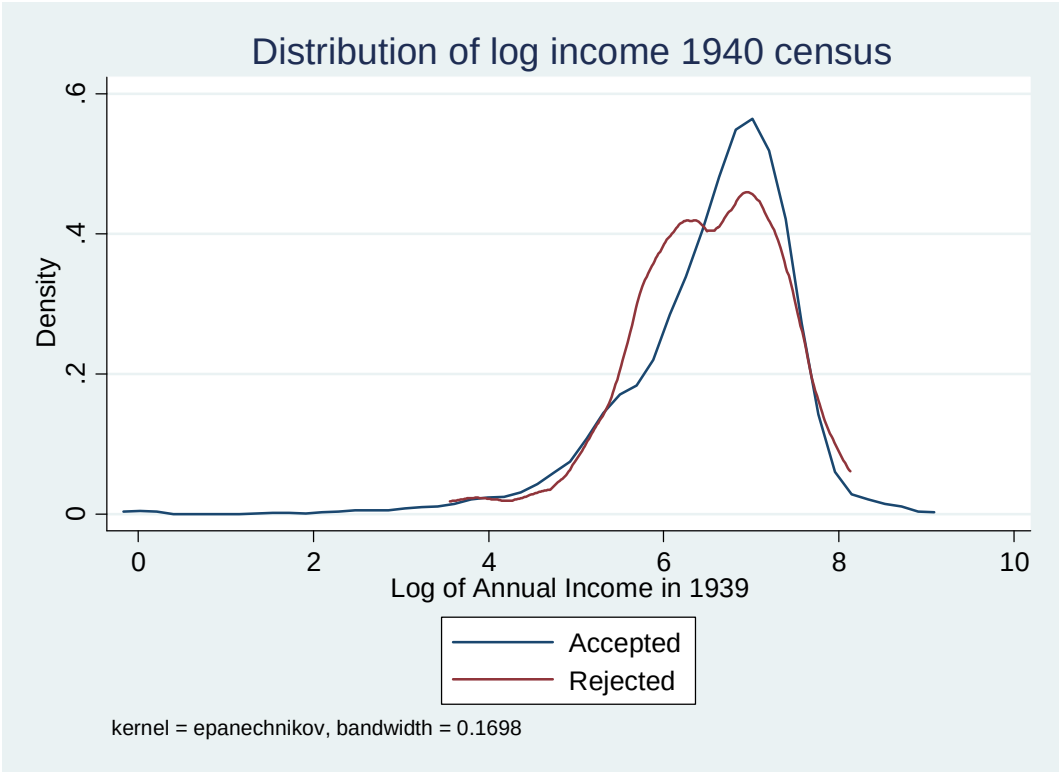


Fig. 7: Effect of MP on outcomes for 1940 Census Sample






Distribution of income 1940 census
Density
0
.0002
.0004
.0006
.0008
0
2000
4000
6000
8000
Annual Income in 1939
Accepted
Rejected
kernel = epanechnikov, bandwidth = 152.6086


Distribution of log income 1940 census
Density
0
.2
.4
.6
0
2
4
6
8
10
Log of Annual Income in 1939
Accepted
Rejected
kernel = epanechnikov, bandwidth = 0.1698

Supplementary Materials - Materials and Methods

I. Matching algorithm

We start by matching our MP records to DMF. The match uses 6 variables: first name, middle initial, last name, day, month and years of birth. The match allows for errors in strings and in single digits for DOB. Specifically we convert all names/strings into sounds using the SOUNDEX function and match individuals based on this rather than based on the original strings to avoid dealing with changes in spelling and spelling mistakes. The procedure SPEDIS computes a measure of distance between strings and we use it to measure the quality of a match. We also allow for error in the dates.

Step 1: take as a possible match any pairs of observations meeting at least one of these criteria

a. surname SOUNDEX codes match AND first letter of given names match AND year of birth is within 2 years
b. first letter of surnames match AND given name SOUNDEX codes match AND year of birth is within 2 years
c. first letter of surnames match AND first letter of given names match AND date of birth matches exactly
d. surname SOUNDEX codes match AND date of birth matches exactly

Step 2: group the matches based on quality

First Best:

-birthdate matches exactly AND average SPEDIS score across surname and given name is 0 OR
-(birthdate matches exactly OR 2 of [birth month, day, year] match) AND (surname matches exactly OR one surname contains the other OR one surname contains the 1st three letters of the other) AND (given name matches exactly OR one given name contains the other OR one given name contains the 1st three letters of the other)

Second Best: if no "First Best" group

(year of birth matches exactly OR date of birth differs by a month or less) AND (surname matches exactly OR one surname contains the other OR one surname contains the 1st three letters of the other) AND (given name matches exactly OR one given name contains the other OR one given name contains the 1st three letters of the other)

Third Best: if no “First best” or “Second best” group

(year of birth is within 2 years) AND (surname matches exactly OR one surname contains the other OR one surname contains the 1st three letters of the other) AND (given name matches exactly OR one given name contains the other OR one given name contains the 1st three letters of the other)

Step 3: Retain only observations only if they were in one of the three categories in Step 2 AND average SPEDIS score across surname and given name is less than 9

Step 4. Retain only those observations with the "best" match AND the lowest average SPEDIS score across surname and given name is zero

Step 5. Retain only those observations with 5 or fewer matches to the DMF or state death records

These procedures rely heavily on two functions:

1. SOUNDEX: The SOUNDEX function encodes a character string according to an algorithm that was originally developed by Margaret K. Odell and Robert C. Russel (US Patents 1261167 (1918) and 1435663 (1922)). The algorithm is described in Knuth, The Art of Computer Programming, Volume 3. (See References.) Note that the SOUNDEX algorithm is English-biased and is less useful for languages other than English.

2. SPEDIS: SPEDIS returns the distance between the query and a keyword, a nonnegative value that is usually less than 100 but never greater than 200 with the default costs. SPEDIS computes an asymmetric spelling distance between two words as the normalized cost for converting the keyword to the query word by using a sequence of operations.

Matching to the 1940 Census and WWII

Matching to the 1940 Census and WWII records differs because date of birth is not available in these records, only year of birth. Each potential match is placed in one of four groups from most to least likely:

1. Birth year difference no more than one and an average "Levenstein distance" over given names and surnames no greater than three
2. Birth year difference no more than one and one given name is contained in the other and one surname is contained in the other, but the match does not fit into Group 1
3. Group 2 but allowing a birth year difference no more than two
4. Group 1 but allowing an average Levenstein distance over given names and surnames no greater than five.

Any matches in Group 1 are accepted over any in Groups 2 through 4; if there are no Group 1 matches, any matches in Group 2 are accepted over any in Groups 3 or 4; etc.

Levenstein distance is defined as the fewest number of single-character changes (substitution, deletion, or insertion) needed to transform one name into another; e.g. Ferry --> Ferrie has a distance of 2 (one substitution and one addition).

II. State and county level data

a. State data. State characteristics at the time of application include:
1-manufacturing wages (computed as the national manufacturing wages * ratio of state to national manufacturing earnigns), education/labor laws (age must enter school age can obtain a work permit and whether a continuation school law is in place). These were obtained from Price Fishback at:
http://www.u.arizona.edu/~fishback/Published_Research_Datasets.html. The information is available for all years from 1900 to 1930.
2-state expenditures (education, charity and total expenditures on social programs). These were collected from various volumes of the Financial Statistics of the States and are available for 1915-1919, 1923-1930. We imputed missing values for 1923-1930 using linear interpolation within states.

b. State Mother's Pensions Laws. Available for years 1914, 1916, 1919, 1922, 1925, 1926, 1929 and 1934. Missing values were imputed using the last observation within state. The data for each year of the MP Laws was gleaned from the following resources:

- **1914**: "Laws Relating to 'Mothers' Pensions' in the United States, Denmark, and New Zealand" from the U.S. Department of Labor, Children's Bureau, Dependent Children Series, No. 1, Bureau Publication No. 7
- **1916**: "Widows' Pension Legislation" from the Bureau of Municipal Research and Training School for Public Service in New York, No. 85, May, 1917
- **1919**: Thompson, Laura A. 1919. "Laws Relating to 'Mothers' Pensions' in the United States, Canada, Denmark, and New Zealand." Washington, DC: U.S. Government Printing Office (U.S. Department of Labor, Children's Bureau, Legal Series No. 4, Bureau Publication No. 63)
- **1922**: Eckman, Lulu L. 1923. "Public Aid to Children in Their Own Homes: A Tabular Summary of State Laws in Effect November 1, 1922." Washington, DC: U.S. Government Printing Office (U.S. Department of Labor, Children's Bureau, Legal Chart No. 3)
- **1925**: Eckman, Lulu L. 1925. "A Tabular Summary of State Laws relating to Public Aid to Children in Their Own Homes in effect January 1, 1925 and the Text of the Laws of Certain States." Washington, DC: U.S. Government Printing Office (U.S. Department of Labor, Children's Bureau, Chart No. 3)
- **1929**: "A Tabular Summary of State Laws relating to Public Aid to Children in Their Own Homes in effect January 1, 1929 and the Text of the Laws of Certain States." Washington, DC: U.S. Government Printing Office (U.S. Department of Labor, Children's Bureau, Chart No. 3)
- **1934**: "A Tabular Summary of State Laws relating to Public Aid to Children in Their Own Homes in effect January 1, 1934." Washington, DC: U.S. Government Printing Office (U.S. Department of Labor, Children's Bureau, Chart No. 3)

c. County data for Ohio
We include three county level variables available for a few years: total expenditures on relief, total expenditures on outdoor relief and total expenditures on children's homes. These were collected from various volumes of the Ohio General Statistics, available for 1915-1922. We imputed missing values for using linear extrapolation within counties.

III. Selection of controls from the 1900 (5%), 1910 (1%), 1920 (1%), and 1930 (5%) Censuses

The exercise of selecting controls from the censuses is difficult for two reasons. First there is very little information about the socio-economic status of women who are not married: prior to 1940 the census does not report education or earnings, and although occupation is available, very few women worked.[1] Also the Iowa census data suggest that a randomly chosen widow might not be very poor. Second, none of the census reports exact date of birth: 1900 and 1930 report year and month, and 1910 and 1920 only report year of birth. As a result it is more difficult to match these individuals with their death certificates. For this reason we allow a "softer" matching criteria for the census.

We selected all children under age 18 of women living in poor areas, and included black families and all children living in institutions. We further selected children by matching their characteristics to those of the MP applicants using propensity scores and then matched them to death certificates. Table S8 shows that despite our best efforts, our census samples differ substantially from MP children on observables: they are older when we observe them, they are disproportionately drawn from more recent cohorts, and they come from smaller families. There is also more measurement error for these samples in the age at death. Panel D of Figure S1 shows that we match substantially fewer of these children to death certificates (in particular blacks). Below is more detail on the controls chosen.

1-Black sample: All black children 18 and younger in poor minor civil divisions within MP states living in households and whose mother is marital status was "widowed", "single/never married" "divorced" or "abandoned"

2-Controls in MP states:

- All white children 18 and younger
- living in poor minor civil divisions within MP states
- mothers' marital status was "widowed", "single/never married" "divorced" or "abandoned"
- matched by propensity score using gender, gender-specific year-of-birth dummies, age at application/observation dummies, number of siblings in each age category, dummies for (imputed) mother's birthplace, number of letters in last name and state dummies.

[1] Labor force participation among women in 1910 in the US is about 22% (Olivetti 2013) and this number is substantially lower among those with children .

3-Controls from neighboring states.

- All white children 18 and younger
- Living in poor minor civil divisions in control/neighboring states.
- Control states were selected based on a-geographic proximity, b-having no MP program, c-having an MP program with very few recipients according to Children's Bureau publications.
- States chosen based on the following table:

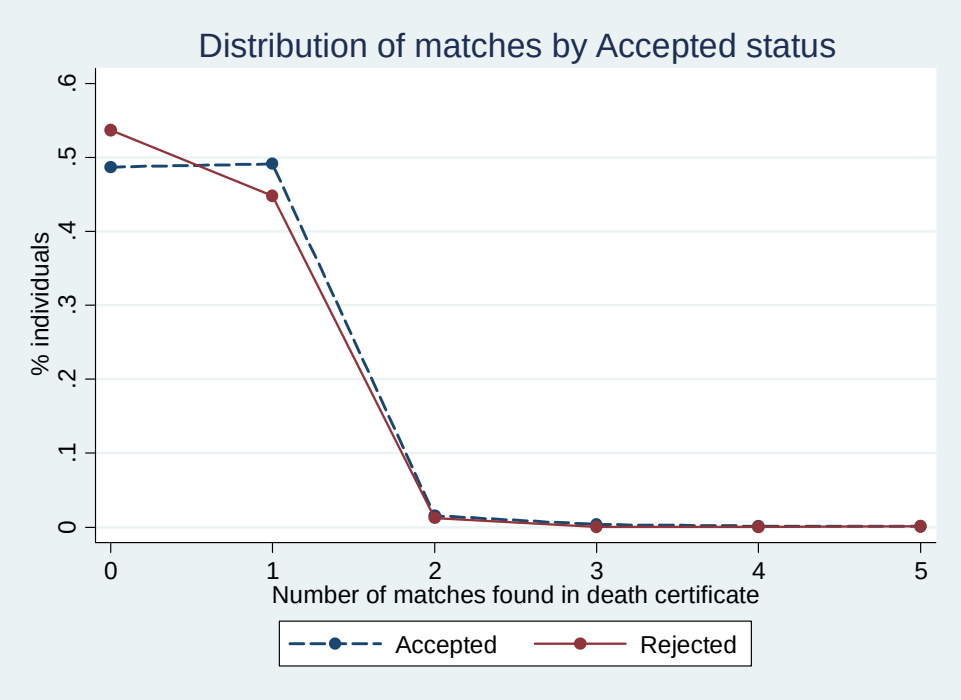
MP state	Control state
Colorado	New Mexico (passed law in 1931).
Ohio	Kentucky (passed law in 1928) and Indiana
Connecticut	New Hampshire
Oklahoma	Missouri
Iowa	Missouri
Illinois	Indiana and Missouri

- matched by propensity score using the same covariates as listed above

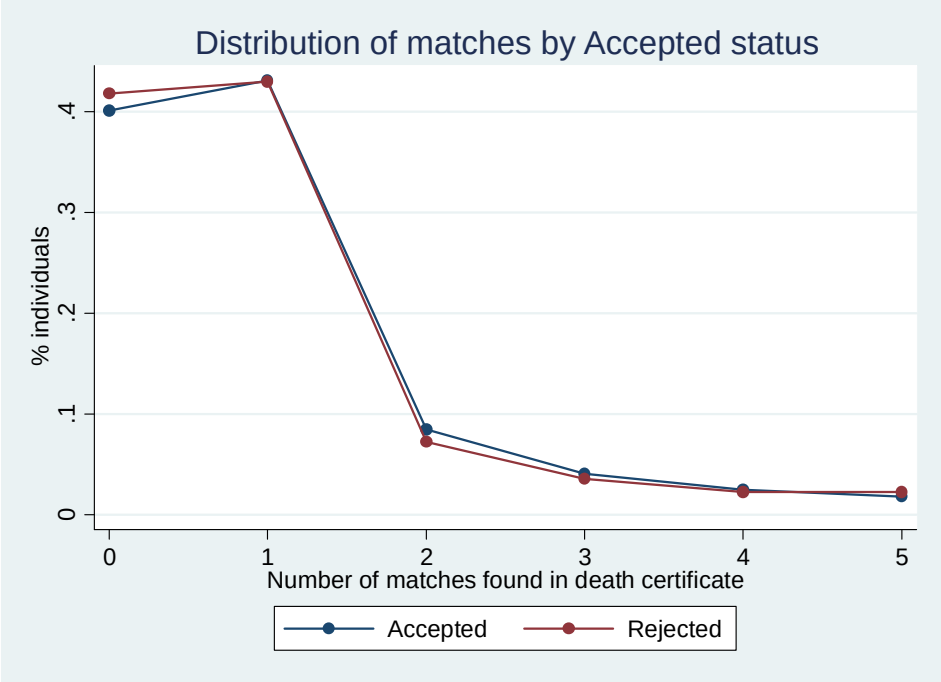
NB: A *poor* minor civil division is defined as a minor civil division in which a-average earnings of adults in households were below the 50th percentile of socio-economic index in the combined 1900-1930 censuses or b-average earnings of adults in households were below the 50th percentile of Duncan occupational score in the combined 1900-1930 censuses, or c-average earnings of married men in dual households was below the 50^{th} percentile.

Fig. S1: Number of matches to death certificates

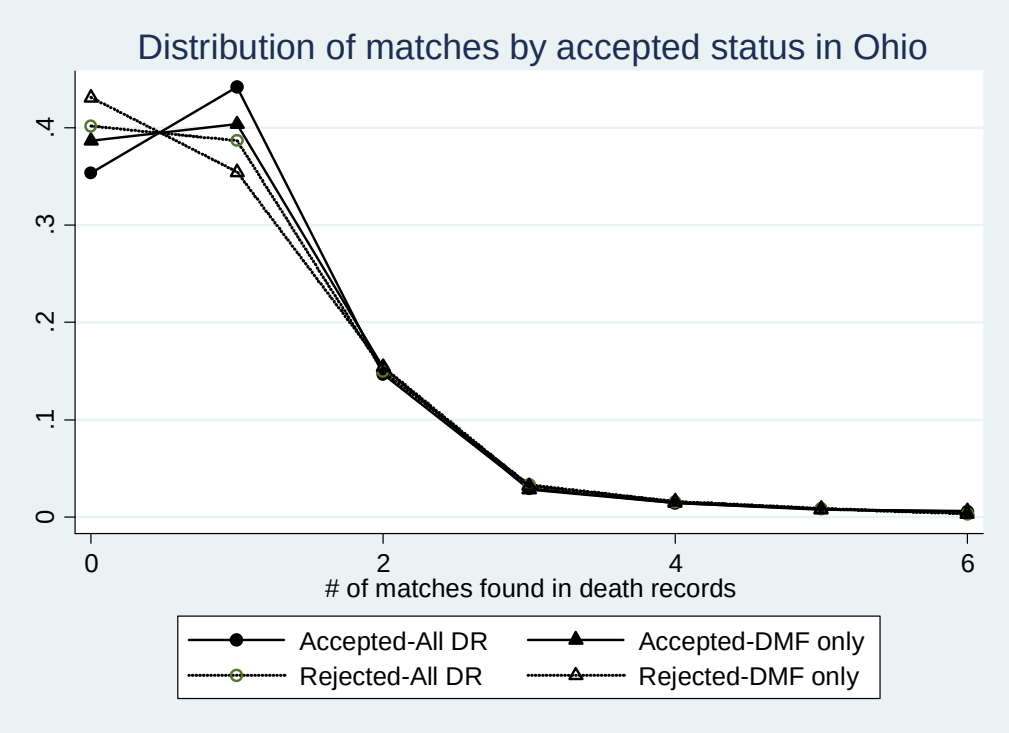
Panel A: Estimation Sample



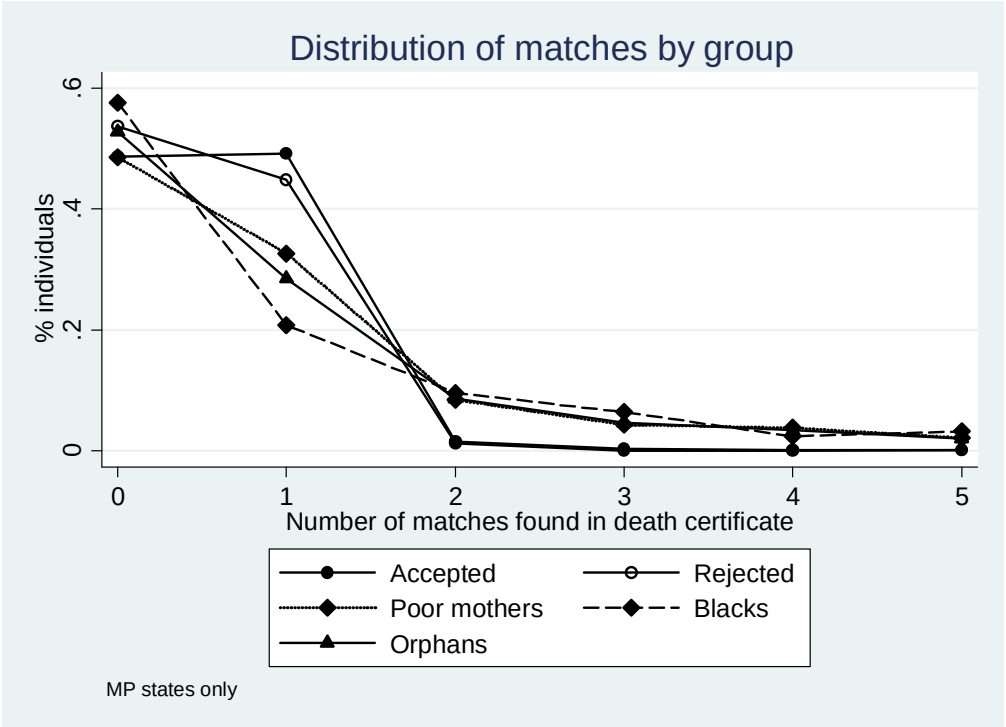
Panel B: Distribution of matches with less stringent matching criteria



Panel C: Ohio Sample with additional matches to state death certificates



Panel D: matches for possible census controls



Note: MP matches are stringent but census controls are matched with looser criteria.

Table S1. Mothers' Pension Program Characteristics
States with no individual-level MP data

State	tate funds	Deserted or divorced eligible	Children age eligibility	Residency required	Citizenship required	Benefit for 1st child	Benefi t for each add'l child
1-Alaska	yes	No	17	*	no	15	10
2-Arizona	no	No	16	Varies	yes	20	*
3-Arkansas	yes	Yes	15	Yes	yes	10	5
4-California	yes	No	15	Yes	no	*	*
5-Delaware	yes	Yes	14	Yes	no	9	5
6-Florida	no	Yes	16	*	no	25	8
7-Indiana	no	Yes	16**	*	no	*	*
8-Kansas	no	Yes	16	Yes	no	*	*
9-Louisiana	no	No	16	*	no	15	10
10-Maine	yes	Yes	14	*	no	*	*
11-Maryland	yes	No	14	Yes	no	12	*
12-Massachusetts	yes	Yes	14	Yes	no	*	*
13-Michigan	no	Yes	17	*	no	12	12
14-Missouri	no	Yes	16	Yes	no	16	8
15-Nebraska	no	Yes	14	Yes	no	10	10
16-Nevada	no	Yes	15	Yes	no	25	15
17-New Hampshire	yes	Yes	16	Yes	no	10	5
18-New Jersey	yes	No	16	Yes	no	9	*
19-New York	no	*	16	Yes	yes	*	*
20-South Dakota	no	Yes	16	*	no	15	7
21-Tennessee	no	No	15	*	yes	10	5
22-Texas	no	No	16	*	no	12	*
23-Utah	no	No	16	Yes	no	*	*
24-Vermont	yes	Yes	*	*	no	8	8
25-Virginia	no	No	16	*	no	12	*
26-West Virginia	no	Yes	13	*	yes	15	5
27-Wyoming	no	No	14	*	no	20	10

Source: Children's Bureau (1922c) Note:

States not included in Table 1 or Appendix Table 1 are excluded did not enact Mothers' Pension programs by 1920.

*No information provided in report. **Boys eligible until age 16, girls until 17.

Table S2. Representativeness of MP Data Collected

State	MP data collected for 1930 New beneficiaries				Published Statistics 1931* All beneficiaries receiving transfers			
	# families	# children	Mean monthly grant	Mean family size	# families	# children	Mean monthly grant	Mean family size
Connecticut	6	11	12.11	1.83	959	2679	45.91	2.79
Idaho	75	184	20.22	2.45	230	619	13.16	2.69
Illinois	68	192	19.99	2.82	6087	17004	26.11	2.79
Iowa	81	185	29.51	2.28	3242	7829	20.81	2.41
Minnesota	40	123	28.54	3.08	3455	9990	29.35	2.89
North Dakota								
Ohio	365	800	19.63	2.19	7708	21262	21.68	2.76
Oklahoma	78	158	11.53	2.03	1896	5166	7.29	2.72
Oregon	76	174	25.86	2.29	862	2127	21.35	2.47
Washington	316	723	23.75	2.29	2517	5605	19.66	2.23
Wisconsin	37	74	25.93	2.00	7052	18188	21.66	2.58

*Published data come from Children's Bureau (1931).
**Published data come from Children's Bureau (1928a).

Table S3. Generosity of Transfers in Real Terms

	1911-1930 transfers in all MP records as a function of income				1919 transfers in estimation sample as a function of income		
State	Monthly MP amount	Monthly wages in manufacturing in state	Amount as % of manufact. wage	Estimated % of total family income in MP families	Monthly MP amount	Household income. urban two parent households*	Farm Laborer Income in region**
Connecticut	11.39	99.9	11%		100.54	132.57	46.16
Idaho	19.76	121.88	16%		20.9		59.2
Illinois	16.46	117.23	14%	29%[a]	16.8	126.91	42.21
Iowa	30.59	103.91	29%	44%[b]	25.92	124.18	50.81
Minnesota	23.67	104.11	23%	50%[c]	19.56	124.60	50.81
North Dakota	33.03	120.31	27%		34.23		50.81
Ohio	11.07	115.2	10%	100%[d]	9.875	121.11	42.21
Oklahoma	13.27	108.46	12%		14.33	130.90	36.19
Oregon	19.42	114.6	17%		22.35	136.96	65.3
Washington	20.94	121.01	17%		23.4	130.31	65.3
Wisconsin	20.31	102.04	20%		25	114.06	42.21

*Computed from ICPSR study "COST OF LIVING IN THE UNITED STATES, 1917-1919."

**State average imputed using the census region average reported in: http://hsus.cambridge.org/HSUSWeb/table/seriesprev.do. The original data source is: Lebergott, *Manpower in Economic Growth: The American Record since 1800* (McGraw-Hill, 1964), Tables A-23 and A-24, pp. 257ff.

a. N= . Computed from MP records using observations with maternal earnings. Records from Montgomery county show maternal income as varying from 50 cents per week, up to 10 dollars a week, making the percentage even higher (Dahlquist 2011).
b. N=244. Computed using the average family pension 1915-1919 in Iowa MP records and average income from the 1915 Iowa Census.
c. N=62, Clay County MP records 1930.
d. N=100. First 100 cases in Hamilton County Ohio. 1914 (Bullock, 1915). Computed as the average MP pension divided by monthly wages of mothers. Other sources of income not reported.

Table S4: Income and Wealth by family composition in the Iowa 1915 Census
Sample: Boys 0-18 living in families with at least one child under 14

Household with	No married man in household				Married woman and married man
	Widow	Divorced Female	Single woman	married woman	
N of individuals ages 0-18	604	97	143	970	14,792
Total family earnings	684	316	280	504	1,109
% below 30th percentile of family earnings	52	73	80	66	17
Number of kids under 14 in family	2.6	1.8	1.9	2.7	3.1
Number of people in family	5.4	3.4	3.7	5.3	6
Earnings per capita	127	93	76	95	185
% own house/farm	50%	7%	15%	27%	47%
Value of house/farm (if owns)	7,372	2,146	6,697	12,498	11,042

Author's tabulations from the Iowa 1915 census.

Table S5. Predicting Household Income for boys under 18 using the Iowa 1915 census.

Sample: households with at least one child under 14	All households N=9,180		No married man in household N=1,537	
	OLS	TOBIT	OLS	TOBIT
Has married male	594.7193***	971.8404***		
	[42.333]	[73.482]		
Has married female	247.5388***	420.8946***		
	[46.033]	[67.103]		
Has a widow	215.4419**	552.4015***	62.4707	211.9840*
	[87.284]	[122.111]	[81.904]	[124.493]
Name length	9.6298	13.4332	20.4402	38.7576
	[8.152]	[9.088]	[12.527]	[23.571]
Age	8.4870***	10.1344***	11.9447**	32.9156***
	[2.546]	[2.768]	[5.510]	[8.998]
# kids age 0	68.0026	93.9281	130.7938	187.5139
	[66.915]	[71.460]	[148.409]	[302.117]
# kids age 1	-82.3495**	-79.7430**	-56.5537	-102.3321
	[33.016]	[36.599]	[107.867]	[228.169]
# kids age 2	1.8798	5.2731	-70.6111	-49.6923
	[68.177]	[71.645]	[76.811]	[186.586]
# kids age 3	-51.4231	-51.0020	-53.3489	-199.0365
	[39.507]	[43.298]	[92.820]	[197.879]
# kids age 4	-107.4332**	-109.9140**	-28.5116	30.2525
	[39.018]	[42.836]	[80.788]	[174.726]
# kids age 5	-23.6402	-17.3844	-79.9145	-88.7561
	[36.385]	[40.223]	[62.949]	[138.691]
# kids age 6	-11.1874	-19.6485	-12.4238	15.1178
	[38.959]	[42.938]	[63.961]	[143.189]
# kids age 7	-4.7253	2.1926	6.4409	124.2948
	[50.472]	[54.590]	[69.167]	[128.365]
# kids age 8	-0.2556	10.5778	-115.1911	-78.4309
	[35.911]	[40.007]	[71.859]	[141.303]
# kids age 9	53.3898	64.5410	-69.1891	-18.3048
	[42.019]	[46.578]	[73.576]	[131.537]
# kids age 10	5.1554	5.3444	-14.3600	17.1245
	[39.668]	[43.974]	[65.048]	[121.781]
# kids age 11	-23.5175	-21.1387	128.3780	209.7717
	[43.744]	[48.545]	[83.755]	[135.293]
# kids age 12	13.2001	20.8331	58.7942	138.8205
	[40.720]	[45.756]	[65.876]	[114.202]
# kids age 13	121.6027**	133.2005**	24.5044	92.9688
	[50.389]	[55.313]	[83.445]	[129.619]
# kids age 14	57.0520	77.0113	26.4178	116.0365
	[42.468]	[47.312]	[83.052]	[125.303]
# kids age 15	176.6892***	204.6295***	211.0864**	441.9761***
	[57.654]	[62.650]	[82.759]	[125.765]
# kids age 16	237.8189***	285.7827***	449.1488***	743.7591***
	[54.078]	[59.011]	[91.929]	[133.375]
# kids age 17	237.3049***	269.5818***	232.3904**	439.7864***
	[55.597]	[61.000]	[93.350]	[123.524]
R-squared	0.114		0.137	

Mean	1016	486.2

Table S6: Robustness Checks
Coefficient on Accepted on the probability of surviving past age 70

	Accepted=1			
	beta	se	N	% effect
Panel A: Logit				
Unique matches and missing dropped	0.268***	[0.078]	7,884	11%
Unique matches and missing imputed as dead	0.204***	[0.059]	15,952	15%
Random match and missing imputed as dead	0.207***	[0.058]	16,288	15%
All matches treated as observations, missing imputed as dead	0.194***	[0.057]	16,777	14%
Keep highest quality match	0.212**	[0.093]	5,860	8%
Panel B: MLE (Logit model)				
All matches and missing imputed as dead	0.201***	[0.055]	16,288	14%
Allowing for measurement error in matching	0.201***	[0.055]	16,288	14%
Sample matched on propensity score	0.207***	[0.055]	16,288	15%
Drop individuals with 3 or matches	0.199***	[0.055]	16,196	14%
Individuals with 1 or 2 matches, missing dropped	0.251***	[0.075]	8,152	10%
Less Stringent matching criteria	0.187**	[0.056]	14,987	
Panel C: results for Ohio				
Original data				
No county controls	0.308***	[0.099]	5,469	23.56%
Add county*year controls	0.311***	[0.099]	5,469	23.79%
Drop missing	0.325***	[0.113]	3,042	14.14%
Additional deaths, manual search				
No county controls	0.270***	[0.093]	5,469	18.23%
Add county*year controls	0.273***	[0.093]	5,469	18.43%
Drop missing	0.251**	[0.113]	3,494	13.38%

* p<0.10, ** p<0.05. All models are estimated using county and cohort fixed effects and include state characteristics at the time of application which are manufacturing wages, education/labor laws (age must enter school, age can obtain a work permit and whether a continuation school law is in place), state expenditures in logs (education, charity and total expenditures on social programs) and state laws concerning MP transfers (whether work is required, whether reapplication is required, the maximum legislated amount for the first child and the legislated amount for each additional child). County controls for Ohio consist of total expenditures on relief, total expenditures on outdoor relief and total expenditures on children's homes.

Table S7. Summary Statistics for Ohio, WWII and 1940 Samples

	Ohio large sample with unique matches		WWII sample with unique matches		Sub-sample matched to 1940	
	Rejected	Accepted	Rejected	Accepted	Rejected	Accepted
Year of application	1,921.01	1,921.06	1,922.84	1,923.21	1,922.00	1,922.52
YOB of child	1,912.45	1,912.84	1,914.81	1,915.71	1,913.86	1,914.26
Child age (years)	8.5	8.19	8.03	7.48	8.12	8.33
Number of kids in family (imputed)	3.41	3.75	3.5	3.76	3.64	3.79
Age of oldest kid in record	11.53	11.53	11.44	11.02	10.99	11.45
Age of youngest kid in record	5.33	4.68	5.21	4.49		4.87
Length of family name	6.38	6.37	6.17	6.25	6.58	6.5
Widow	0.52	0.49	0.53	0.54	0.54	0.55
Divorced	0	0	0.02	0.03	0.01	0.03
Husband abandoned, in prison/hospital	0.14	0.19	0.18	0.21	0.16	0.2
Mother's marital status unknown	0.33	0.32	0.26	0.22	0.29	0.22
Day or month of birth missing	0	0.01	0.01	0.02	0.01	0.02
Number of children	336	2,032	291	2,155	140	956

Table S8: Assessing possible counterfactual groups from the 1900-1930 censuses

Group	Rejected	Accepted	Poor Blacks	Orphans	Poor Mothers	widow	not widow
Panel A: All							
Year of application	1920.8	1921.7	1925.84	1927.10	1926.54	1926.47	1926.89
YOB of child	1912.1	1913.4	1915.59	1914.91	1914.79	1914.43	1916.70
Child age (years)	8.72	8.22	10.25	12.18	11.75	12.04	10.19
Number of kids in family	3.6	3.77	3.54		3.09	3.20	2.48
Age of oldest kid in family	11.86	11.48	13.42	12.51	14.23	14.66	11.97
Age of youngest kid in family	5.59	4.81	6.17	11.90	8.76	8.89	8.09
Length of family name	6.39	6.45	6.14	6.54	6.39	6.39	6.40
Widow	0.51	0.54	0.83		0.84		
divorced/single/deserted	0.04	0.03	0.17		0.16		
Missing age at death	0.54	0.49	0.58	0.53	0.49	0.49	0.47
Day or month of birth missing	0.02	0.03	0.58	0.53	0.49	0.49	0.47
Number of matches	0.48	0.54	0.85	0.83	0.89	0.88	0.91
Quality of merge with DMF file	1.19	1.18	1.09	1.08	1.06	1.06	1.05
N	2,264	14,514	125	1797	3756	3152	604
Panel B: Unique matches							
Age at death	72.53	73.34	76.42	72.12	73.69	73.75	73.35
Year of application	1921	1921.9	1926.15	1927.68	1927.10	1926.94	1927.88
YOB of child	1912.2	1913.6	1916.50	1915.13	1914.94	1914.56	1916.86
Child age (years)	8.84	8.31	9.65	12.55	12.16	12.39	11.02
Number of kids in family	3.54	3.73	3.85		3.12	3.20	2.72
Age of oldest kid in family	11.85	11.47	13.31	12.88	14.62	14.93	13.07
Age of youngest kid in family	5.63	4.85	5.00	12.22	9.04	9.13	8.59
Length of family name	6.35	6.36	6.58	6.78	6.51	6.52	6.45
Widow	0.53	0.55	0.85		0.83	1.00	0.00
divorced/single/deserted	0.03	0.03	0.15		0.17	0.00	1.00
Day or month of birth missing	0.01	0.02	0.00	0.00	0.00	0.00	0.00
Quality of merge with DMF file	1.18	1.17	1.08	1.12	1.08	1.08	1.08
N	995	6,914	26	512	1227	1024	203