Are Recent Generations Catching Up or Falling Behind?

Trends in Inter-Generational Inequality

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Abstract

Recent work has shown that inequalities between generations are most pronounced in the conservative European welfare states, and that these trends are less pronounced in social democratic and liberal welfare states (Chauvel and Schroder 2014). However, it is likely that across all advanced capitalist societies superior earnings opportunities and steady employment are pursued at a later age for recent generations due to several interconnected lifestyle changes. In this paper, I examine the variation in generational inequalities across different regimes, with a focus on recent cohorts. For the analysis, I use data from the Luxembourg Income Study (LIS). The repeated cross-sectional data allow me to trace the generational changes in income opportunities for 8 countries, using both Age-Period-Cohort-Detrended coefficients (APCD) and synthetic cohort models. My results suggest that for most countries, cohorts born after 1970 have experienced fewer earning opportunities, relative to cohorts born between 1950 and 1970. Moreover, these generational inequalities have been more pronounced in the coordinated political economies, and less pronounced in the liberal political economies. However, synthetic cohort models suggest that while recent generations have suffered from successively worse entry positions, they appear to be "catching up", which suggests that *lifelong* "scarring effects" may not be inevitable.

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1 Introduction

Youth unemployment has become a very pressing concern in the developed economies. A recent Eurostat report notes that during the recent economic crisis in Europe youth unemployment has reached nearly 25 percent in the European Union, and is over 50 percent in Spain and Greece.[1] Angela Merkel has argued that youth unemployment "is perhaps the most pressing problem facing Europe at the present time" (Connolly 2013). Many observers fear that the effects of early unemployment on these youth will continue into adulthood and lead to the emergence of a "lost generation".

While the economic crisis has brought the issue of youth unemployment to the forefront, arguably work and income opportunities for young people have been steadily declining for quite some time. A large literature in political science, economics, and sociology has noted that in addition to high levels of unemployment, young people who do find employment are increasingly working in jobs that are marked by low wages, temporary contracts, and precarious working conditions. This may indicate that there is a generational pattern at work, in which young adults are increasingly being excluded from "good jobs", leaving "scar effects" on their future prospects.

In this paper, I examine the generational trends in youth opportunities across countries, and ask three related questions. First, to the extent that youth are increasingly working in jobs with low earnings, is this a universal trend or confined to certain contexts? Second, do these limited opportunities persist across their working life, or do young people make up for this slow start in later stages of life? Third, if there is cross-national variation, to what extent does it conform to the most prominent distinctions in comparative political economy, such as VoC or welfare state regimes?

For my analysis, I use data from the Luxembourg Income Study (LIS). These data

[1] Available at: `http://ec.europa.eu/europe2020/pdf/themes/21_youth_unemployment.pdf`

contain rich information collected at the individual level for countries across years, including harmonized items that measure income outcomes. The repeated cross-sectional data allow me to use both Age-Period-Cohort-Detrended coefficients models (APCD) and synthetic cohort models. Both these models trace the generational changes in income opportunities for 8 countries.

My results suggest that for most countries, cohorts born after 1970 have experienced fewer earning opportunities, relative to cohorts born between 1950 and 1970. In addition, my results suggest that these generational inequalities have been more pronounced in the coordinated political economies, and less pronounced in the liberal political economies. The results also suggest that while recent generations have suffered from successively worse entry positions, they seem to be "catching up", which suggests that lifelong generational inequalities may not be inevitable. Finally, the results suggest that average cohort effects hides important heterogeneity, since generational inequalities differ by gender and education level.

The layout of the paper is as follows. Part 2 provides the theoretical background and hypotheses. Part 3 discusses the empirical strategy and Part 4 discusses the data. Part 5 presents the core results, and Part 6 presents additional robustness checks. Part 7 concludes.

2 Theoretical Background

According to dual labor market theories, labor should not be seen as one homogeneous unit. Rather, labor is composed of "insiders" and "outsiders". Insider jobs are typified by secure employment, whereas outsider jobs are typified by unsecure or temporary employment (Rueda 2005). Recent trends in the labor market - changes in technology, the rise of outsourcing, the decline of manufacturing and rise of services - has led to a sharp rise in "cheap" forms of employment (King and Rueda 2008). According to Krestos (2010), young

people are the most likely to work in "precarious" forms of employment, which tend to be "poorly" paid.

However, there are some scholars who question to what extent the distinction between insiders and outsiders is meaningful. If it is common to transition from outsider to insider during one's life stage, then an outsider class with distinct preferences is unlikely to develop. As noted by Esping Andersen (1999), classes cannot form if they are "always full, but always of different people." For instance, in the German labor market, it is common for young people to first work in more "transient" jobs, and then move into more secure forms of employment (McGinnity et al. 2005; Hillmert 2010). In contrast, other scholars argue that current trends in labor markets will lead to the creation of a new "Precariat" class - composed of people who are "doing insecure forms of labour that are unlikely to assist them to build a desirable identity or a desirable career (Standing 2011)."

Many scholars have examined how these recent trends in the labor market have impacted levels of inequality (Autor et al 2003; Piketty 2014). However, scholarship that examines how these trends relate to inter-generational inequality has been less prominent - with the exception of Louis Chauvel. In several studies, Louis Chauvel has investigated to what extent there are inequalities between cohorts. While his initial research focused on France, more recent work has examined inequalities between generations across different welfare regimes (Chauvel 2010a; Chauvel 2010b; Chauvel and Schroder 2014). To summarize the main argument, Chauvel has argued that inequalities between generations are most pronounced in the conservative European welfare states, and that these trends are less pronounced in social democratic and liberal welfare states. This difference between welfare regimes is attributed to the fact that in the conservative regime, initial entry into the labor market greatly predicts future earning, and recent cohorts are more likely to enter the labor market as outsiders. Thus, according to Chauvel, young adults are being forced into "low earning" jobs, and these limited opportunities persist across their working life.

This view builds on two key assumptions. First, that dual labor markets are mostly a conservative regime phenomenon. Second, that initial labor market conditions greatly shape one's future life cycle earning opportunities. Both these assumptions have support in the literature. Regarding the first assumption, it is commonplace that the continental European countries (and southern European economies) have been particularly vulnerable to dualization (Palier and Thelen 2010; Schwander and Hausermann 2103). Regarding the second assumption, previous research has argued that unemployment or graduating from college in a bad economy has negative long-term effects - known as "scarring effects" (Gangl 2004; Kahn 2009). As defined by Luo and Hodges (2014), "scarring" or "constant" effects imply that initial disadvantages faced by a cohort remain constant as the cohort gets older, as opposed to the "compensation hypothesis" which indicated that initial disadvantages dissipate as the cohort ages.

However, recent literature presents challenges for both of these assumptions. Thelen (2012) notes that not all conservative countries have experienced dualization to the same extent. For example, while Germany has embraced dualization, the Netherlands has pursued "Flexicurity" (See also Thelen 2014). In addition, liberal and social democratic countries are also experiencing higher rates of dualization (Schwander and Hausermann 2013).[2] Furthermore, the liberalization measures pursued by the social democratic countries - what Thelen (2012) terms "embedded flexibilization" - could have led to inter-generational inequality. Overall, this suggests that dualization is more than just a conservative phenomenon, and may be more universal in scope. Moreover, it is theoretically possible that differences between countries may not conform to welfare state regimes, but to other prominent typologies in comparative political economy, such as the distinction made in the literature on Varieties of Capitalism between Liberal and Coordinated market economies (Hall and Soskice 2001).

[2]On the other hand, according to Standing (2011), the statistics on temporary employment in liberal economies such as the UK are misleadingly low, partly due to how firms define "temporary" employment.

In terms of the "scarring effects" hypothesis, empirical evidence is difficult to find. A study of West Germany finds that while initial entry into permanent employment has become rarer for more recent generations, after a period of "settling in" most young people go on to experience relatively stable employment careers (Hillmert 2010). Furthermore, it is likely that across all advanced capitalist societies superior earnings opportunities and steady employment are pursued at a later age for recent generations due to several interconnected lifestyle changes. First, there has been an age postponement in family formation (Streeck 2009). Second, the entry of more women into the labor force may lead to more egalitarian work arrangements within families where both spouses work less hours and earn less income (Esping-Andersen 2014). Third, a change in demand for skills has led to the pursuit and expansion of tertiary education. This implies that young people are spending more time in school (where they also may be pursuing part-time work), and a substantial share of people only start full-time work in their 30's (Schwander and Hausermann 2013).

This suggests two hypotheses - which differ from previous findings. First, inter-generational inequalities could be present not only in the conservative countries, but in other political economies as well. Second, one should not accept unconditionally the "scarring effects" hypothesis which suggests that initial unemployment leads to lifelong effects. Rather, even when young people face challenges at the onset of their career, these challenges may be overcome and have no long-term impact on lifelong earning opportunities.

Finally, it is worth noting that if earnings heterogeneity within cohorts has altered over time, summary or aggregate measures of changes between cohorts could be misleading, and there are good reasons to believe that this is the case for the present study. For instance, major compositional changes in the workforce such as an increasing numbers of women may render aggregate results misleading. In addition, recent work argues that gender wage gaps have fallen across generations (Campbell and Pearlman 2013). Similarly, there is evidence that the trend towards increasing returns to higher education has recently

halted and even reversed, and that new cohorts of college-educated young adults have been most affected (Mishel and Shierholz 2013; Schwander et al. 2014).[3] In addition, this could also be connected with the diffusion of precarious employment from menial to professional occupations which has been noted in some countries (Oesch 2014). Overall, this suggests a third hypothesis - that generational inequalities may differ by gender and education level.

3 Empirical Strategy

As a preamble, it is worth noting a critical challenge to this type of study. Repeated cross-sectional data (assuming data comparability over time) can reliably establish changes in entry-level attainments. However, this is not the case for longer-term earnings profiles. In particular, the more recent the cohort, the shorter the observation window on the life cycle of its members. Thus it is difficult to ascertain whether initial disadvantages are sustained, and for how long. In other words, the key question is thus the severity and duration of initial advantages or disadvantages. However, these parameters are knowable only for past cohorts who have already completed their employment histories, and who did so under different historical conditions to current cohorts.

In order to help overcome this challenge, I examine generational changes in income opportunities using Age-Period-Cohort-Detrended coefficients models (APCD). APCD models provide a summary measure of the relative attainment of different cohorts (averaged over the available life-span of the cohort), net of variation across both age and time.[4] In the

[3]For the Unites States, Mishel and Shierholz (2013) show that the college wage preium has remained largely stable in the 2000s (See Figure E). In contrast, in the 1980s, the college wage premium grew by almost 15 percentage points.

[4]A key challenge in identifying cohort or generational effects is that they are confounded by age or period effects. In particular, since there is a linear dependency among the three effects (period - age = cohort), the conventional age-period-cohort (APC) analysis was unable to identify the independent effects of age, period, and cohort (Yang et al. 2008). However, recent methodological studies have developed models to solve this problem. The APCD model, developed by Louis Chauvel, identifies cohort effects by assuming a set of constraints where the age, period, and cohort parameters have a zero-sum and zero-slope shape, and where the first and last cohort are excluded. Critically, these constraints absorb the linear age, period, and

APCD analysis, I estimate the impact of age, period, and cohort on income opportunities in a model where:

$$Pr(Y_i = 1) = \beta_0 + \alpha_a + \beta_p + \gamma_c + \alpha_0 rescale(age) + \gamma_0 rescale(cohort) + \epsilon$$

The outcome variable y_i is a dummy variable which captures whether one is earning an annual labor income above an income threshold. The model estimates detrended age (α_a), period (β_p), and cohort effects (γ_c), with age and cohort being rescaled to -1 to 1. The model also includes the following covariates: gender, education level, and whether one is an immigrant (when available). Note that the APCD model constraints absorb the linear age, period, and cohort trends. In this model, the main explanatory variable of interest is the detrended cohort effect γ_c, where estimates that are statistically different from zero can be seen as independent cohort effects.

To deal with the possibility that disparities in income may differ at different points of the income distribution, I evaluate two different outcomes that are roughly indicative of "low" and "high" earnings thresholds (33rd and 66th percentile boundaries). This strategy is also consistent with the possibility that impoverishment and enrichment may both have increased, as dramatic differences have emerged in the earnings opportunities of new labor market entrants between fields like high tech and finance on the one hand and menial service work on the other.

However, is worth noting some limitations to the APCD model. First, APCD is estimating cohort effects over the period that we observe them. This suggests this quantity of interest is more informative for cohorts who we observe many times in the data, as these estimates can be understood as lifelong earning effects. In contrast, for more recent cohorts (and the oldest cohorts), who are observed fewer times in the data, the model is providing estimates

cohort trends, which allow the model to estimate the detrended age, period, and cohort effects. For Louis Chauvel's detailed explanation of the APCD model, see `http://www.louischauvel.org/apcdmethodo.pdf`

for part of their lifetime. This suggests that if we have reason to expect that more recent cohorts will not progress in a linear way (due to recent interconnected lifestyle changes that postpones superior earning opportunities), then the APCD results may be less informative.[5] Similarly, while I calculate earnings based on an age bracket of 25-60, if recent cohorts will work primarily from ages 30-70, then the APCD model will over-estimate the differences between cohorts. Second, APCD models imply the existence of cohort effects, but do not indicate to what extent these differences are stable, increase, or decrease over the life cycle of a given cohort.[6]

Consequently, I complement the APCD analysis with synthetic cohort models. This allows us to better examine to what extent a cohort's initial entry-level opportunities persist across their working life. For the synthetic cohort analysis, I summarize for select cohorts the proportion of the cohort who are earning above the 33rd income percentile, in each sample.

4 Data

The analysis is based on the person-level Luxembourg Income Study (LIS), which is arguably the best and most comprehensive micro data source for long term trends in income. The data for individual countries is obtained from large government surveys in and outside of Europe, and the data is accessible through a remote server. These data enable me to operatively define the main variables of interest as the data contain rich information collected at the individual level for countries across years, including harmonized items that measure income and employment status. The analysis considers 8 countries which span the VoC or welfare regimes divide: Denmark, Finland, Sweden (social democratic and coordinated economies);

[5] In a similar vein, Luo and Hodges (2014) also caution researchers about interpreting cohort effects as a general trend for that cohort in their life course, when there are less than three age-by-period observations for a cohort.

[6] It should be noted that Chauvel has developed an APCH model - which partially addresses these concerns by estimating the presence of "hysteresis" or lasting scarring effects. However, this estimator yields only a summary estimate of variation and cannot assist in identifying the shape of life cycle dynamics.

France and Germany (conservative and coordinated economies); and Australia, the United Kingdom, and the United States (liberal economies). Critically, all countries have repeated cross-sectional data for Waves 2-6 (around 1985 to around 2005), with some countries having data in Waves 7 and 8 (around 2005 to around 2010).

While LIS covers all ages of the population, I limit the analysis to individuals between the ages of 25 and 60, since the analysis is interested in the working-age population. As our analysis is interested in income opportunities, I consider only individuals who are employed and whose income is not listed as zero.[7] Due to the fact that in earlier waves self-employed individuals were coded as having zero income, I further limit the analysis to individuals whose employment status is listed as a wage-earner (*dependent employment* according to LIS terminology). By focusing on the currently employed, this implies that two key issues affecting the economic attainments of recent young adults - delayed entry into the labor force and unemployment - are not examined. Thus, the analysis is most likely making a conservative estimate regarding the full extent of generational inequalities.

Our dependent variable is relative earnings, which is based on one's annual labor income (pil). Arguably, relative earnings best captures changes in one's employment and income opportunities, as high levels of unemployment and precarious working conditions imply that the relative position of young people in the wage structure has eroded.[8] In order to simplify the comparison across countries and time, I created a dummy variable at the 33rd and 66th percentiles.[9] While the choice of these specific thresholds are arbitrary, it plausibly

[7]This measure is based on one's current labor force status (clfs), which can ideally distinguish between the employed and different types of non-employment (such as the unemployed, not in the labor force, and in education). When this measure is unavailable, we rely on one's main activity status.

[8]At the same time, it should be acknowledged that indivual labor earnings will not capture one's overall level of income or welfare since it does not include, for instance, transfer payments,subsidies provided by one's parents, or spousal earnings.

[9]It should be noted that there are several challenges in comparing income opportunities across countries and time. First, income in different countries is measured using different currencies. Second, comparisons across time would require that income amounts be deflated according to a common standard and base year (such as purchasing power parity). Finally, a regular income measure is highly sensitive to outliers in the income distribution. Using a relative earnings measure helps alleviates these difficulties.

differentiates between "low" and "high" income attainments.[10]

LIS also includes basic demographic variables such as age, gender, level of education, and whether one is an immigrant. In order to increase the comparability of education across countries, I use LIS's recoded three category education measure (low/medium/high), which is based on the International Standard Classification of Education from UNESCO (ISCED97).[11] I also created a dummy variable for education for the synthetic cohort analysis, which distinguished between high education (high category), and low education (low and medium categories). In order to increase the comparability of immigration status across countries, I use LIS's recoded dummy immigration variable (immigr).[12]

Another advantage of using annual labor income relative to other income (or labor force) measures is that it has near universal coverage in LIS. Moreover, as opposed to hourly wages, annual income arguably better captures the income opportunities that people actually face, as hourly wages cannot capture how many hours or weeks one is actually working. In addition, long-term studies that rely on household disposable income (adjusted for the number of household members) may be confounded by long-term changes in household composition. As well, since the study's focus is on young people, household data may exclude many young people who are not the head of their household.

While LIS is the best and most comprehensive source of original data on income, the study's reliance on LIS presented important challenges. One challenge is that the data is made available on the basis of waves and not years. In other words, countries that are surveyed in Round 2 (around 1985) include countries that are surveyed between the years 1983 and 1987. Similarly, while LIS waves are conducted every 5 years, the gaps between

[10]Chauvel (2014) uses deviation from the mean country income as the outcome variable. However, this measure would be influenced by changes in aggregate inequality over time. Using percentiles avoids this problem.

[11]It should be noted that this measure is unavailable in the UK for earlier waves and for Sweden in Wave 2.

[12]It should be noted that this measure is unavailable in the UK and Finland.

survey years for countries can vary from 3 to 7 years. Since the APCD model requires consistent gaps between survey periods, the model would not run if I used the precise survey years. In order to overcome this challenge, in the APCD model we treat waves as if every country was surveyed the same year, which leads to consistent 5 year gaps between the waves. Presumably, this implies that the uncertainty in our estimates are higher than what the model reports.

5 Results

Core Results

I start the analysis with the APCD results, which shows the extent of inequality between generations or cohorts. APCD estimates the average impact of being born in a certain cohort on the probability of earning above the 33rd percentile, independent of age and period effects. The models also control for gender, education, and immigration status.[13] For the analysis, I created 5 year age bins from 25-59 (7 categories), and imposed consistent 5 year gaps between the survey waves. Thus, the model reports estimated cohort effects for all cohorts born between 1935 and 1980/1985 (who entered the labor force at age 25-29 between the years 1960 and 2005/2010).[14]

For ease of interpretation, I first run the APCD models and plot only the (detrended) cohort effect. In the figures, birth year is on the x-Axis and the impact of cohort on the probability of earning above the 33rd percentile of annual labor income is on the y-Axis. The coefficients in the figures are predicted probabilities.[15] The baseline value of 0.50

[13]It should be noted that the results are very similar if the models are run without these control variables.

[14]Estimating cohort effects based on only one observation would lead to very unreliable estimates. Consequently the model only reports results for cohorts that are observed for at least two separate data points. For example, the cohort born between 1930 and 1934 is excluded since we only observe them once in the data (in the 1985 survey but not in the 1990 survey).

[15]Note that the APCD model reports logit coefficients. I converted these coefficients to predicted probabilities using the *inv.logit* command in R.

indicates that cohort has no independent effect on the predicted probability of earning above 33rd percentile of annual labor income, and where values above/below 0.50 indicate a positive/negative impact of cohort on the predicted probability of earning above the 33rd percentile of annual labor income.

Figure 1: Income Opportunities at the 33rd Percentile in Denmark, APCD Analysis.

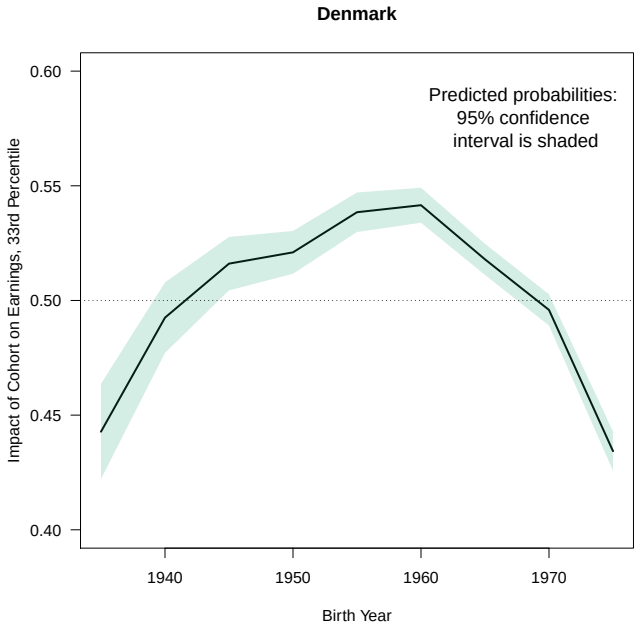
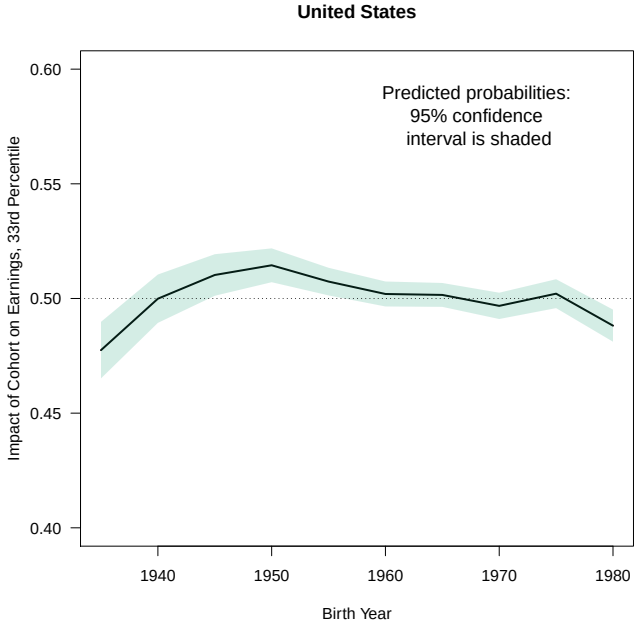


Figure 1 plots the detrended cohort effect from the APCD model on the probability of earning above the 33rd income percentile (including the 95 percent confidence interval) for Denmark a social democratic regime case. The motivation for examining this case is to ascertain to what extent generational inequalities are present in a social democratic country. In contrast to previous scholarship which posited that generational inequalities should be less pertinent, the results indicate significant fluctuations in the probability of earning above the 33rd income percentile. For instance, the inverted U-shape indicates that recent cohorts born after 1970 (and those born before World War 2) have faced less favorable income opportunities, relative to other cohorts. In particular, the figure indicates that for

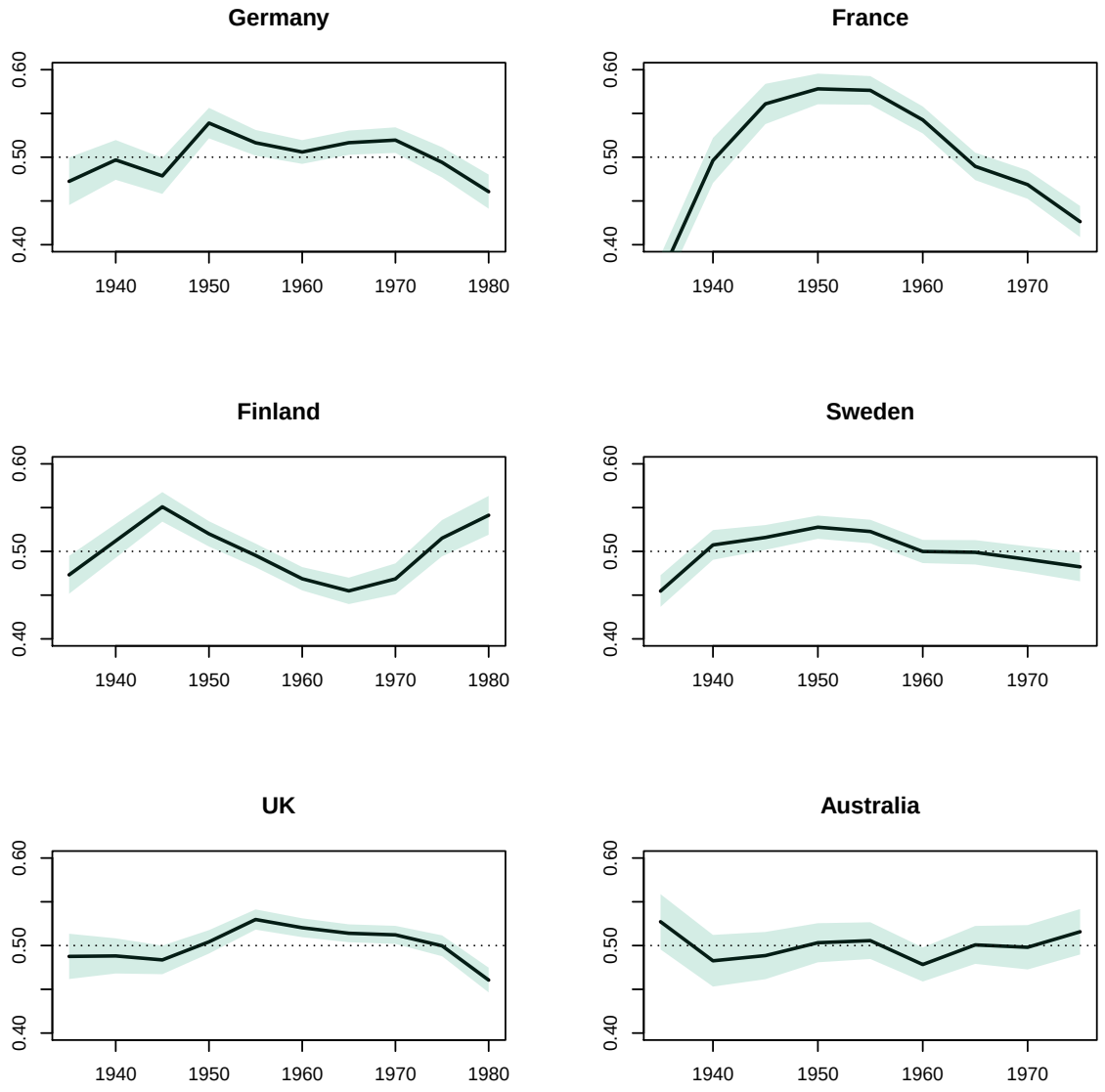
the cohort born in 1975-1979 (who entered the labor force in 2000-20005), the predicted probability of earning above the 33rd percentile relative to other cohorts decreased by 0.05 (about 5 percentage points). Moreover, the 95 percent confidence interval indicates that this result is precisely estimated. In contrast, cohorts born after World War 2 to about 1970 (the Golden Era) had a higher probability of earning above the 33rd income percentile (about 2 to 4 percentage points above the trend).

Figure 2: Income Opportunities at the 33rd Percentile in the United States, APCD Analysis.



In Figure 2, I present the APCD results for the US - a liberal regime case. In contrast to Denmark, cohort seems to have had little impact on the probability of earning above the 33rd percentile in the US. The relatively flat line that stays close to the zero line (with the 95 percent confidence interval overlapping the zero line for most cohorts) suggests that there is relatively little inequality in earning opportunities across cohorts or generations.

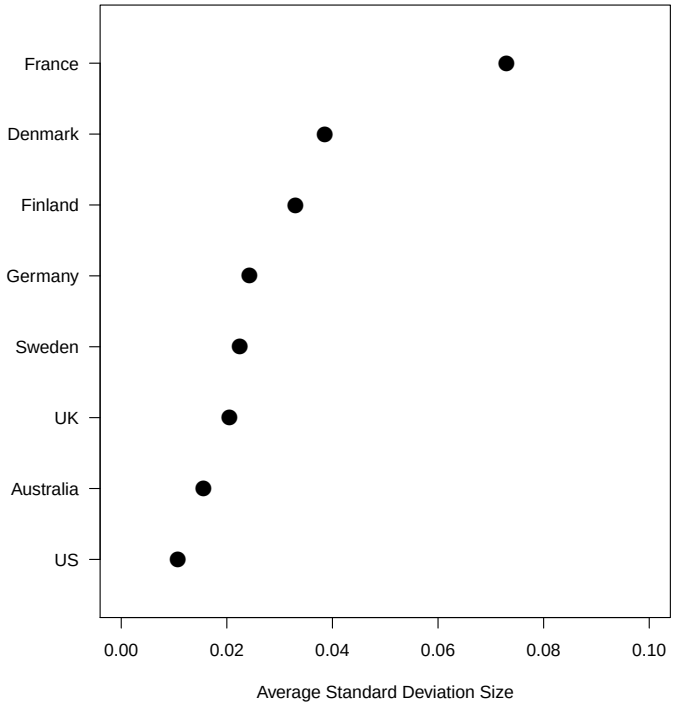
Figure 3: Income Opportunities at the 33rd Percentile in six countries, APCD Analysis.



In Figure 3, I present the APCD results for six additional countries: Germany and France (conservative and coordinated economies), Finland and Sweden (social democratic and coordinated economies), and the UK and Australia (liberal economies). In Germany and France, there is an inverted U-shape which suggests that cohorts born between 1950 and

1965 (who entered the labor market in the 1970s and 1980s) faced more favorable earning opportunities, relative to earlier and later cohorts. In addition, the figure suggests that these trends were most pronounced in France. In the Scandinavian countries, Sweden represents a more moderate version of Denmark. In contrast, in Finland, cohorts born between 1955 and 1970 were less likely to earn above the 33rd percentile, while cohorts born after 1975 had a higher probability of earning above the 33rd income percentile. In the liberal economies, like the US, the relatively flat line suggests that there is relatively little inequality in earning opportunities across cohorts or generations.

Figure 4: Importance of Cohort Effect on Income Opportunities at the 33rd Percentile.

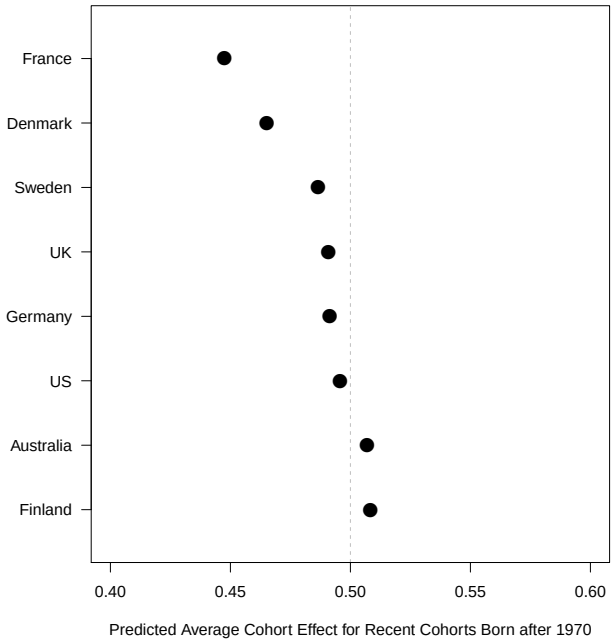


Note: Larger numbers indicate that cohort is a more significant predictor of income opportunities in that country. Countries are sorted by the size of the cohort effect.

As suggested by Figures 1-3, the relative importance of cohort effects has differed across countries. As a visual analog to Figures 1-3, in Figure 4, I plot the average standard

deviation size from the mean for the cohort effects for each country. The APCD model is designed so that the mean (or sum) of the cohort effect in each country is zero. Thus, larger standard deviations imply that cohorts are on average more significant predictors of income opportunities in that country (and generational inequalities are more salient). The figure suggests that cohort is most important in the conservative and social democratic regimes (France and Denmark), and least important in the liberal economies. More importantly, the similarity between the conservative and social-democratic regimes suggests that the coordinated versus liberal VoC framework is a more appropriate distinction, relative to the welfare state regimes distinction posited by previous scholarship.

Figure 5: Average Size of Cohort Effect for Recent Cohorts



Note: Numbers less than 0.50 indicate that cohorts born after 1970 were on average less likely to earn above the 33rd percentile, relative to earlier cohorts.

Finally, Figures 1-3 suggest that in most countries recent cohorts had a lower probability of earning above the 33rd percentile. In Figure 5, I plot the average size of the cohort effects for the more recent cohorts born after 1970. The figure confirms that recent cohorts in 6 out

of the 8 countries have a lower probability of earning above the 33rd income percentile.

6 Robustness Checks

Synthetic Cohort Results

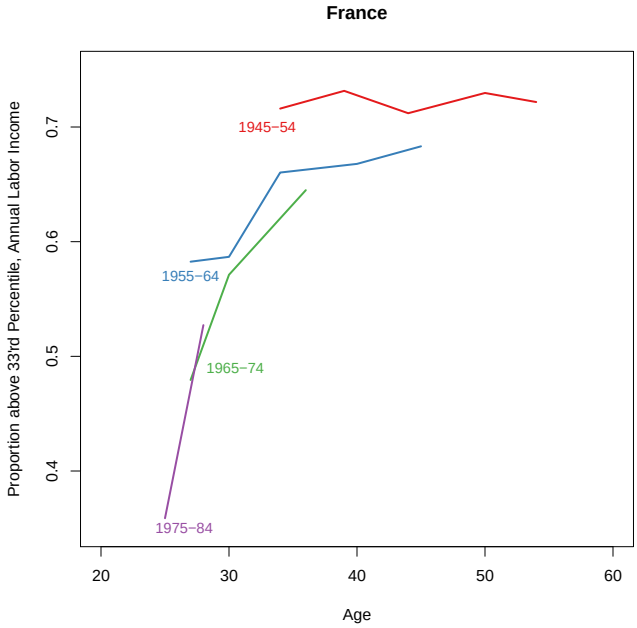
In this section, I present synthetic cohort results. As noted in the empirical strategy section, while the APCD model provides an average cohort effect, it does not indicate to what extent these differences are stable, increase, or decrease over the life cycle of a given cohort. Critically, synthetic cohort results help me examine to what extent there is mobility (or immobility) over the working life of different cohorts. In the figures, I consider the following ten year cohorts: those born between 1945 and 1954, 1955 to 1964, 1965 to 1974, and 1975 -1984 (when available).[16] In these figures, age is on the x-Axis and the proportion of individuals within the cohort who earn an annual labor income above the 33rd percentile is on the y-Axis.[17]

In Figure 6, I present the results for France, the country that experienced the largest cohort effects. The figure indicates that in France, the baby boomer cohort born between 1945 and 1954 started off with high earning opportunities, and these opportunities remained stable over the life cycle. In contrast, the 1955-64 cohort suffered from a worse entry position, and their achievements remained lower over the life cycle. The figure also suggests that there were lower entry-level opportunities for young adults in each of the 2 subsequent cohorts. At the same time, these recent cohorts seems to gradually "catch up" as they get older. In particular, the 1965-74 cohort seems to have caught up at 35, while the 1975-84 cohort appears to be on a similar trajectory. This may indicate that even in France, although recent cohorts are starting off their labor market career slower, they have been able to "catch up".

[16] Using ten year cohorts makes it easier to discern trends in income opportunities without being distracted by short-term fluctuations.

[17] I find similar results for the 66th percentile. Results are available upon request from the author.

Figure 6: Income Opportunities at the 33rd percentile in France, Synthetic Cohort Analysis.



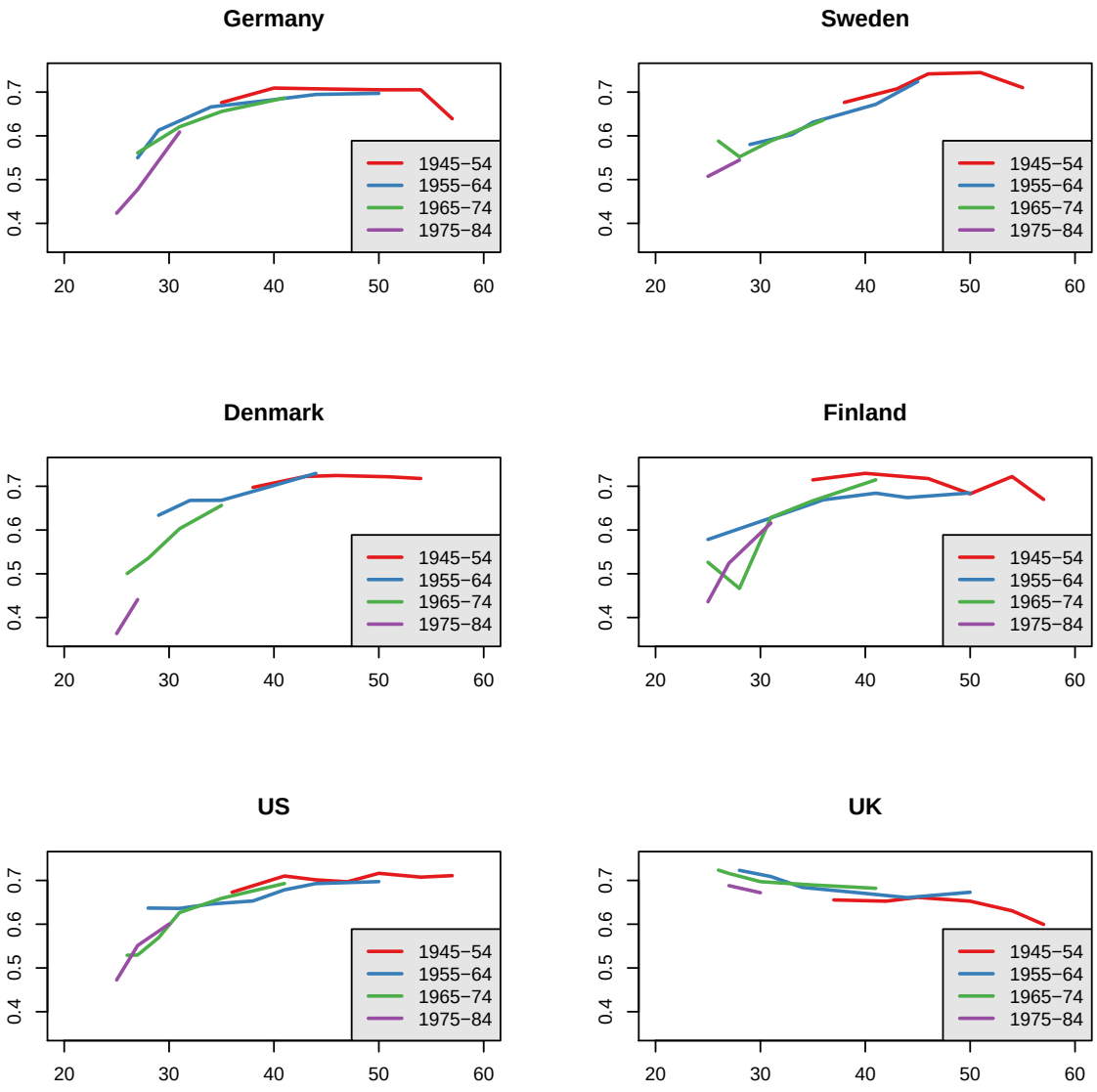
In Figure 7, I present the synthetic cohort results for the other countries.[18] The figure indicates that in all countries - with the exception of the UK the most recent cohort (and the 2 most recent cohorts in Finland, Denmark, and the US), have suffered from a successively worse entry position. However, in all cases, by their early 30s these cohorts have converged (or are close to converging) with their predecessors. This may suggest that for recent generations, the initial disadvantages marked by entry into low-paying jobs do not (or will not) necessarily persist across one's working life.[19]

Overall, the synthetic cohort results suggest three caveats to the APCD results. First, APCD is a very good measure of generational inequalities for cohorts who we have seen their whole (or most) of their life span. However, it is less accurate measure for recent

[18] Australia is not included in this analysis since the average age of the cohort does not progress as expected. One reason may be that Waves 5 and 6 were conducted only two years apart (2001 and 2003).

[19] In more technical language borrowed from Luo and Hodges (2014), this indicates that the APCD results should be interpreted as evidence of a "compensation hypothesis" and not as pure "scarring" or "constant" effects.

Figure 7: Income Opportunities at the 33rd percentile, Synthetic Cohort Analysis.

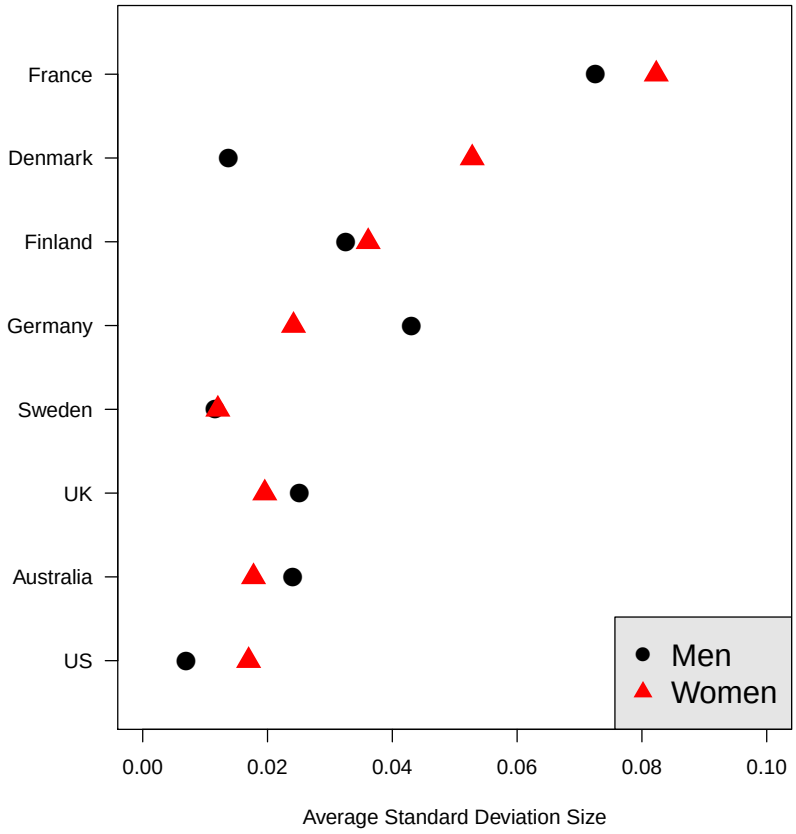


cohorts as there may be catchup - as indicated by the synthetic cohort results. Second, one should not interpret 'no' overall cohort effects as necessarily indicating that successive cohorts experience similar income opportunities. For instance, the figure suggests that in the US the country with the smallest average cohort effects - the 1965-74 cohort started below the 1955-64 cohort and then surpassed them. APCD models yield a virtually zero cohort effect in this case, since there was no overall inequality between cohorts. In other words, the APCD model cannot track important between-cohort dynamics, which are better revealed by synthetic cohort models. At the same time, it is also possible that an explanation for some of the divergence between the synthetic cohort and APCD results is that the APCD analysis uses 5 year cohorts and controls for gender and education level.

Heterogeneity in Cohort Differences

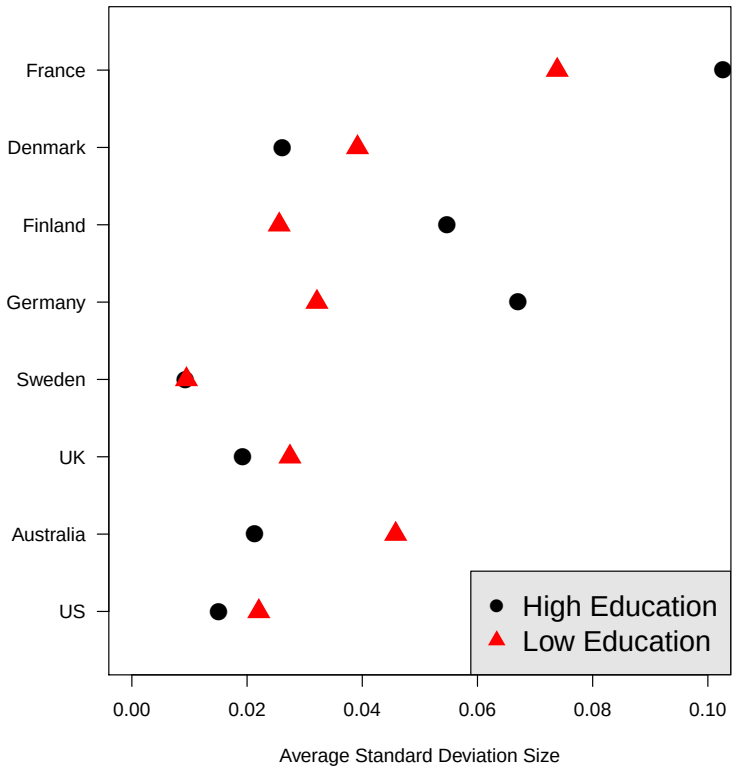
The APCD estimates of net overall differences between cohorts that were reported earlier controlled for differences in their educational and gender composition. However, this leaves open the question of heterogeneity in cohort effects between different sub-groups of the population. As previously noted in the theoretical background section, there are good reasons to believe that summary or aggregate measures of changes between cohorts could hide such heterogeneity.

Figure 8: Importance of Cohort Effect on Income Opportunities at the 33rd Percentile, by Gender



In Figure 8, I present APCD results for males and females separately. Like Figure 4, the plot shows the average standard deviation from the mean cohort effect for males and females separately. The results indicate a very large gender divergence in Denmark, and smaller gaps in France and Germany. Generational inequalities were much more salient for women (about 0.05) relative to men (about 0.02) in Denmark. In France women also exhibited stronger effects than men, while in Germany generational inequalities were more salient for men. At the same time, the results indicate that males and females experienced very similar generational inequalities in the UK, Sweden, Finland, and Australia.

Figure 9: Importance of Cohort Effect on Income Opportunities at the 33rd Percentile, by Education Level

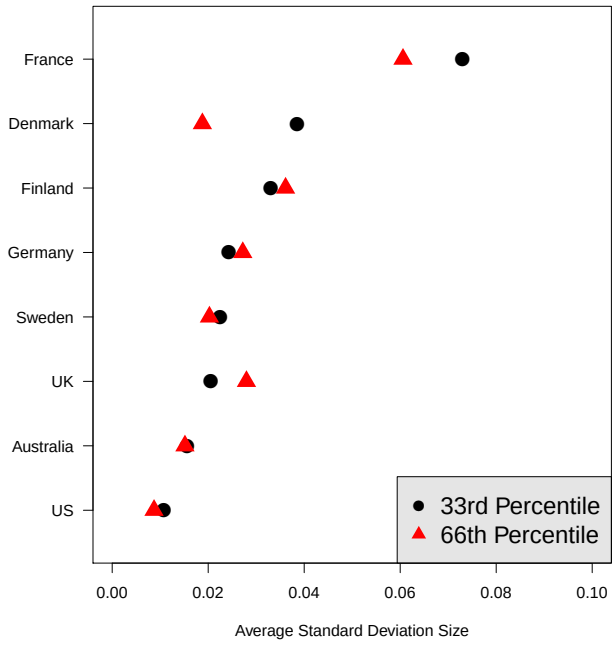


In Figure 9, I present APCD results for the high-educated and low-educated separately. The results indicate that in the liberal economies, generational inequalities were more pertinent for those with low education, relative to those with high education. In contrast, in France, Finland, and Germany, generational inequalities were higher for those with high education. Overall, Figures 8 and 9 provide important indications of heterogeneity, as generational effects sometimes differ quite dramatically by gender and education level. However the size and even the direction of these differences vary considerably across regimes, although generational inequalities seem to be more pertinent for the low-educated in the liberal regime. Previous aggregate findings have shown the importance of investigating the dynamics of within-cohort attainment, as well as overall relativities between cohorts. However, further analysis is beyond the scope of this paper.

High Income Threshold

In this section, I examine to what extent there are generational inequalities at a higher wage threshold. The focus of the paper has been to what extent there are generational inequalities regarding low-wage labor (as insider-outsider interpretations would suggest). However, it is also important to examine to what extent there are generational inequalities at the high end of the wage structure, as impoverishment and enrichment may have both increased.

Figure 10: Importance of Cohort Effect on Income Opportunities at the 33rd and 66th Percentile



In Figure 10, I plot the average detrended cohort effect from the APCD model on the probability of earning above the 33rd and the 66th income percentile the latter representing a "high" income threshold. The results suggest that Denmark has had little generational inequality at the higher threshold, while in the UK (and to a lesser extent in France) generational inequality has been greater at the higher end of the income distribution. However, in the remaining five countries the results are very similar, indicating that there have been

similar generational inequalities at both ends of the income distribution.

7 Conclusion

In conclusion, the results suggest that in most countries, cohorts born after 1970 have experienced fewer earning opportunities, relative to cohorts born between 1950 and 1965. At the same time, they also show that while recent generations have suffered from successively worse entry positions, so far they appear to be "catching up", which suggests that lifelong generational inequalities may not be inevitable.

This research makes four important contributions to the existing literature. First, the results in Figures 1-4 indicate that generational inequalities are more pronounced in the conservative and social democratic regimes, and least important in the liberal economies. Thus, the cross-country variation regarding generational inequalities appears to conform better to the distinction between coordinated and liberal political economies. This is in contrast to previous research, which argued that generational inequalities are primarily found in the conservative regime. While further analysis is beyond the scope of this paper, future research could ascertain what feature of a coordinated economy is responsible for greater generation inequalities.

Second, the results in Figures 6-7 suggest that APCD methodology can be usefully supplemented by older synthetic cohort models. In particular, APCD models seem most appropriate in comparisons between cohorts that can be observed over the course of most of their working life. In this instance, cohort effects can be interpreted as lifelong effects, and are less likely to be caused by other proximate factors such as the general trend towards delaying entry into steady employment. Synthetic cohort models are useful in showing differences in cohort dynamics across the life cycle, and in evaluating to what extent a cohort's initial entry-level opportunities persist across their working life.

Third, the results in Figures 8-9 indicate that generational inequalities differ by both gender and education level. This suggests that average cohort effects may hide important heterogeneity. Although the size and even the direction of these differences vary considerably across regimes, future research may be able to shed light on the mechanisms responsible for generational inequalities by disaggregating their analysis. Finally, the results in Figure 10 indicate that there have been similar generational inequalities at both ends of the income distribution.

I conclude with a possible agenda for future research. The synthetic cohort results suggest that successive generations of young people are experiencing a decline in labor opportunities at the onset of their labor market careers. As noted in the theoretical background section, one explanation may be that the young people are spending more time in school (where they also may be pursuing part-time work), and are only starting full-time work in their 30s. However, it is also possible that young people are experiencing difficulties due to recent trends in the labor market that has led to a sharp rise in "cheap" forms of employment. While this paper is unable to evaluate which of these two possibilities is more likely, future research could examine this question using panel labor force data.

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