**Intergenerational worklessness in the UK and the role of local labour markets**

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**Abstract**

Intergenerational worklessness is a topic of considerable current interest. However, there has been no robust quantitative evidence on this subject for over a decade. This research is the first to present estimates of the association in workless spells across generations for two new cohorts, one born in 1970 and one born in the late 1970s. This analysis is also the first in this area to consider the important role of local labour market conditions in driving the intergenerational relationship. Sons with workless fathers spend 7-11% more time out of work than sons with employed fathers from leaving full time education to age 23. The intergenerational relationship is not driven by fathers and sons experiencing similar conditions in the same local labour markets. Instead, the experience of sons with workless fathers compared to sons with employed fathers varies considerably by the local labour market conditions they experience.

JEL classifications; J62, J64

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1. **Introduction**

Frequent references have been made by politicians recently to the issue of intergenerational worklessness in the UK, citing families with two or three generations who never work:

"Life expectancy on some estates, *where often three generations of the same family have never worked*, is lower than the Gaza Strip” Iain Duncan Smith MP (2009).[[1]](#footnote-1)

These statements are often used as a justification for the large-scale welfare reforms being implemented by the current Coalition Government:

“A radical welfare reform programme designed to tackle entrenched poverty and *end the curse of intergenerational worklessness* is set out today by new Secretary of State for Work and Pensions Iain Duncan Smith.” DWP Press Release (2010).[[2]](#footnote-2)

Intergenerational worklessness is the relationship between the workless experiences of parents and children across their adult lives. Despite the current interest in the topic, there has been no robust quantitative evidence on the subject for over a decade in the UK. This is perhaps surprising given the marked increase in research into intergenerational income mobility over the past two decades (Solon, 1992, Blanden et. al., 2005, Black and Devereaux, 2011). This literature has had a significant impact on public policy in the UK leading to deputy Prime Minister, Nick Clegg MP, stating that “improving social mobility is the principal goal of the Coalition Government’s social policy”(Cabinet Office Report, 2010)*.* This analysis explores another dimension of intergenerational socio-economic status capturing an extreme form of intergenerational poverty, often overlooked in previous studies[[3]](#footnote-3), by focusing on those families who are persistently at the bottom of the income distribution.

This research is the first to present evidence of intergenerational worklessness in the UK from two new cohorts, one born in 1970 and one born in the late 1970s. Previous estimates relate to a cohort born in 1958 with worklessness of the 1st generation observed in 1969 and 1974 and the 2nd generation entering the labour market in the mid 1970s (Johnson and Reed, 1996, O’Neill and Sweetman, 1998). Given the significant changes in the labour market over the past thirty years, this new analysis presents estimates for cohorts whose experience of the labour market is more relevant to current discussions. It is also the first to describe the important role that labour market conditions play in intergenerational worklessness[[4]](#footnote-4). It may be that an intergenerational association arises purely because fathers and sons are often exposed to the same local labour markets. Alternatively, it could be that the workless experience of sons is affected by a combination of both the local labour market conditions and the workless experiences of fathers. I begin by exploring whether the intergenerational association is spuriously driven by fathers and sons living in the same local labour markets before moving on to consider the role of the interaction between local labour market conditions and fathers’ worklessness.

 This research makes a substantial contribution to the current intergenerational mobility literature and to related literatures on the impact of spells out of work, both within the same generation and across generations (which has primarily focused on the impact of parental job displacement on the educational outcomes of the next generation, e.g. Oreopolus et. al., 2008, Gregg et. al., 2012). Forthcoming work on intergenerational worklessness in the UK tries to identify whether this relationship is causal and considers the potential drivers of this transmission across generations (Macmillan, 2013a, 2013b). This paper starts at the beginning, focusing on the estimation of the simple intergenerational relationship and exploring the role that local labour markets play in this process. I use a persistent measure of worklessness, particularly for the fathers’ generation, to capture the deep-rooted experience of long spells out of work rather than transitory shocks to employment. The aim is therefore to analyse the correlation between the labour market outcomes of fathers and sons for those families who experience the most sustained worklessness.

 The next section details the previous literature on intergenerational worklessness while section three introduces the data and methodology. Section four presents the results and I end with some brief conclusions.

1. **Related literature**

To date, there are only three studies that measure intergenerational worklessness, two from the UK and one from Norway. The two UK studies, by Johnson and Reed (1996) and O’Neill and Sweetman (1998) are from well over a decade ago and use the only viable data that was available at the time for this research, the National Child Development Study (NCDS), a cohort born in 1958. The 1st generation of this cohort were observed in the late 1960s and early 1970s, a time when the UK labour market had a large manufacturing sector and was heavily unionised. Since then the labour market has undergone a dramatic structural transformation with the virtual abandonment of mining and a large shift to service-based industries. It is difficult therefore to apply any of the findings from these previous studies to the current labour market context.

Johnson and Reed (1996) found that sons with workless fathers are 10 percentage points more (or twice as) likely to spend a year or more workless from 23-33 than sons with employed fathers for a sample similar to that used here for the NCDS. In O’Neill and Sweetman (1998) sons are again twice as likely to experience any unemployment if they have a workless father compared to an employed father. The only other survey that focuses on the intergenerational correlation in spells out of work is by Ekhaugen (2009) who uses Norwegian administrative data to consider the gap in the likelihood of experiencing unemployment spells in mid-20s between those children whose parents were unemployed and those children whose parents were employed. In Norway, children with unemployed parents are 8-13 percentage points more likely to experience unemployment themselves up to their mid-20s, giving an intergenerational correlation of around 0.10. Corak, Gustafsson and Osterberg (2000) consider the related area of intergenerational unemployment insurance claims in Canada and Sweden across father-son pairs and find correlations in both countries of around 0.10[[5]](#footnote-5).

 The role of local labour markets in intergenerational worklessness has not yet been considered in any of the previous literature. An obvious reason for an intergenerational association to arise is that fathers and sons tend to work in the same local labour market. Related work by Wilson (2009), Freeman and Rodgers (2000), List and Rasul (2010) and Li (2012) illustrates how employment experiences of different groups vary across local labour market conditions. These studies show how, across various strata of disadvantage including ethnicity, age and occupation, those from the most disadvantaged groups are disproportionately affected by higher unemployment rates than those from other groups. This is the first research to apply this concept to intergenerational analysis to assess whether the effect of disadvantage in this setting (having a workless father in childhood) leads to varied labour market responses across unemployment rates.

1. **Data and methodology**
2. **Intergenerational worklessness**

In order to estimate intergenerational worklessness, we would ideally measure the coefficient[[6]](#footnote-6) beta from a reduced form ordinary least squares (OLS) regression of the son’s work history throughout their entire working adult life, $w\_{i}^{son^{\*}}$, on their father’s work history throughout their entire working adult life, $w\_{i}^{father^{\*}}$. This analysis is restricted to fathers and sons only to avoid the complication of modelling women’s participation decisions.

$w\_{i}^{son^{\*}}=α+βw\_{i}^{father^{\*}}+e\_{i1}$ (1)

Three main data sources are used for this analysis, each with their own strengths and weaknesses. The two British birth cohort studies, the National Child Development Survey (NCDS) of all individuals born in Great Britain in one week in March, 1958, and the British Cohort Study (BCS) of all individuals born in Great Britain in one week in April 1970 are familiar datasets within the intergenerational mobility literature given their longitudinal nature. The British Household Panel Survey (BHPS) is beginning to be used in this context as the 2nd generation age into adulthood (Gregg and Macmillan, 2010). Sons from the BCS and BHPS entered into the labour market from the late 1980s onwards; after the major structural reforms of the 1980s had taken place. These sources therefore provide the most up-to-date estimates of intergenerational worklessness in the UK, more representative of the current situation compared to previous estimates. The BHPS, unlike the cohort studies, is structured as a panel of households with all individuals within a survey household entering into the survey as they reach the age of 16. Individuals are then followed as they start their own households and new members entering into the new households also form part of the survey. The cohort studies, by contrast, follow the same individuals across their lifetimes at various ages including questions directed to the parents of cohort members throughout their childhood. The sample available in the cohort studies is therefore far larger (ten times) than that available in the BHPS’s household data structure.

As in the earnings mobility literature, the aim when estimating intergenerational worklessness is to capture as close to a lifetime estimation of the intergenerational coefficient as is possible. However, in reality the data available has severe limitations. In the BHPS, continuous work histories are available (Halpin, 1997) from 1990 until 2005. Information on the employment status of the individual at the time of interview, throughout the previous year and retrospective data, limited here to 1975 onwards, are used to create episodes of work history throughout the adult lives of both fathers and sons. However given the panel structure of the data, the sons are young and work histories are only available for their early working lives. In the cohort studies, the employment status of the fathers is only observed at two discrete points in time, when the cohort member (son) is age 11 (1969) and 16 (1974) in the NCDS and 10 (1980) and 16 (1986) in the BCS. For the 2nd generation, the cohort studies provide monthly work history data from 16-42 in the NCDS and 16-29 in the BCS (Galindo-Rueda, 2002). We are therefore restricted to estimating the association between fathers’ workless spells from short-windows of work history data, $w\_{i}^{father}$, and the sons’ workless experience also from short-windows of data, $w\_{i}^{son}$.

$w\_{i}^{son}=α+βw\_{i}^{father}+e\_{i2}$ (2)

This introduces two types of measurement error into the estimation, previously explored in the intergenerational income mobility literature: measurement error and life-cycle bias. Measurement error arises from the fact that point-in-time observations are likely to measure lifetime work experiences with error (as discussed in Page, 2004). This may be particularly problematic in the cohort studies with only two measures of fathers’ employment status. As the period of observation increases, the extent of this error will decline as we move towards more complete lifetime work experiences. To quantify the potential scale of measurement error, estimates of intergenerational worklessness using a longer-window measure of employment status, available for fathers in the BHPS[[7]](#footnote-7), can be compared to estimates using a short-window, which are constructed to replicate those available in the NCDS and BCS as closely as possible.

Life-cycle bias arises from differential work experiences of those from workless families and those from employed families at different ages. In the intergenerational mobility literature, life-cycle bias is modelled by analysing age-earnings profiles across time (Haider and Solon, 2006, Grawe, 2006). To assess the life-cycle trajectory of workless spells, a quasi-cohort analysis of workless experiences is considered from a nationally representative data source, the Labour Force Survey (LFS), from 1992 to 2010. The workless status of the father is unavailable and so the population is divided by educational attainment as a proxy for workless and non-workless families[[8]](#footnote-8). The sample is split into low and high-educated males by their highest qualification with low education defined as Level 2 (GCSEs or equivalent) [[9]](#footnote-9) or below and high education is defined as Level 3 (A levels or equivalent) [[10]](#footnote-10) or above.

In all three data sources, worklessness is defined as any activity that is not employment or education[[11]](#footnote-11). In the initial analysis the window of sons’ work histories is restricted from leaving full time education to age 23 in all three data sources for comparability with the BHPS. Given concerns about life-cycle bias in early spells from the quasi-cohort analysis, these initial estimates are compared to those using only sons’ work histories from 23 to 29 in the older cohort studies. For fathers, two point-in-time measures of employment status are combined (observed when the son is 11/10/12 and 16 in the NCDS/BCS/BHPS) to define fathers as workless if they are not in work in both periods. By combining two observations of employment status, the aim is to measure a persistent form of worklessness in the fathers’ generation and reduce any attenuation bias from measurement error[[12]](#footnote-12). Table 1 presents descriptive statistics for the main measures of worklessness used in the analysis. 2% of fathers are defined as workless in the NCDS, with this proportion increasing to 5% in the BCS and 15% in the BHPS.

I consider the association between fathers’ worklessness and three different measures of worklessness for sons: the proportion of time spent out of work, whether the son has spent a year or more in concurrent spells out of work and whether the son is not in employment or training (NET) across the period. Sons spent an average of 8% and 7% of their time from leaving full time education to age 23 workless in the NCDS and BCS cohorts respectively and 11% in the BHPS. The durational measures aim to consider any non-linearity across the workless distribution by looking at the more extreme cases of worklessness. 6% of the NCDS sample spent a year or more workless from leaving full time education to age 23 with this proportion increasing to 9% in the BCS and 21% in the BHPS. In all three cohorts, less than 2% of the samples of sons were not in any employment or training from leaving full time education until age 23.

In the cohort studies, I restrict the sample to sons and fathers with work history information available for at least two years after leaving full time education in the 2nd generation and at least one employment status observed for the 1st generation. Issues of attrition in the cohort studies are explored in the Appendix. I place various sample restrictions on the BHPS data to minimise biases and maximise comparability across data sources. The first restriction is that both generations must be observed within the data for over two years. The second restriction I place on the data is that the 1st generation must be observed before the 2nd generation turn 18. This is to ensure that at least some of the 1st generation’s observed work history occurs during childhood (for comparability with the cohort studies measures in Table 2). The third restriction I place on the data is that the 2nd generation must be born before 1982. This is to ensure that the entire 2nd generation sample has a chance to reach age 23 in the latest wave of data so that those entering into higher education have the chance to be observed for two years after leaving full time education[[13]](#footnote-13).

 **b. The role of local labour market conditions**

To explore the role of local labour market conditions in intergenerational worklessness for the first time in this literature, unemployment rates were matched into the BCS data[[14]](#footnote-14), to the local education authority (LEA)[[15]](#footnote-15) of residence when the son is age 16 in 1986, using information on the International Labour Organisation (ILO) county-level[[16]](#footnote-16) unemployment rate from the Employment Gazette from 1986 to 1998. Each individual was assigned an annual unemployment rate for their county, based on their LEA of residence at one point in time in 1986. The implications of having no information on the LEA of residence after 1986 are discussed in the appendix. The focus of this analysis shifts to person-time observations to utilise the time variation introduced by the annual unemployment data.

To begin by exploring the extent to which any association between fathers’ and sons’ workless spells is purely a product of the (lack of) availability of work in the local area, within-LEA and within-county fixed effects models are estimated with an LEA/county level fixed effect, $δ\_{r}$, (equation 3). These models estimate intergenerational worklessness within local labour markets, controlling for any variation between local labour markets. If the intergenerational association arises only because fathers and sons experience the same local labour markets, there would be no intergenerational relationship once differences across local labour markets are accounted for. The level of analysis (LEA/county)[[17]](#footnote-17) is aggregated enough for the local labour market to be considered exogenous to the family circumstances, therefore only measuring the availability of work. Given concerns over life-cycle bias for early observations of sons’ worklessness, the dependent variable is defined as the proportion of time that the son spent workless each year from age 23 through to age 29. Age controls for the father and son, $A\_{irt}$, are included to control for any remaining life-cycle bias (including an interaction between sons’ worklessness and sons’ age as used in Lee and Solon, 2009).

$w\_{irt}^{son}=α+βw\_{ir}^{father}+δ\_{r}+A\_{irt}γ+e\_{irt1}$ (3)

Any decline in the estimated parameter $β$ in equation (3) from the baseline estimate indicates the extent that the intergenerational association arises because fathers and sons work in the same local labour markets.

The second part of this analysis considers the extent to which intergenerational worklessness varies by local labour market conditions. I begin by modelling the effect of local labour market unemployment on the intergenerational association. This is very similar to the within-county fixed effects model in equation (3), replacing $δ\_{r}$ with $u\_{rt}$, the county level unemployment rate. I then include an interaction between the county level unemployment rate and the 1st generation workless experience, $u\_{rt}\*w\_{i}^{f}$, to assess whether having a workless father has a differential impact across different local labour markets.

$w\_{irt}^{son}=α+βw\_{ir}^{father}+θw\_{ir}^{f}\*u\_{rt}+τu\_{rt}+A\_{irt}γ+e\_{irt2}$ (4)

While $\hat{τ}$ estimates the association between county-level unemployment and sons’ worklessness, the coefficient $\hat{θ}$ estimates the additional penalty of county-level unemployment for sons with workless fathers. If this interaction is significant, this suggests that there is a combined effect of a lack of work in the local labour market and the disadvantage of having a workless father. From this we can derive information about the size of the intergenerational association across levels of unemployment[[18]](#footnote-18). Within-county unemployment rates range from 2% to 16% across time within the sample of interest. Equation (4) can therefore be estimated for these values,$u=[2, 3, 4….16]$, resulting in a range of estimates of the intergenerational coefficients, $\hat{β}\_{k}=\hat{φ}\_{k}-\hat{θ}(u\_{k}) for k=2…16.$

$w\_{irt}^{son}=α+φ\_{k}w\_{ir}^{father}+θw\_{ir}^{f}\*\left(u\_{rt}-u\_{k}\right)+τu\_{rt}+A\_{irt}γ+e\_{irt3}$ (5)

1. **Results**
2. **Intergenerational worklessness**

Table 2 presents estimates of the association between having a workless father in childhood and spells out of work from leaving full time education until age 23 from an OLS regression of equation (2) for three UK data sources. On average, sons with a workless father at 11 and 16 spend 6.7% more time out of work over this period than sons with fathers in employment at 11 and/or 16 in the NCDS. In the BCS and BHPS cohorts, this differential experience by fathers’ worklessness increases to 11.2% and 10.2% more time out of work respectively from leaving full time education to age 23.

The second and third rows of Table 2 estimate intergenerational worklessness for duration-based measure of worklessness in the 2nd generation. These estimates are from linear probability models as the dependent variables are binary[[19]](#footnote-19). Sons with workless fathers are 15 to 17% more likely to spend a year or more out of work than sons with employed fathers from leaving full time education to age 23. However, there is very little incidence of never working (or always being NET). For the BCS cohort if the father is workless, the son is 4.3% more likely to be NET continuously from leaving full time education to age 23 than his counterpart with an employed father. In the BHPS, this relationship is negative with sons with workless fathers 1% less likely to never work from leaving full time education to age 23. Looking across all three measures of sons’ worklessness, the coefficients in the BCS, born only a few years before the average year of birth for the BHPS cohort, are similar for the first two measures of sons’ workless experiences[[20]](#footnote-20). This is reassuring and suggests some degree of comparability in the data sources despite the obvious differences including smaller sample sizes in the BHPS.

To assess the impact of measurement error on these estimates, driven by only observing short windows of data, I compare estimates from a longer-window of work history data available in the BHPS to the estimates from Table 2. Table3 illustrates the estimate of $\hat{β}$ from the BHPS using all observed information for fathers (typically from when the son is age 8-25) to move closer to estimating equation (1) rather than (2)[[21]](#footnote-21). The estimated coefficients from using a longer-window of work history data are similar to those estimated using the short-window of work history data. This is driven by the fact that only 2% of fathers are incorrectly defined as workless when observed at 12 and 16 when they are observed in employment for the majority of the longer-window. Only 1% of fathers are incorrectly defined as employed at 12/16 when observed as workless for the majority of the longer-window. This suggests that short-window measures of worklessness that combine information at two points-in-time are good proxies for longer-window measures of worklessness.

To explore the potential role of life-cycle bias, Figure 1 plots the life-cycle trajectories of workless spells for quasi-cohorts of males of working age from the Labour Force Survey (LFS) for periods from 1992 until 2010 across low-educated and high-educated groups. A small difference in workless rates exists on entry to the labour market at age 18 across the two education groups with worklessness increasing at a faster rate for low-educated males in their late teens, particularly in recessionary periods. The gap between the two groups then settles at a steady rate from their early to mid-20s. At the end of peoples’ careers high-educated males catch up with the workless rates of low-educated males, likely through early retirement. This suggests that life-cycle bias may affect estimates of intergenerational worklessness focused on the early or late stages of individuals’ careers.

 These life-cycle trajectories in workless spells across educational attainment suggest that the results from Table 2 may suffer from life-cycle bias as they focus on early labour market experiences from when the son leaves full time education to age 23. Table 4 presents new estimates of intergenerational worklessness for the two older cohort studies[[22]](#footnote-22) comparing the estimates from Table 2 to estimates using sons’ worklessness from age 23 to 29. In the NCDS the intergenerational associations are similar for each measure of worklessness for the earlier and later observed period of work history of the son. In the BCS there is evidence of downward bias in early estimates of intergenerational worklessness. The estimated coefficients increase across all measures of sons’ worklessness when using the later measures of sons’ work histories. For this reason the next section will only focus on the period from age 23-29.

Note that when life-cycle bias is accounted for, the difference in intergenerational worklessness across time becomes more pronounced. Sons with workless fathers in the BCS face and additional 9.2 percentage points (statistically significantly) penalty compared to sons with workless fathers in the NCDS, as has been seen in the intergenerational mobility literature (Blanden et. al., 2005)[[23]](#footnote-23). Similarly, for spending a year or more out of work the estimated coefficient is 12.8 percentage points higher in the BCS compared to the NCDS. Worklessness is therefore another domain in which family background has become an increasing predictor of later life chances for the younger BCS cohort in the UK once potential biases have been accounted for.

1. **The role of local labour market conditions**

Table 5 presents estimates of intergenerational worklessness, exploring the role of local labour market conditions. The first row presents the estimate of intergenerational worklessness from an OLS model, as in Table 4, for a restricted sample of individuals for whom LEA information and county level unemployment data is available. The intergenerational coefficient is 1.9 percentage points smaller for this sample (from the first row, last column of Table 4) indicating that individuals with area information available are slightly more advantaged in terms of the impact of fathers’ workless spells on their own work experiences. This estimate is the baseline comparison for the following models.

Controlling for any differences between local labour markets across LEA/counties, with within-LEA and within-county fixed effects models (equation 3), does very little to the point estimate of intergenerational worklessness. The estimated coefficient falls by 0.6 percentage points for the within-LEA model and 0.9 percentage points for the within-county model[[24]](#footnote-24). This suggests that the majority of the estimated association in workless spells across generations does not arise because some fathers and sons live in weaker labour markets, such as Liverpool, and some fathers and sons live in stronger labour markets such as Kent.

 The fourth row of Table 5 shows the estimate of intergenerational worklessness if the county level unemployment rate is included in the model without an interaction. The estimated association is very similar to the fixed effects models. The final row of Table 5 presents the results from the interaction model in equation (4). The estimated intergenerational coefficient decreases by 1.5 percentage points from the model with no interaction and the estimated interaction effect is striking. An increase in unemployment rates has little effect on the estimated intergenerational coefficient within local labour markets for sons with employed fathers but there is a significant additional penalty of increasing unemployment rates for sons with workless fathers. The association in workless spells across generations is driven by a combination of both the labour market experienced and the fathers’ experience of workless spells. The vulnerable group, those with workless fathers, are hit harder by worse local labour market conditions[[25]](#footnote-25).

Figure 2 illustrates this point, plotting the range of estimates from equation (5) across the various different unemployment rates observed in the data. The results are striking. Sons with workless fathers in weaker labour markets spend over 30% more time out of work than sons with employed fathers in the same local labour markets. By contrast, there is no significant difference in the time spent workless for sons with workless fathers compared to sons with employed fathers in labour markets with low unemployment. The gap in the proportion of time spent out of work between sons with employed fathers and sons with workless fathers’ increases with unemployment rates. This finding holds if the outcome variable is the proportion of time spent unemployed rather than the proportion of time spent workless. This suggests that this is driven by unemployment rather than withdrawal from the labour market.

One potential mechanism for this finding is the role of networks in job search. While data on the role of networks in job search in the UK is limited, there is evidence from other countries that informal networks matter for job search and that these networks become increasingly important as unemployment increases. In the intergenerational occupation literature, Corak and Piraino (2008) argue that if job search is costly and the likelihood of a child entering into a job is the multiplicative effect of their exposure to the job and the probability of choosing that specific job given their exposure to it, children are likely to enter into the same occupations as their parents. In the same way that the child of a teacher is more likely to become a teacher, the child of a workless individual is likely to become workless themselves. Ioannides and Loury (2004) illustrate that information provided by family and close networks in searching for jobs has a huge influence on the outcome of job search, particularly for those out of work. In the US Panel Study of Income Dynamics (PSID) 15.5% of unemployed individuals in 1993 looked to informal networks for information and contacts compared to only 8.5% of employed individuals. Loury (2006) found that 1 in every 5 US male found their jobs through males in the previous generation.

 As unemployment increases, so does the cost of searching for a job as there are fewer places to fill for every applicant. As the cost of search increases, these networks play an increasingly important role. Kramarz and Skans (2006) found that children were more likely than other children in their class to get a job at the same plant as their parents and this effect was particularly strong in high unemployment areas. Therefore informal networks matter for job search, particularly for those who are out of work, and as this search becomes more challenging as unemployment increases, this strengthens the importance of these networks. The combined experience of a weak labour market, increasing the cost of search, and a workless father, reducing the benefits of these informal networks, serves to significantly damage the chances of the most vulnerable sons from entering the labour market.

1. **Conclusion**

Despite the recent developments in the measurement of intergenerational mobility, little work has focused on the intergenerational relationship of those out of work. This group of individuals, of increasing interest in the public domain, are the most vulnerable group not only in terms of the poverty associated with periods out of work but also through later scarring penalties in terms of both wages and future employment and further behavioural related issues such as depression. Previous estimates of intergenerational worklessness in the UK are from a cohort born in 1958. This research presents the first estimates of intergenerational worklessness in the UK for two more recent cohorts. It is also the first to explore the role of local labour market conditions in this relationship, assessing whether the association arises simply because fathers and sons often experience the same local labour markets or rather the penalty of having a workless father increases with unemployment.

 I find a moderate relationship in spells out of work across generations for the UK. A son with a workless father is likely to experience between 7-11% more time out of work themselves from leaving full time education until age 23. In addition, they are 15-17% more likely to spend a year or more out of work in the same period. However, there is only a small significant effect in the BCS when estimating the impact of fathers’ worklessness on a son never working (or always being a NET). This is in contrast to some discussion that is currently taking place in the public domain.

When assessing the impact of measurement error and life-cycle bias on the estimate of intergenerational worklessness the story is mixed. Measurement error appears to have only a limited impact on the estimates of intergenerational worklessness in the BHPS. This is reassuring given that the available measures in the cohort studies are from only two points in time. There is some evidence of life-cycle bias in workless spells from the LFS but only at the start and end of peoples’ careers. Taking this into account in the two cohort studies, estimating intergenerational worklessness when the son is 23-29, suggests that sons with workless fathers spend 7% more time workless than sons with employed fathers in the NCDS. In the BCS sons with workless fathers spend 16% more time workless than sons with employed fathers. As in the income mobility literature, there is some evidence that worklessness is another domain of socio-economic status where sons in the BCS face greater penalties than sons in the NCDS. Future work is required to estimate a range of comparable associations in intergenerational worklessness across countries to be able to assess how big of an issue these estimated associations are for policy context.

When considering the role of local labour market conditions in intergenerational worklessness, two types of model are estimated to assess whether local labour market conditions alone or a combination of labour market conditions and having a workless father are associated with the workless experiences of the sons. Controlling for differences across local labour markets has little impact on the intergenerational association. The estimated coefficient is not spuriously driven by the fact that some father-son pairs live in areas of high unemployment and some live in areas of low unemployment. Rather, having limited access to jobs is particularly harmful if you have a workless father. Sons with workless fathers are disproportionately affected by high unemployment, consistent with the literature that the most disadvantaged groups are worse hit in recessions (Wilson, 2009, Freeman and Rodgers, 2000, Li, 2012, List and Rasul, 2012). An absence of data restricts further exploration of what might be driving this mechanism, but the corresponding literature on the intergenerational transmission of occupations points to the role of informal networks in this process. This literature highlights the role of fathers (and informal networks more generally) in job search, particularly in high unemployment settings as the cost of search increases. Future work in this area is needed to understand further the importance of the role of intergenerational occupations and informal networks in this transmission.

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**Table 1:** Summary statistics of the main measures of fathers’ and sons’ worklessness in the NCDS, BCS and BHPS

|  |  |  |  |
| --- | --- | --- | --- |
| **Data source** | **NCDS** | **BCS**  | **BHPS**  |
| Father |  |  |  |
| Proportion not in work when son is 11/10/12 & 16 | 0.02 | 0.05 | 0.15 |
| Average proportion of time out of work | n/a | n/a | 0.15 |
| Son |  |  |  |
| Average proportion of time out of work FT ed-23  | 0.08 | 0.07 | 0.11 |
| Proportion spending a year or more workless FT ed-23  | 0.06 | 0.09 | 0.21 |
| Proportion not in employment or training from FT ed-23 | 0.02 | 0.02 | 0.01 |
| N | 4570 | 4331 | 436 |

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**Table 2:** Parameter estimates of intergenerational worklessness in the UK for fathers and sons in the NCDS, BCS and the BHPS

|  |  |  |  |
| --- | --- | --- | --- |
| **Data source:**Fathers’ measure: | **NCDS**Not in work when son is 11 & 16  | **BCS** Not in work when son is 10 & 16 | **BHPS** Not in work when son is 12 & 16 |
| Sons’ measure Leaving FT education-23 |  |  |  |
| Proportion of time out of work  | 0.0671(.024)\*\*\* | 0.1120(.019)\*\*\* | 0.1017(.035)\*\*\* |
| A year or more workless  | 0.1490(.040)\*\*\* | 0.1718(.031)\*\*\* | 0.1730(.064)\*\*\* |
| Not in employment or training (NET) | 0.0035(.014) | 0.0428(.017)\*\* | -0.0080(.004)\* |
| N | 4570 | 4331 | 436 |

All rows and columns from separate models. Robust standard errors in parenthesis. \* 90% confidence, \*\* 95% confidence, \*\*\* 99% confidence.

**Table 3:** Parameter estimates of intergenerational worklessness assessing the impact of measurement error in the BHPS by comparing a longer and shorter window of data for fathers

|  |  |  |
| --- | --- | --- |
| Fathers’ measure: | Not in work majority of time from 8-25(longer window) | Not in work at 12 & 16 (shorter window) |
| Sons’ measure Leaving FT education-23 |  |  |
| Proportion of time out of work | 0.1140(.036)\*\*\* | 0.1017(.035)\*\*\* |
| A year or more workless  | 0.1799(.068)\*\*\* | 0.1730(.064)\*\*\* |
| Not in employment, education or training (NEET) | -0.0079(.005)\* | -0.0080(.005)\* |
| N | 436 | 436 |

All rows and columns from separate models. Robust standard errors in parenthesis. \* 90% confidence, \*\* 95% confidence, \*\*\* 99% confidence.

**Table 4:** Parameter estimates of intergenerational worklessness for the NCDS and BCS assessing the impact of life-cycle bias by comparing a longer and shorter window of data for sons

|  |  |  |
| --- | --- | --- |
| **Data source:**Fathers’ measure: | **NCDS**Not in work when son is 11 & 16  | **BCS**Not in work when son is 10 & 16  |
| Sons’ age across the window of data: | Leaving FT ed-23 | 23 - 29 | Leaving FT ed-23 | 23 - 29 |
| Proportion of time out of work  | 0.0671(.024)\*\*\* | 0.0715(.026)\*\*\* | 0.1120(.019)\*\*\* | 0.1639(.025)\*\*\* |
| A year or more workless  | 0.1490(.040)\*\*\* | 0.0992(.039)\*\*\* | 0.1718(.031)\*\*\* | 0.2270(.033)\*\*\* |
| Not in employment or training (NET) | 0.0035(.014) | 0.0289(.019) | 0.0428(.017)\*\* | 0.0771(.021)\*\* |
| N | 4570 | 4570 | 4331 | 4331 |

All rows and columns from separate models. Robust standard errors in parenthesis. \* 90% confidence, \*\* 95% confidence, \*\*\* 99% confidence.

**Table 5:** Parameter estimates of intergenerational worklessness for the BCS assessing the impact of local labour market conditions experienced by sons from age 23-29

|  |  |
| --- | --- |
| 1st generation measure | Not in work when son is 10 & 16 |
| Model type | Intergenerational correlation ($\hat{β}$) | Interaction ($\hat{θ}$) |
| **OLS model**: restricted BCS sample - observed LEA and county level data | 0.1450(.026)\*\*\* |  |
| **Fixed effects models**: within LEA ($δ\_{r}$) | 0.1393(.026)\*\*\* |  |
| **Fixed effects models**: within county ($δ\_{r}$) | 0.1360(.026)\*\*\* |  |
| **Interaction model**: controlling for county level unemployment ($u\_{rt}$) | 0.1419(.026)\*\*\* |  |
| **Interaction model**: controlling for county level unemployment ($u\_{rt}$) and an interaction ($w\_{ir}^{f}\*u\_{rt}$) | 0.1270(.024)\*\*\* | 0.0343(.011)\*\*\* |
| N | 3416 |  |

All rows from separate models. Robust or clustered standard errors at the region level for the FE model and the individual level for interaction model \* 90% confidence, \*\* 95% confidence, \*\*\* 99% confidence.

**Figure 1:** Quasi-cohort analysis of age-workless profiles for the Labour Force Survey assessing the average proportion of time spent workless by education level 

**Figure 2:** Variation in the parameter estimate of intergenerational worklessness for the BCS by the county-level unemployment rate

Dotted lines represent the 95% confidence intervals. All estimates based on the families’ LEA of residence in 1986.

***Appendix: Data issues***

**Attrition in the cohort studies**

All three data sources used are nationally representative although there may be some concern that they suffer from attrition, particularly in the cohort studies due to their longitudinal nature. Selection bias in samples can also lead to attenuation bias as discussed in Solon (1992). Table A1 compares the 1st generation unemployment rates in the cohort studies to the national unemployment rates for men aged 16 and over for corresponding years. Although this comparison is not perfect, the rates are very similar which is reassuring. There may also be issues if the 2nd generation are no longer representative. At birth, the cohort members were a nationally representative group but the concern is that the individuals for whom monthly work history data is available might vary systematically from those individuals for whom this data is not available due to attrition. Table A2 compares parental education, fathers’ class and 2nd generation IQ test score measures for the cohort members that have work history information and the cohort members that do not. These measures are from early in the sample to limit the impact of attrition. The two samples are very similar in terms of characteristics although there is a suggestion that those who do not have work history information are from slightly less educated parents in lower social classes who do slightly worse on their IQ test at age 10 in both cohorts. If those families with lower socio-economic status are more likely to be workless then this may lead to an understating of the true intergenerational correlation. We can say nothing about the potential differences in the unobserved characteristics between the work history and non-work history sample.

**Father’s worklessness measures**

Table A3 illustrates the sample composition of the two observed employment status variables for the 1st generation. For the three data sources, there are three states that the father can be observed in at the time the employment status is measured: employed, workless or missing. Given the large amount of missing data in the cohort studies, particularly the BCS when the cohort members (sons) are age 16, I construct a measure of father’s worklessness to be 1 if the father is only ever observed as workless and 0 otherwise. The aim is to create a measure which proxies a lifetime measure of work experience well and limits the impact of measurement error. By restricting this measure to those only ever observed as workless I am making the assumption that for those fathers who are observed workless in one period and missing in the other, their underlying propensity to experience workless spells is higher than for those fathers who are observed employed in one period and workless in the other, and for those fathers who are observed employed in one period and missing in the other.

 Given that a longer window of work history data of the father is available in the BHPS, this assumption can be tested by summarising the average proportion of time that the father spent out of work in the longer window for three different groups: fathers who are observed workless when the son is 16 who are missing information on their work history when the son is 12; fathers who are observed employed when the son is 16 who are missing information on their work history when the son is 12; and fathers who are observed employed in one period (son age 12 or 16) and workless in the other. The average proportion of time that fathers who are missing work history information when the son is 12 and who are observed employed when the son is 16 spent workless is 0.053. For those fathers who are observed in both states, employed and workless at either age the proportion of time spent workless over the longer window is 0.304. By contrast the proportion of time spent workless for fathers who are missing work history information when the son is age 12 and observed workless when the son is age16 is 0.763. This suggests that the underlying propensity to experience spells out of work is much higher for those observed workless in one period and missing in the other than those who are observed employed for one period and either missing or workless in the other.

**Other data issues**

Problems with recall bias may occur if the 1st generation is asked to provide retrospective information on their work histories. In the cohort studies the father responds to questions about his current employment status and so this is unlikely to cause a problem. In the BHPS some of the information used in the work history data is retrospective, although I limit this to only as far back as 1975 to minimize the impact of recall bias. Despite this restriction, there may be some bias from those reporting work histories retrospectively. An important point is that recall bias will only affect the estimate of the intergenerational correlation if employed fathers recall things in a different way to workless fathers. In this case the estimates from the BHPS would be attenuated creating a lower bound estimate of the intergenerational correlation.

 When the life-cycle trajectories are considered using the LFS quasi-cohort analysis there are two issues that need to be considered. First, as the LFS is a cross-sectional survey and the analysis is of quasi-cohorts, the workless status of the father is not observable. Education is therefore used to proxy having a workless father in childhood, as it is in the mobility literature to proxy income. In the BCS, sons with employed fathers are 12% more likely to continue in education past age 16, 12% more likely to get any A-levels, 9% more likely to continue in education past age 18 and 8% more likely to get a degree than sons with workless fathers. Secondly, given that the education groups are defined by their highest qualification, males who are age 16 and 17 will automatically fall into the lower educated category given that they will not have had the opportunity to reach Level 3 yet. Therefore to allow all individuals to reach the Level 3 qualification the analysis is restricted to age 18 to 65.

 Finally, while the BCS data provides an opportunity to explore the impact of local labour market conditions, as information is available on the LEA that the 2nd generation lived in at age 16, there are a couple of issues with the local labour market data. LEA unemployment rates were not available so the use of county level data involves aggregating the LEA data up slightly. In addition not everyone in the working sample has LEA information. 21% of individuals in the final sample do not have LEA information available. The implications of this are small and discussed in more detail in the results Section 3.5iii). Unemployment rates for every year from 1986, when the LEA is observed, until 1998, the last full year of complete work history data in the BCS, were matched into the data. An implicit assumption when using this data is that individuals stayed in the same county they were observed in at 16 to experience this county level unemployment rate across time. The data suggests that 80% of the sample were observed to be residents in the same county in 2000 as they were observed in 1986.

**Table A1:** Comparing unemployment rates for the 1st generation NCDS and BCS data and national unemployment rates from the Office for National Statistics

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Cohorts – all** | **Cohorts – sample** | **National unemployment Rate\*** |
|  | **Father-son pairs**  | **Males 16+** |
| **NCDS** |  |  |  |
| **1969**  | 3.9 | 2.7 | 2.8\* |
| **1974** | 6.5 | 5.4 | 3.0 |
| **BCS** |  |  |  |
| **1980** | 5.9 | 4.3 | 6.6 |
| **1986** | 14.2 | 12.2 | 11.7 |

\*National unemployment rate taken from the Office for National statistics time trend annual unemployment rate for males 16+

**Table A2:** Comparing the background characteristics of sons with and without available work history data in the NCDS and BCS data

|  |  |  |
| --- | --- | --- |
|  | **NCDS** | **BCS**  |
|  | **Work history** | **No work history** | **Work history** | **No work history** |
| **Father’s education** |  |  |  |  |
| Before school leaving age | 2.0 | 3.9 | 0.6 | 0.9 |
| School leaving age | 57.3 | 57.5 | 64.7 | 69.4 |
| O-levels | 17.5 | 20.0 | 14.1 | 13.2 |
| A-levels | 146 | 11.7 | 11.3 | 9.3 |
| Higher education | 8.7 | 6.9 | 9.3 | 7.3 |
| **Mother’s education** |  |  |  |  |
| Before school leaving age | 1.7 | 3.7 | 0.9 | 1.2 |
| School leaving age | 46.8 | 46.6 | 63.7 | 68.1 |
| O-levels | 29.3 | 30.6 | 16.7 | 16.0 |
| A-levels | 16.5 | 14.5 | 12.3 | 9.9 |
| Higher education | 5.7 | 4.7 | 6.3 | 4.2 |
| **Father’s social class** |  |  |  |  |
| I | 5.0 | 4.0 | 5.8 | 4.4 |
| II | 14.2 | 11.4 | 12.5 | 10.6 |
| III nm (BCS only) |  |  | 13.6 | 10.2 |
| III (m in BCS) | 61.3 | 60.3 | 47.7 | 48.9 |
| IV | 11.8 | 11.5 | 14.5 | 17.4 |
| V | 7.8 | 12.8 | 5.9 | 8.5 |
| **Sons characteristics** |  |  |  |  |
| IQ test score | 100.6 | 97.3 | 101.0 | 98.5 |

Father’s education observed for 63% of total sample in NCDS and 94% in BCS, Mother’s education observed for 65% of total sample in NCDS and 98% in BC. Father’s class observed for 93% of total sample in NCDS and 91% in BCS, IQ observed for 80% of total sample in NCDS and 67% in BCS <http://www.cls.ioe.ac.uk/studies.asp?section=000100020003>

**Table A3:** Creating comparable 1st generation (father) workless measures from the NCDS, BCS and BHPS work history data

**NCDS (1958)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Age of son 16****11** | Father employed | Father workless | Missing | **TOTAL** |
| Father employed | 2931(63.2) | 123(2.7) | 1031(22.2) | **4085****(88.1)** |
| Fatherworkless | 38(0.8) | 41(0.9) | 35(0.8) | **114****(2.5)** |
| Missing | 410(8.9) | 26(0.6) | 0(0.0) | **436****(9.4)** |
| **TOTAL** | **3379****(72.9)** | **190****(4.1)** | **1066****(23.0)** | **4635** |

Dark shaded region represents those counted as workless, light shaded region corresponds to group in Table 3.6 who are counted as not workless for the remainder of the analysis

**BCS (1970)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Age of son 16****10** | Father employed | Fatherworkless | Missing | **TOTAL** |
| Father employed | 1855(39.9) | 213(4.6) | 2100(45.2) | **4168****(89.7)** |
| Fatherworkless | 27(0.6) | 39(0.8) | 123(2.7) | **189****(4.1)** |
| Missing | 245(5.3) | 44(1.0) | 0(0.0) | **289****(6.2)** |
| **TOTAL** | **2127****(45.8)** | **296****(6.4)** | **2223****(47.9)** | **4646** |

Dark shaded region represents those counted as workless, light shaded region corresponds to group in Table 3.6 who are counted as not workless for the remainder of the analysis

**BHPS (1977)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Age of son 16****10** | Father employed | Father workless | Missing | **TOTAL** |
| Father employed | 268(58.9) | 17(3.7) | 1(0.2) | **286****(62.9)** |
| Fatherworkless | 5(1.1) | 32(7.0) | 0(0.00) | **37****(8.1)** |
| Missing | 105(23.1) | 26(5.7) | 1(0.2) | **132****(29.0)** |
| **TOTAL** | **378****(83.1)** | **75****(16.5)** | **2****(0.4)** | **455** |

Dark shaded region represents those counted as workless, light shaded region corresponds to group in Table 3.6 who are counted as not workless for the remainder of the analysis

|  |  |  |
| --- | --- | --- |
|  |  | Defined not workless |
|  |  | Defined workless |

1. <http://www.centreforsocialjustice.org.uk/default.asp?pageRef=361> (accessed 15th May 2012). [↑](#footnote-ref-1)
2. <http://www.dwp.gov.uk/newsroom/press-releases/2010/may-2010/dwp070-10-270510.shtml> (accessed 15th May 2012). [↑](#footnote-ref-2)
3. Studies that focus on intergenerational earnings persistence exclude individuals who are out of work as they do not report earnings (Blanden et. al., 2005). [↑](#footnote-ref-3)
4. Kim (2002) considers the role of local labour markets in intergenerational income mobility [↑](#footnote-ref-4)
5. One important distinction between this literature and the intergenerational welfare dependency literature is that the majority of the intergenerational welfare dependency literature focuses on mothers and daughters. Implicit throughout that analysis therefore is the intergenerational correlation of lone parenthood, as it is often these individuals who are entitled to the welfare payments in questions. This research regularly finds higher correlations across generations of around 0.3 (Gottschalk, 1996, Page, 2004). [↑](#footnote-ref-5)
6. Throughout this research the terminology ‘intergenerational correlation’ is used. For clarity, this is referring to the intergenerational coefficient, $β$ rather than a correlation. This is common practice within the intergenerational literature. [↑](#footnote-ref-6)
7. Of course, the 1st generation are also not observed across their entire working life (on average fathers are observed for 209 months when sons are 8-25) in the BHPS but relative to the cohort studies, this is an improvement. Fathers are defined as workless if they are not in work for the majority of time they are observed [↑](#footnote-ref-7)
8. The relationship between fathers’ worklessness and sons’ education is explored in the appendix. [↑](#footnote-ref-8)
9. GCSEs are the General Certificate of Secondary Education, generally taken by students at the end of compulsory schooling in the UK at age 16. Grades A\*-C are considered a Level 2 qualification in the Key Skills framework (Department for Education - <http://www.education.gov.uk/>) [↑](#footnote-ref-9)
10. A-Levels are the Advanced Level General Certificate of Education, generally taken by students after two years of post-compulsory schooling in the UK at age 18. A-level attainment is equivalent to reaching Level 3 in the Key Skills framework (Department for Education - <http://www.education.gov.uk/>) [↑](#footnote-ref-10)
11. Periods of education are excluded from this analysis to ensure that all observations have an equal risk of worklessness. [↑](#footnote-ref-11)
12. Further details of the fathers’ workless measures and the implications of coding decisions are discussed in the Appendix. [↑](#footnote-ref-12)
13. Assuming that the majority of individuals leave full-time education around age 21, those born in 1982 are 21 in 2003 and will be observed until 2005. [↑](#footnote-ref-13)
14. This analysis is carried out using the BCS data only. The NCDS sample entered the labour market in 1974, before local labour market unemployment rates are available. The BHPS sample is much smaller than the two cohort studies making it unlikely that there would be enough power to carry out a disaggregated analysis. [↑](#footnote-ref-14)
15. There are currently 152 local education authorities, or local authorities as they are now known, in the United Kingdom (Department for Education, <http://www.education.gov.uk/>). [↑](#footnote-ref-15)
16. There are 48 English counties and 13 Welsh counties. Scotland has a different system but an equivalent of 11 counties for this purpose. [↑](#footnote-ref-16)
17. Travel to Work Areas (TTWA) may be preferred although this level of aggregation is not available in the BCS data. [↑](#footnote-ref-17)
18. A number of non-linear specifications were tested for robustness with the main findings holding in all cases. [↑](#footnote-ref-18)
19. Probit specifications return very similar marginal effects. The predicted probabilities from the Linear Probability Models all fall within the 0,1 bound. [↑](#footnote-ref-19)
20. In all three cohorts, unemployment spells are the main drivers of this intergenerational correlation with the estimated coefficients for the proportion of time spent unemployed and a year or more spent unemployed statistically indistinguishable from the workless estimates. This suggests that there is little evidence of this association being driven by labour market withdrawal across generations. [↑](#footnote-ref-20)
21. Note that this measure may still suffer from measurement error as the 1st generation are not observed across their entire working lives but it will have less error than Table 2 as the fathers are observed on average for over seventeen years [↑](#footnote-ref-21)
22. The BHPS cohort is not yet old enough to observe fully across this window. [↑](#footnote-ref-22)
23. This finding also holds for a longer measure of sons’ worklessness; from leaving full time education to age 29 and from 16-29. [↑](#footnote-ref-23)
24. These findings are robust to alternative sample specifications observing the sons from 16-29, from leaving full time education to age 29 and across alternative levels of aggregation (LEA, county, GOR). [↑](#footnote-ref-24)
25. Robustness tests were carried out across alternative windows of work history for the son (from leaving full time education until age 29 and from age 16-29) and non-linear specifications. This result holds in all cases. [↑](#footnote-ref-25)