Memo on the Politics of Education, Equity and the Future of prosperity

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NOTE TO READERS: Unlike previous presentations, this is not a research paper. It is a (long) memo meant to stimulate discussion using a motivated (but incomplete) literature review on some of the questions related to the politics of education. I was hoping to have some more concrete findings from my study on post-war educational reform, but these are still speculative.

The questions raised here relate to 'equity and the future of prosperity' in a broad way. The focus is on larger configural institutions - not specific DSIP or programmatic interventions - where the dynamics may (or may not!) be distinct. I should also note that my empirics and analytical focus is entirely on advanced democracies - because these are the countries on which I am familiar and currently gathering data - but much of the interesting research on education is focused on other regions. The last section is **very** speculative and under-evidenced, so please read it in the spirit of idea generation!

1 Skill gaps and inequality: Three models

Goldin and Katz (2009) describe the twentieth century as the 'human capital' century. While the expansion of primary education occurred largely in the mid to late 19th century (Ansell and Lindvall 2013, 2020; Green 1990; Manzano 2017; Paglayan 2020), high-quality secondary education was neither universal nor equal until well into the second half of the twentieth century outside of the United States.

Figure 1 demonstrates this pattern. The top panel draws on the work of Lee and Lee (2016), illustrating gross estimated enrolment ratios for primary, secondary and tertiary education across advanced economies. The second panel zooms in on the trends for secondary enrolment.[1] Collectively, the figures show that while primary education was nearly universal by the early twentieth century, in the the pre-world war two period, only in the United States did secondary enrolment reach above a third of the teenage population, and in most countries under one fifth of children attended secondary education. The bottom panel uses the attainment data from Barro and Lee (2013), combining the share of the population over 15 with completed secondary or some higher education. The early expansion of both secondary and tertiary education in the United States led to an ongoing lead in population attainment shares through much of the twentieth century; however, over time, other advanced economies have converged upwards. Despite a

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[1] Lee and Lee (2016) estimate gross enrolment ratios using the total enrolment by level against the share of the population in the relevant age group. Advanced economies include the former EU-15, Iceland, Norway, Switzerland, Turkey, Australia, New Zealand, Japan, Canada, and the US.

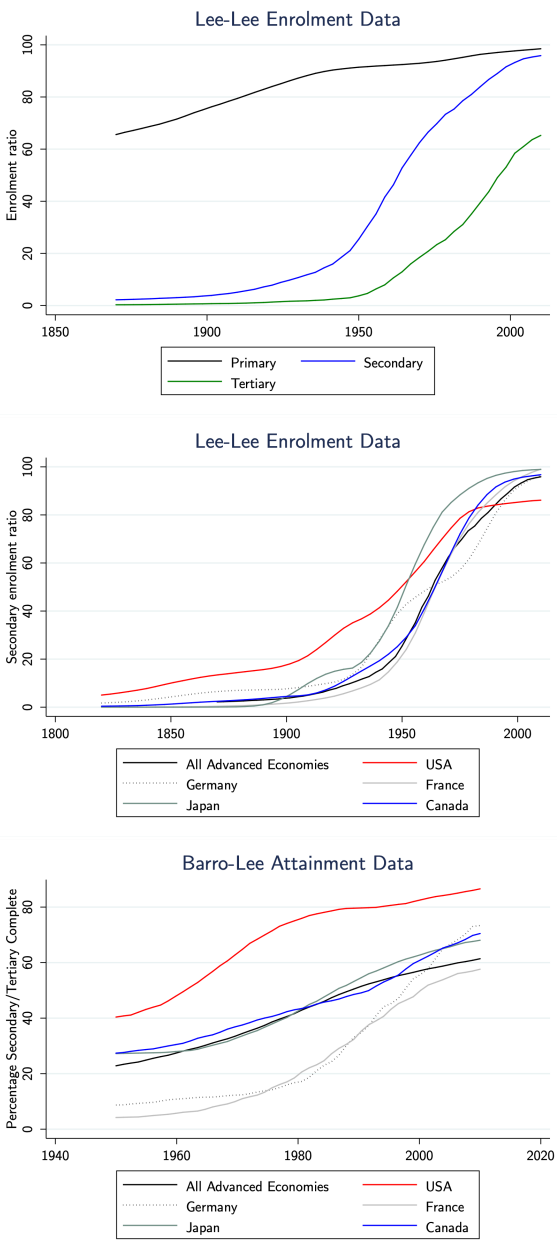

Figure 1: Enrolment and Attainment Across Advanced Economies

slowing of growth in secondary completion in the US in the 1990s, high school graduation has expanded from mid-2000s, with now over 90% of workers over 25 with a high school or equivalent education (Census Bureau 2017). This increase in both skills - and greater equity in attainment - was central to post-war growth.

As is well known, over the past four decades, in most countries, wages have become far less equal. While income inequality tracked the temporal trends in declining educational inequality through the 1950s-1980s, a number of measures of income inequality have increased across advanced economies in the last forty years - in particular the overall gini coefficient, the dispersion between the median and the 90th percentile, and the well known increases in the income and earning shares of the top 1/% (and top 1% of the top 1%) (Alvaredo et al. 2018). These shifts have been most extreme in the United States but not exclusive to them.

Why has inequality increased so much, when skills have become much more equal? How should we think about education as part of a package for more inclusive forms of growth? Broadly, this memo argues that there are quite different models for conceptualizing this relationship, and the politics of inclusive growth depends in part on which of these models predominates.

I introduce the models briefly, then look to flesh out the three broad questions associated with them: when do political institutions produce investment in education that is genuinely aimed at producing skills for children across the income distribution? What is the link between equitable skilling and labor market institutions? When do educational institutions reduce competition for positional gain?

I conclude with some very preliminary work by current research on post-war education policy that stresses more attention to the relationship

between productive side of the **state** and its capacity.

1.1 The education solution

Early work on so-called 'skill-biased technological change' (SBTC) argued that the technology of production in post-industrial economies was increasingly complementary to high levels of skills (Acemoglu 2002; Autor 2014). In this perspective, growing inequality is a joint product of these structural changes and a slowing of the rate of growth in the skills of the population Goldin and Katz (2009). In Goldin and Katz's memorable language (drawing on Jan Tinbergen), there is a race between education and technology - with both US K-12 educational investment and the expansion of higher education failing to keep pace with the complementary productivity enhancing technology driving the demand for skills. The rising returns to tertiary skills (i.e. the 'college wage premium') in the United States from the 1960s - and in more recent year - post-graduate skills are clearly demonstrated by David Autor; with Autor estimating that about 2/3 of the growth of wage dispersion in the bottom 99% of the income distribution is attributable to changes in the wage premium to education.

A 'stylized' SBTC model then, makes two important claims: educational inequality (in part) precedes income inequality, and a counterfactual world with greater investment in education would have produced more equal labor markets. While technological progress may or may not be exogenous to policy, this literature offers one clear policy lever for expanding equitable growth - an 'educational solution'.[2] The puzzle for political scientists then, schematized in Figure 2 line 'A', is what explains temporal and cross-national variation in investments in high quality education (from pre-schools to tertiary), particularly for the bottom half of the income distribution. Are there systematic features of political regimes, electoral or constitutional systems, party competition, or the structure of long-standing producer groups that shape the willingness of governments to invest in the skills of the disadvantaged?

1.2 Labor markets and skills

A second wave of work - both academic and policy oriented - has been more critical of both this diagnosis and cure. The growth of low wage jobs - in the US (Autor, Levy and Murnane 2003) and beyond (Goos and Manning 2007; Goos, Manning and Salomons 2009) - created an important addition to the early SBTC literature, arguing that structural changes altered the demand for not just skills but 'task' structures. Growth at the low-end of skill distribution is complementary to growth at the high-end, because many low-skilled non-routine types of tasks (e.g. personal services) cannot be cheaply or easily automated and demand for these services grows with population wealth. In this model of 'job polarization' (or the declining middle), inequality is only is only *partly* due to inadequate educational investment.

More recent work has further questioned task based approaches - arguing that the extreme increases in inequality at the top end of the labor market (particularly the US but not exclusively) and weak wage growth in both the middle and the bottom is not entirely attributable to exogeneous shifts in technology or demand for particular tasks but features of the labor market that are *seemingly* independent of skills, such as rising super-star firms and inter-firm inequalities, monopsonistic firm practices, labor market fissuring resulting from product and labor market deregulation, weakening of financial and

[2] Although most proponents, including Goldin and Katz (2009), also advocate progressive taxation or redistribution, particularly to support low-income families.

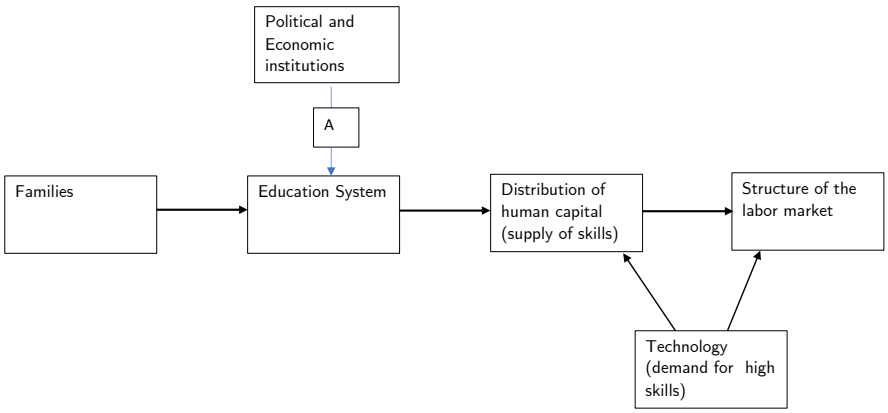

Figure 2: SBTC

anti-trust enforcement, the commodification of the care workforce, and declining union power (Dwyer 2013; Manning 2020; Nolan 2018; Philippon 2019; Stansbury and Summers 2020; Weil 2014). This work points to a growing inequality among those with similar skills, creating a 'tournament' model in the economy, with high performing firms capturing many of the gains of growth - a phenomenon that is pronounced in the US (Song et al. 2018), but not exclusive to it (Tomaskovic-Devey et al. 2020). In a 2015 blog post, Paul Krugman labelled the simple reasoning about skills and inequality as a "rip van skills gap" argument - suggesting that the trends from the 1990s focusing on growing college wage premiums failed to explain inequality trends in the 2000s and 2010s with widening inequality *among* college graduates.

These claims reorient the discussion away from education systems as key lever for promoting inclusive growth, and towards other institutions (e.g. collective bargaining rules, product and financial market regulation) that are more directly related to the structure of power relations in the labor market. However, little work suggests that the distribution of skills is entirely orthogonal to other types of welfare or regulatory structures that shape labor markets. Indeed, comparative political economists have long stressed that collective worker power is deeply interlinked with systems of both skilling and income redistribution (Hall and Soskice 2001; Iversen and Stephens 2008; Nelson and Stephens 2012). The question for this literature is whether the trends in the rise of the knowledge economy have *undermined* these complementarities politically (Boix 2019; Iversen and Soskice 2019). Do the voters and interest groups that support investment in education and skills, still support unions, welfare and other institutions, and vice versa? This puzzle is schematized Figure 3 by lines 'B', asking what relationship education systems have to broader structural trends in the collective power of labor - where both innovation and collective power over its distribution are theorized to be partially endogenous to political and economic institutions.

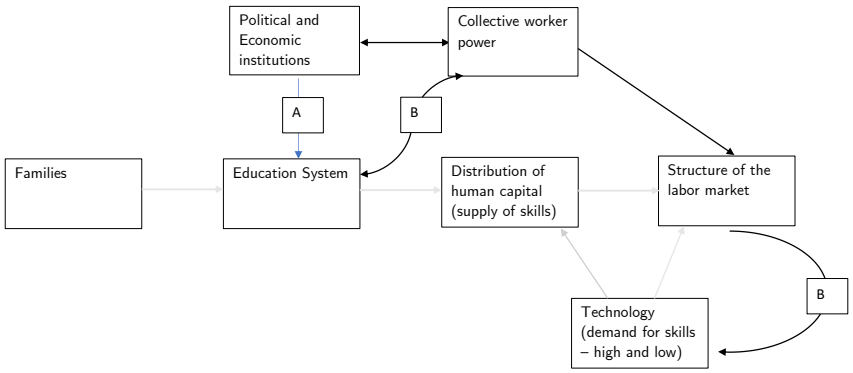

Figure 3: Education and Labor Market Institutions

1.3 Families and positional competition

A third body of work, grounded in a long-standing research agenda in educational sociology, also questions the 'educational solution.' This work focuses on the intersection between labor markets and families in shaping positional competition. In this diagnosis, the well-known 'Gatsby Curve' in social mobility, in which the influence of parental background on children's outcomes grows with inequality (Corak 2013), is related in part to the ways in which families both directly shape the distribution of skills and support public investment in it. Reducing income inequality, then, is a necessary precondition for improved education, not just a product of it. These arguments have entered popular discourse in recent years, featuring in the Atlantic Monthly, the New York Times podcast 'Nice White Parents' and increasingly prominent arguments about 'resource hoarding.' For instance, Reeves (2018) 'Dream Hoarders' focuses on the ways in which wealthy families seek to reproduce racial and class inequalities through sorting behaviors, private investments in skills, and competition for elite educational spots. The question, from this perspective, is how particular institutions interact with families, sometime supporting and sometimes limiting positional competition. This third puzzle is schematized by lines C in Figure 4.

The following sections review each of these of these three puzzles: why do some systems invest more in equitable education; do changing skill structures undermine or enhance the collective labor market institutions that historically supported more equitable outcomes; when do education systems reduce the influence of family background on outcomes? For each section, I start by offering some stylized empirical claims to flesh out the puzzles. In the final section, I argue that we need to supplement the well-theorized dynamics of equity and skills in education with the attention to the the structure of the public sector/bureaucracy to answer these questions.

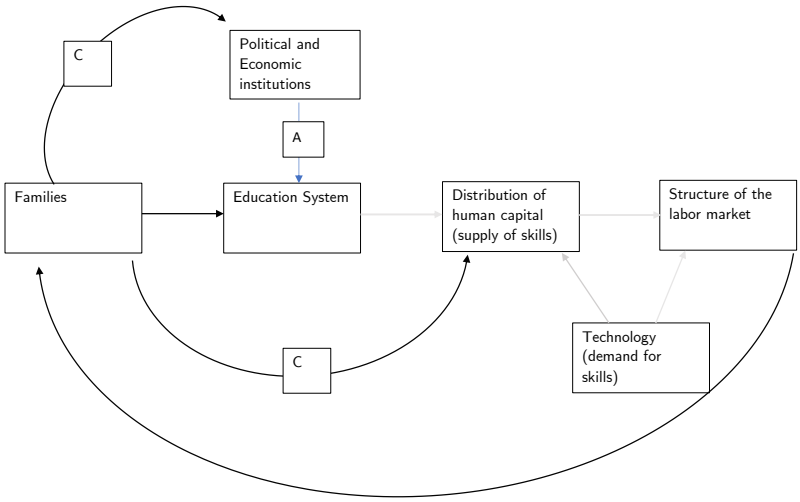

Figure 4: Education and the Family

2 Puzzle 1: What explains varying investment in high-quality education?

When and where do we see more stable investment in skills, particularly in the skills of the disadvantaged? Answering these questions adequately would extend well beyond this memo, but in this section I briefly review some of the basic trends in both institutional change in education systems in the post-war era and skill based outcomes showing substantial differences in effort expended by education systems in educational investment and equity.

2.1 Variation over time and place

Figure 1 shows that both enrollment and attainment in secondary and tertiary education have increased over time. However, it is not just that formal educational completion is more widespread than in the past, but it is also the case that most pupils in primary and secondary ('K-12') schooling have a more equitable experience. At mid-century, in most of continental Europe, children were tracked into academic and non-academic programs at a young age. Non-academic programs were often dead-ends, meaning that they did not lead to a qualification that allowed upward progression, and many pupils still faced fees for accessing further secondary education. Teachers were unevenly trained, often possessing few qualifications beyond those of their pupils.

Throughout the second half of the twentieth century, reforms progressively reduced these barriers: reforms in the 1950 and 1960s largely eliminated dead-ends (Belgium 1975, Denmark 1958, Finland 1968, Greece 1976, Italy 1962, Japan 1947, the Netherlands 1968, Norway 1959, Portugal 1975, Spain 1970) and tuition fees for secondary schools in receipt of public funds (Austria 1962, Belgium 1958, Finland 1968, France 1959, Ireland 1967, Italy 1962, Japan 1946, the Netherlands 1955, New Zealand 1944, Portugal 2009*, Spain 1970, UK 1944).[3] In many cases, reformers extended compulsory schooling to the end of lower-secondary (14-16), and in some cases

[3]These moves often involved an explicit exchange with confessional schools, which expanded their access to public funding as well as regulatory supervision.

even to the end of upper secondary (18), reducing the possibilities for early exit (Brunello, Fort and Weber 2009; Murtin and Viarengo 2011). Almost all countries over this period further eliminated formal differences in educational structures for boys and girls, expanding opportunities for girls to pursue academic programs and also increasing the qualifications (and pay) of female teachers.

The patterns regarding tracking are more heterogeneous. Globally, there has been a reduction in early tracking of children into vocational and academic paths, with reforms in the 1960s through 1980s either eliminating academic elite streams or delaying selection into them (Brunello and Checchi 2007; Furuta 2020; Österman 2018). The Nordic countries introduced 9-year comprehensives (Wiborg 2009) (Sweden 1962, Finland 1968, Denmark 1958 and 1972, and Norway 1959), while both Italy (1962) and France (1975) introduced common middle schools, delaying tracking to 14/15. Spain (1970 and 1990) and Portugal (1975, 1986), Greece (1976, 2000) postponed streaming to 15/16, in each case beginning this process before - but largely insitutionalizing it after - their democratic transitions. The UK and Australia reduced (but did not fully eliminate) academic selection at ages 11 or 12.[4]

Some countries, however, did maintain early academic streaming, such as Austria (age 10) Belgium (age 12), Germany (age 10), the Netherlands (age 12) and parts of Switzerland (11-13). Here too, reforms through the 1970s increasingly homogenized the qualifications of teachers - requiring teachers at all levels to have a college degree, introduced more curricular similarity between vocational and academic streams in the early years, and in some cases (Austria, Belgium, the Netherlands) consolidated aspects of the non-academic vocational streams. Nonetheless, these countries maintained more institutional differentiation across students.

Figure 5 shows a summary index of differentiation across this period[5], weighting five institutional features scored on a zero to 1 scale: the length of compulsory education (12 years=1), the age of tracking (18=1), the number of tracks at the lower secondary level (1=1), the presence of lower-secondary dead ends (none=1), and tuition fees (none=1). It shows visually, for the advanced economies (not including the US), the increasing formal institutional equality across countries. Of course, this index does not capture all features of systems - it understates rising formal equality in one direction (not including the homogenization of teacher education and lower-secondary curricula) but overstates it in another (excluding school level tracking and specialization). Despite these weaknesses, it does show that in formal terms, education systems on average became more equal between the 1950s and the 1990s - to use Allemdingar's (Allmendinger 1989) language - as they became less stratified and more standardized. Formal institutional change since this time has been more variable, with an increase in the compulsory schooling age in most countries, but little major reform in tracking systems and some expansion of other forms of academic differentiation (e.g. charter schools, specialist programs and so on).

Outside of the tracked systems of Europe, the

[4] Unlike tracking elsewhere, in both case of these countries academic selection was largely used to allocate pupils to selective school that offered the same qualifications as non-selective schools, rather than allocating pupils into an alternative academic stream. This tracking was phased out through much of England, with only 164 selective grammar schools remaining today. In Australia, patterns vary across states. In New South Wales, for instance, the 1961 education act limited new selective schools, but allowed existing institutions to continue to operate selectively. Reforms in 1990s began to move in the other direction, reintroducing new selective grammar schools.

[5] This index was developed in collaboration with Anja Giudici, as part of my ERC funded SCHOOLPOL project

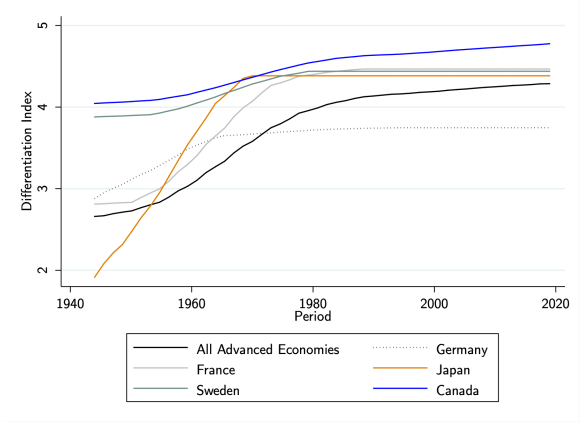

Figure 5: Formal Institutional Equality Index

historically more academically equal - but financially unequal - high schools of the US and Canada have also become in many ways more equal over time - but as in Europe, to differing extents. Figure 6 shows that the share of local financing, largely through property taxes, has fallen in both cases, reducing school funding gaps. In the US, a series of political and judicial decisions between the 1950s and the 2000s created an aggregate shift towards more state level funding. Nonetheless, the trend towards state financing is both less pronounced over all and more variable across the United States than Canada - with substantial per pupil spending differences across school districts and substantial differences across states in the share of education spending financed locally (Cornman, Ampadu et al. 2018). Goldin and Katz (2009) find that the overall coefficient of variation in spending across school districts was not substantial different in the mid-2000s than in the early 20th century.

These differences grow when it comes to non-compulsory education.[6] The expansion of higher

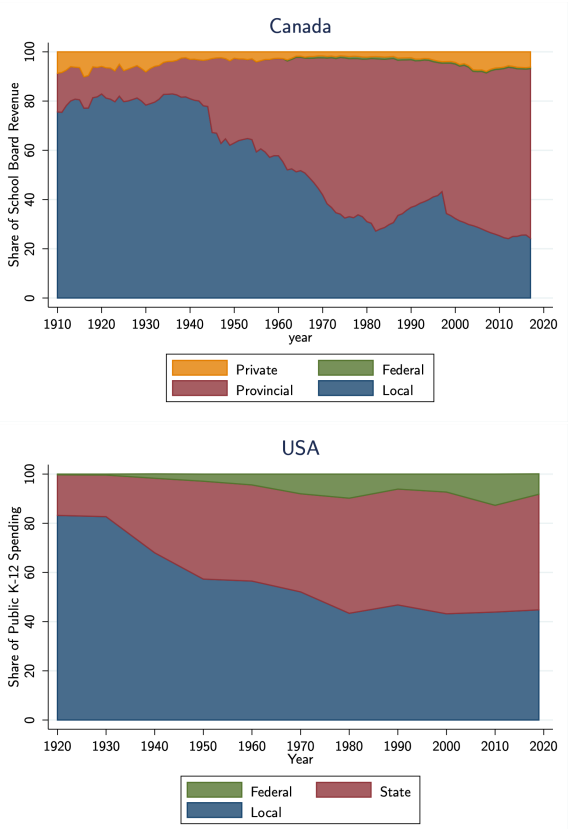

Figure 6: Education Funding in Canada and the USA

[6] Although I do not review pre-primary here, we see a similar temporal pattern of more recent public growth - but substantial variation in both the extent of public funding and the public private mix in support early child-

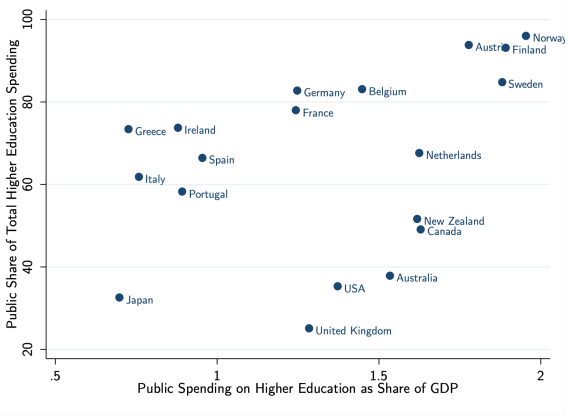

Figure 7: Higher Education, 2016

education, shown in Figure 1, has been more recent and variable. While all countries have expanded enrolment, until recently, Continental Europe did so less extensively than Northern Europe or the Anglo countries, in part due to its more developed system of work-based vocational training (dual system) and more restricted access to universities due to early tracking. Over time however, nearly all countries have dramatically expanded access. The mode of expansion, however, has varied. As Ansell (2007) argues, the Anglo countries largely expanded through a mix of public and private financing, compared to a publicly funded but more restricted expansion in Continental Europe and an extensive increase in public funding in the Nordic countries to fund expansion. Garritzmann (2016) builds on these arguments, charactertizing these paths in terms of 'four worlds' of student finance: extensive private (Japan), mixed public-private (Anglo world), extensive public (Nordics) and public but less extensive (Southern and Continental Europe). Figure 7 shows these patterns for 2016, combining the UNESCO data on higher education spending with OECD data on the public-private share.

hood education(Gingrich and Ansell 2015; Morgan 2009, 2013)

If we look at all levels together, through the lens of spending - rather than formal institutional structures - we again see temporal and cross-sectional variation. Because of differences in measurement of both expenditure and education over time, reliable spending estimates over a long time period are difficult to come by. The top panel of Figure 7 shows data from Tanzi, Schuknecht et al. (2000) estimating government education spending as a share of GDP over a long period. Tracking the rise of enrolment - and the birth of the baby boom cohort - we see a rapid upward rise in spending in the post-war period. The second panel draws on UNESCO data (reported in Armingeon et al. (2018)) supplemented by OECD (1992) to report the post-1970s trends in public education spending as a share of GDP. Here we see a slowing of the rate of growth - or reduction of spending - in the late 1970s and 1980s, as countries began to unwind the school capital projects of the 1960s and smaller birth cohorts entered schooling. In some countries, however, spending ticks up again from the 1990s, driven in part by rising spending on tertiary education. As with reforms in institutional structures then, temporally, we see a broad pattern of growth followed by slowing, but with important cross-national variation in the extent of both. The bottom panel shows an OECD estimate in 2015 of total resources spent per pupil in USD-PPP for ages 6-15 relative to GDP per capita (Peña-López et al. 2016). Despite the lower shares of GDP devoted to education in countries like Canada and the US, their spending per pupil for K-12 education lies in the middle of the pack relative to GDP per capita.

What does this institutional variation mean for performance? Does excellence in performance and innovation at the top require systemic inequities?

A longer time series is difficult to develop, so I

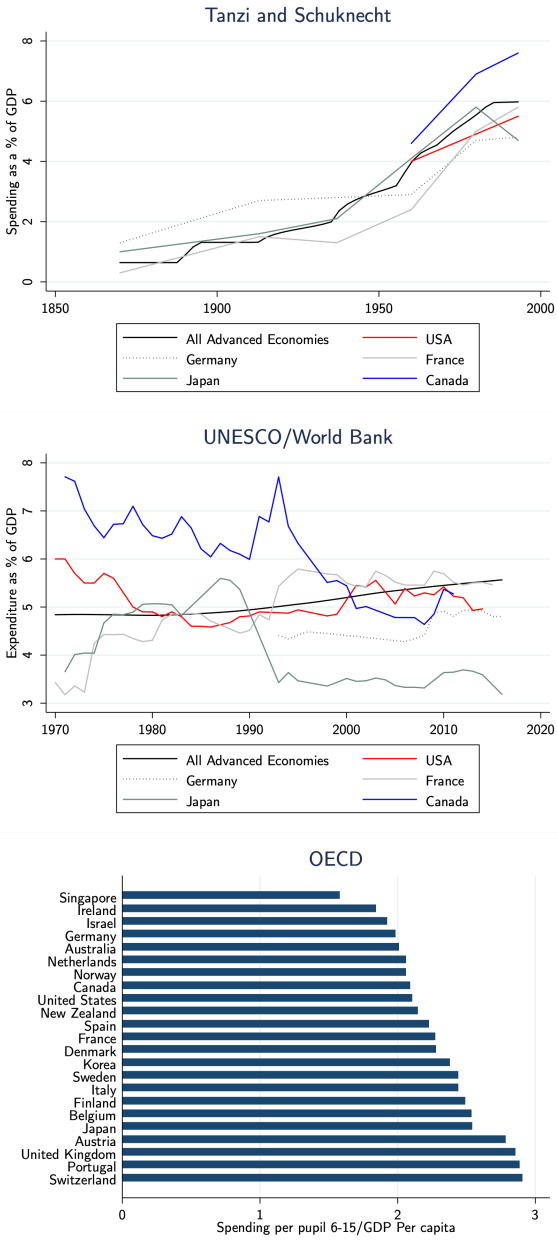

Figure 8: Education Spending as a share of GDP

turn to a snapshot of performance on the OECD PISA scientific literacy test.[7] The PISA tests show substantial variation in both how countries perform generally and the degree to which they institutionalize inequalities among pupils.

Figure 9 shows two examples of these inequalities drawn from the 2015 OECD PISA study of 15-year old pupils. The first panel plots two forms of inequality against each other - on the x-axis the overall share of variation in science performance that is between schools (rather than within schools), with the y-axis demonstrating the share of student performance in science tests explained by the pupil's socio-economic background.[8] We see here, in the upper right quadrant, the more tracked continental systems as well as Singapore have a larger share of between school variation and high total socio-economic gradients - meaning that pupil background is both a stronger predictor of performance, and that low and high performing pupils are more likely to be educated in different schools. In the upper left quadrant, lie the Southern European countries, which have lower between school differences but a relatively high socio-economic gradient. In the bottom left are the Nordic countries - and right around the median the Anglo-countries - where both parents and schools are less determinative of performance. In the bottom left quadrant lie Israel, Italy, and Japan - with lower overall socio-economic gradients but higher levels of between school variation (data on France is missing, but it has a relatively high socio-economic gradient).

The right figure shows a different way of think-

[7] Lee and Barro (2001) do cumulate tests given in the 1960s through 1990s, but the aggregate scores are more difficult to compare than the PISA tests.

[8] These are estimated by the OECD by combining the analysis of student level variables and school level variables from the national samples.

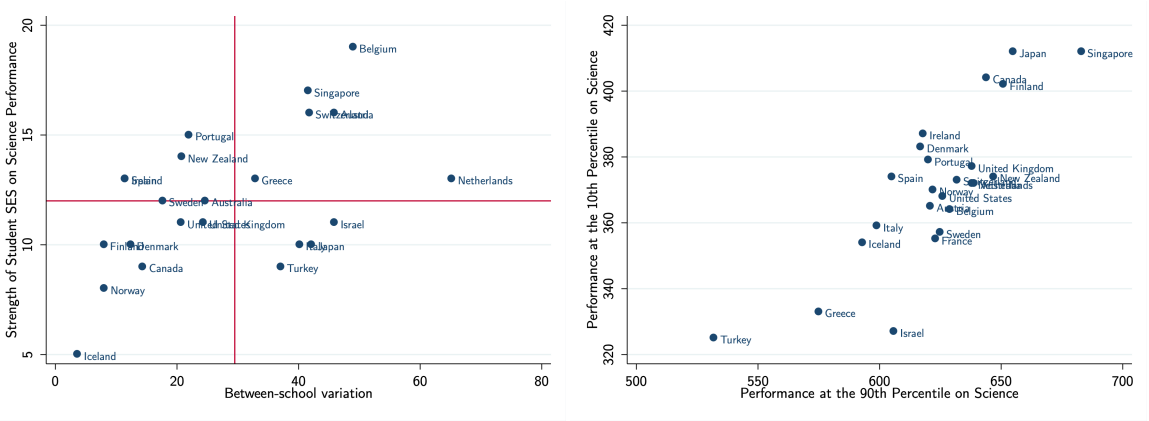

Figure 9: 2015 PISA results

ing about equity, plotting the science scores of children at the 90th percentile against those at the 10th percentile. Here we see that in a country like Singapore, which the first panel shows has a high degree of socio-economic and school level inequities in performance, nonetheless achieves a very high level of performance among low-performing pupils. Pupils at the 10th percentile of achievement in Singapore, Japan, Canada and Finland, are almost 40 points higher than the OECD median for this group (close to two standard deviations).[9]

These data are just a snapshot - and the reading and math scores produce small differences in country rankings - but in most countries these inequities have been present since the first PISA round (2003). In others, like Sweden there has been a relatively large increase in low-achievement - in part - but not entirely due to compositional changes in the student population with a growth in the school aged immigrant population.[10] What the data above show then, are that there are substantial cross-sectional differences in how skills emerge. Some of these are clearly related to institutional features - countries with more tracking, not surprisingly, have more between-school variation in performance; but, the high performing countries (Canada, Japan, Finland) have quite different systems of public and private financing and organization. It does not appear institutional inequity (at the secondary level) is a precondition for performance.

When we move from skills as measured by tests of school age pupils, to population skills, a somewhat distinct picture emerges. Studies of adult skills - such as PIACC and its predecessor survey IALS test the literacy and numeracy of adults, looking at capture a measure of skills outside of the school system. I replicate a well known figure from the 2018 PIACC survey for only the countries discussed in the previous analyses. Figure

[9]This Economist infographic provides a nice visualizing of gaps within and across countries in cross-national performance tests.

[10]Indeed, differences in scores of first and generation immigrants are substantial across countries - in Canada, for instance, the average reading score among non-immigrant background children was 525, with first generation immigrants averaging 508 and second generation immigrants averaging 535. In Sweden by contrast, non-immigrant background children averaged 525, with first generation immigrants averaging 410 and second generation immigrants 471. These differences likely speak to both compositional differences in the immigrant population and the incorporation strategy of schools. PISA 2018.

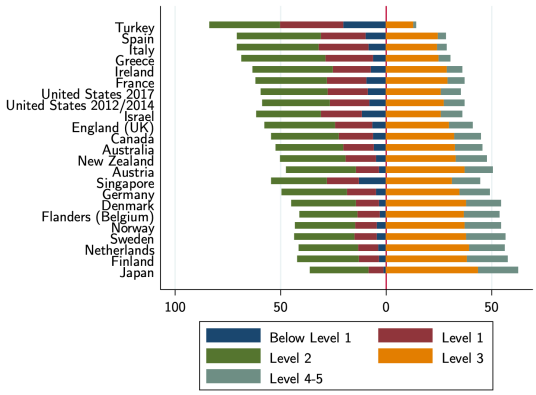

Figure 10: 2018 PIACC results

10 shows that for basic adult numeracy skills (literacy skills are similar), the populations of Japan, the four Nordics, the Netherlands, and Germany perform best - with over half of adults highly numerate (i.e. they can reason about quantities and statistics, solve problems, manipulate formulas) and the lowest share at levels 2 or below (i.e. can only do simple two step or one step equations). John Stephens, with several different co-authors (Huber, Gunderson and Stephens (2020); Huber and Stephens (2014); Iversen and Stephens (2008); Nelson and Stephens (2012)) has long argued that the relative strength of the population in basic literacy and numeracy is a better test of system skills than school performance tests. While we see substantial cross-country differences, skills are also uneven *within* some countries, see for instance, the large regional variation in the US. These differences hold up - with some exceptions - when we look at average performance among young people (15-20, 20-24 year olds) suggesting that these differences are partly coming from the education system and not just the structure of the labor market.

Returning to Figure 2 line 'A', we see substantial differences across time and place in equitable education systems which raise two puzzles. First, collectively, the institutions of compulsory education system became, by almost all metrics, more equal between 1950 and 2000, with more varied trends in the last twenty years. However, despite these temporal shifts, institutional and financial inequalities still exist. What produces these temporal and cross-sectional differences in attention to both educational funding and attention to equality in institutional structures?

Second, however, as the discussion of performance shows, some countries appear to have systems that produce a systematically higher level of equality in skills - as measured by school tests or adult literacy - than others. These differences partially line up with institutional structures - e.g. tracked systems produce more segregated in performance - but within similar models (US and Canada, Finland and Sweden) there are still differences. What explains this differing capacity of educational system to create stable long run investments in population skills?

2.2 The politics of variation

The literature on the politics of education is voluminous, so I restrict myself to a very partial overview of three broad ways of thinking about education politics.

First, sociological work on education has looked at reform through the lens of ideologies of social reproduction. Work by Meyer (1977) and colleagues (Benavot et al. 1991; Boli, Ramirez and Meyer 1985; Meyer, Ramirez and Soysal 1992; Schofer and Meyer 2005; Soysal and Strang 1989) stresses the global homogenization of education. Through the 20th century, this work argues, expanding education became part of the definition of modernity, diffusing globally through isomorphic processes. Reforms in education then, reflect changing ideas about the structure of society. The growing dominance of liberal values, has over time, led policymakers to

expand equity in institutions (Furuta 2020) generally, but different systems also institutionalized different underlying notions of the polity (Martin 2018). Where conflict emerges, it follows in part from conflict over views about social reproduction - as illustrated by debates about creationism and curricular structures (Laats 2015; Mason 2011).

A second perspective looks at education politics less through the lens of social reproduction than material distribution, conceptualizing education as a form of redistribution. This work focuses on the role of institutions in shaping which voters (or non-voters) are pivotal in determining this distribution. A large body of literature theorizes both the role of democratic institutions (Ansell 2010; Harding and Stasavage 2013; Saint-Paul and Verdier 1993; Stasavage 2005) and party competition (Ansell 2010; Busemeyer 2014; Gingrich and Ansell 2015; Iversen and Stephens 2008) in explaining educational investments. In this literature, more basic primary education spending, much like redistribution, is assumed to benefit lower-income voters and more elite centered higher education to benefit the wealthy. Where institutions empower relatively poorer pivotal voters (as democracies generally do), then primary education should expand. Equally, where left parties are more successful, they should invest more in equalizing education.

By contrast, where democratic institutions empower more conservative actors - or reflect the interests of a more restrictive set of voters - education is more limited. A powerful application of this reasoning in the American case looks at the intersection of local democratic institutions and racial inequalities in historically undercutting investments in skills. For instance, Derenoncourt (2019) finds that the northward migration of Black Americans in the 1960s is systematically associated with less local spending on education (and an increase in resources policing) with the ongoing racialization of local spending continuing today (e.g. (Horsford, Scott and Anderson 2018).

A third view sees education through the lens of 'human capital' - not social reproduction or distribution - largely equating educational provision with skill creation. To explain variation across systems, this approach examines the intersection of institutions with competitive productive structures. Countries that maintained more tracking also tend to have well-developed systems of vocational training and firm level support for it (Martin and Swank 2012; Thelen 2004). These developments shaped different 'Varieties of Capitalism' (Hall and Soskice 2001), allowing the emergence of coordinated forms of economic organizations that rely on extensive systems of high quality vocational training (particularly apprentice based training) in Continental and Northern Europe (Busemeyer and Trampusch 2012). Understanding the politics of educational investment then, requires looking at how economic actors (unions, employers) coordinate - or fail to coordinate - in demanding particular packages of skills.

Busemeyer (2014) provides an original synthesis of the distributive and skill based features of the education systems, looking to explain the different paths of educational development in the Anglo, Nordic and Continental countries. He argues that where vocational training was historically weak, as in the Anglo countries, center-right actors had little interest in educational expansion, hampering its development. Here, educational battles were largely between the left and the right. By contrast, in systems with more developed historical systems of vocational training, the nature of cross-class coalitions shaped the link between distributive and skill forma-

tion structures. Where cross-class coalitions were dominated by left parties able to mobilize the country-side, and later parts of the urban middle classes, as in the Nordic countries, there was both more investment in general skills as a force of expanding social mobility and support for high quality vocational training. By contrast, where the center-right rested on a broad cross-class coalition, mostly through Christian Democratic parties, it created a more expansive vocational systems but maintained limits on the expansion of universities through ongoing early streaming.

While each of the above the perspectives offers important analytic tools for understanding educational investment, I argue that each leaves open questions about system performance that extend beyond electoral politics. Why have such a diverse range of countries - e.g. Japan, Canada, Finland - with very different historical records of party control, types of electoral and constitutional systems, and histories of race and linguistic relations, all produced high performing education systems? Why do similar sets of institutions - for instance decentralized democratic control of schooling in Canada and the US - produce such different outcomes over time?

I return to these points in the final section, arguing that understanding education politics requires theorizing the conditions under which technocratic state capacity can emerge, in particular, when bureaucrats and teachers emerge as stabilizing forces - and when they emerge as destabilizing forces - in creating investments in the disadvantaged.

3 Puzzle 2: Education and collective labor market institutions

The above section presented the puzzle of differing institutional investments in education - both over time and across place. However, the intersection between skills and the labor market extends beyond their presence or absence. As outlined in section 1, a long-standing literature in comparative political economy points to the link between structures of skills and the way labor market institutions employ and use these skills - investigating the complementarity (or lack thereof) between equitable institutions in the labor market and education systems.

To return to Figure 3 by lines 'B', rather than asking why some countries invest more or less in education, scholars in this field ask how educational institutions intersect with unions, wage bargaining institutions, and the welfare state more generally to produce different types of productive and distributive outcomes. However, in many countries these institutions have declined in recent years, a decline many attribute - in part - to the rise of less equitable forms of innovation. For instance, Farber et al. (2018) argue that even in the US the intersection of the post-war expansion of skills (through the GI bill) and collective bargaining institutions substantially contributed to falling inequality in the post-war era, with the dismantling of unions in turn, precipitating its rise.

The question then, is whether these types of shifts are independent, or whether changes in the skill structure - and rise of knowledge workers - undercut collective institutions in the labor market. Provocatively, Piketty (2020) has argued that the rise of the educated 'Brahmin' left has reshaped the politics of addressing inequality - with new educated middle class voters dominating left politics and demanding weak counterweights to the types of inequality producing trends (and their articulation by powerful interest groups) in the labor market. As above, I start with reviewing several claims about complementarity, and then turn the politics of these

shifts.

3.1 Skills and Collective Institutions

Historically, the simultaneously high levels of skills and compression in returns in skills was a central feature of the Nordic and Continental (and Japanese) models of capitalism. In the 'varieties of capitalism' literature (drawing on Streeck's earlier work on 'diversified quality production') the high-wage high-quality manufacturing strategy at the core of the European growth model required highly skilled and high productivity workers (Streeck 1991). Institutional mechanisms creating more wage compression in the labor market rested on a model of both effective education and collective bargaining. In the Continental countries these skills were often firm specific (Busemeyer and Trampusch 2012), and developed through the vocational training system, but the Nordic countries have long made use of mix of general and specific skills.

The combination of highly skilled vocationally educated workers and extensive unionization meant that the countries of Northern and Continent Europe had a more compressed distribution of pre-tax and transfer wages, which in turn produced substantial ongoing differences in the labor market returns to high education. While these differences have narrowed over time - there remains substantial cross-national variation. Figure 11 shows a snapshot of the educational wage premia, drawn from the OECD (OECD 2020). Note, for Italy and Turkey, the premia include all tertiary (not just BA+) which may slightly understate the actual differences. Here we see highly differentiated rates of return for a college education across countries - with average BA+ wages over 150% over secondary earnings in the US, France, and Ireland, but only about 125% in the Nordics, Australia and New Zealand. These

Figure 11: Educational Wage Premia - 2018 OECD

differences are not purely related to the supply of skills, Norway and the US for instance, have roughly the same proportion of those with a college education in the workforce for instance. [11]

Within some countries, like the US, there is evidence of growing dispersion in wages among college graduates, meaning that the high aggregate wage premia to education overstates its value in many cases, and understates the extent to which the benefits are increasingly unequally distributed.[12] Here too, there are cross-national differences. In Norway, Sweden and Denmark for instance, only about 10% of tertiary educated workers have wages twice the national median,

[11] OECD education data shows that in some countries, the share of 25-34 year olds with a tertiary qualification (including a higher vocational qualifications - thus measured more broadly than the premia above) is above 60% in Korea (70% Canada (63%), Japan (62%), in another group of countries around half of young people have a higher qualification (Switzerland (53%), Australia (52%), the UK (52%), the US (50%), the Netherlands (49%), Norway (49%), France (48%), Sweden (48%), Belgium (47%), Denmark (47%) and Spain (46%)), with a final group below the OECD average Germany (33%), Austria (42%), Finland (42%), New Zealand (44%), Greece (42%), Portugal (37%), ranging from 35 to 45%.

[12] See for instance, this critique of skills-based arguments in the US by the Economic Policy institute

whereas that number if 25% in the US, and 30% in Spain and Austria (OECD 2020).

However, it is not just collective bargaining institutions that shape wage outcomes, but also the way that labor markets incorporated skilled labor and invested in skills. Elsewhere, Ben Ansell and I look at the question of 'mismatch' between college graduates and jobs (Ansell and Gingrich 2017), using the EU-SILC survey to estimate the share of graduates in unemployment or a job where the median employee is not a college graduate. In some countries, like Italy, Austria, but also Germany and the UK and there are high levels of mismatch (note, the very high levels of mismatch in these cases are partially driven by the much more recent upward expansion of the number of graduates), in others, like the Nordics, these levels are lower. The top panel of Figure 12 reproduces these results. The OECD, using the aforementioned PIAAC survey, measures mismatch in another way, looking at the number of workers who are over or under qualified for a position, based on their skills in the PIAAC survey relative to occupational means. Here we see similar patterns (albeit with a lower baseline) - with the Southern European countries in particular having high numbers over qualified workers.

Where low skilled labor is inexpensive or management practices weak - as in parts of Southern Europe - firms may have fewer incentives to employ productivity enhancing technology.[13] In the UK, weak private sector investment (see for instance, Tenreyro 2018 and the rise of low-paid jobs have been complementary - and part of the rationale behind the raising of the minimum wage. Here the issue is not just rising inequality due to the adoption of technology - but too little adoption of it, meaning that investments in skills are not as effective for producing either growth or equity.

Finally, as is well known, the incentives for firms to train workers also varies substantially across systems. Historically, these differences were linked to systems of labor market regulation and collective wage bargaining that allowed longer-term investments in workers (Soskice 1994). More recent work shows the evolution of these systems, with unions in Denmark for instance, moving towards extensive bargaining on issues of training and life-long learning through the strong collectively institutionalized system of wage bargaining (Ibsen and Thelen 2017).

Together then, we see that different structures of education systems have underpinned - in a state of some mutual feedback - labor market institutions like unions and collective bargaining, which in turn, promote different types of distributive and productive strategies. High and relatively compressed wages, as decades of research on advanced capitalism suggest, can be compatible with growth and innovation, but only when complementary institutions exist that encourage the development and use of productive labor. Expanding education absent these institutions, can produce mismatch, or more uneven returns.

However, even, in countries with a degree of wage compression, much of the reduction in inequality emerges through post-tax and transfer redistribution. Patterns of income redistribution at the individual level are well-studied - characterized by Korpi and Palme (1998) classic 'paradox of redistribution' - more equal places tend to redistribute more. But what is equally important is the way that these welfare institutions also produce substantial outward redistribution from *educated places*.

While the capital regions of European coun-

[13] See for instance this work by Schivardi and Schmitz on Southern Italy, which argues that weaker management practices have shaped the lack of adoption of long run productivity enhancing technology, which would be complementary with skills)

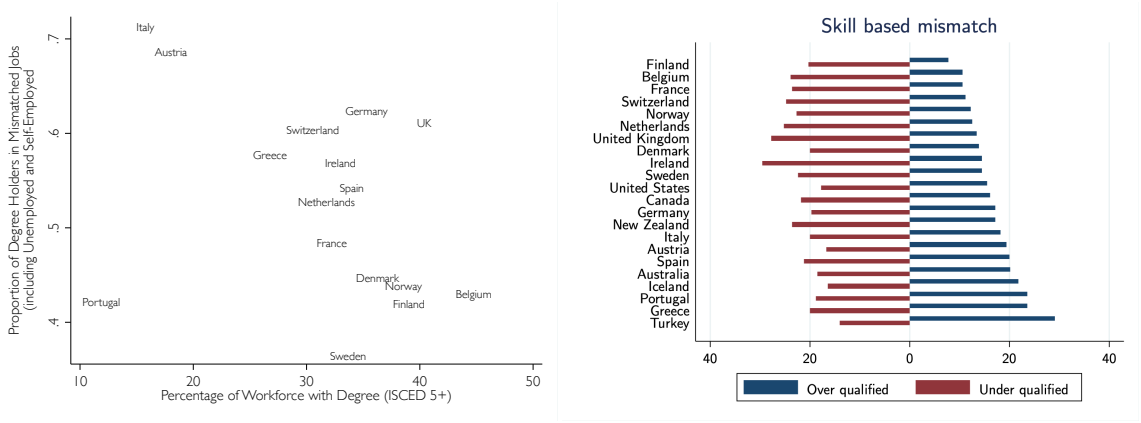

Figure 12: Skill Mismatch

tries have always been more educated than elsewhere, the trends in terms of the consolidation of the highly educated in major cities have created new absolute advantages. New economic sectors - finance, and parts of the knowledge economy - are linked to urban conurbations, with capital cities experiencing particular growth in these sectors (Odendahl and John Springford 2017). Figure 13 shows these developments descriptively for four non-Anglo European countries, drawing on local unit census and register data and matched to the OECD functional-urban area classifications and Eurostat urban-rural tercet classification, to show the share of the total population with a college degree of equivalent.[14] Comparisons across cases require some caution as the French educational classification is broader than that used elsewhere, but the within case trends tell a compelling story. The major urban centers - but not necessarily their suburbs - have long been a hub for the highly educated, but the expansion of mass higher education has meant an increasingly educated population located in cities compared to rural (or suburban) areas. Note, the baseline is the *full population* not the more typically presented working age population.[15]

Unlike the US, however, where these trends are associated with growing regional divergence in income, the patterns in Europe are more varied. Figure 14 shows the simple ratio of the GDP of regions at the 80th and 20th of the national GDP distribution over time. This measure is slightly less sensitive to unit size and boundaries than the more standard coefficient of variation, and although less sophisticated than the approach Lee and Rogers (2019) offer, is in line with their basic logic. What we see is that long-standing legacies remain important, but outside of Ireland, where the very rapid growth of Dublin in the 2000s dra-

[14]The Austrian data comes from the 1970, 1980, 1990, and 2000 censuses, 2011 register based census. The French data is from the 1975, 1982, 1990, 1999, 2010 and 2015 censuses. Italian data comes from the 1980, 1990, 2000, 2010 censuses. Finally, the Swedish data is based on annual population register. All results are at the municipal level, and represented as a share of the total municipal population.

[15]These data are being gathered as part of a collaborative effort with Dan MacArthur as part of my SCHOOLPOL project for 19 countries where data is available from censuses/administrative sources over a longer period. The database is due to be complete in December 2020, and include data on the EU-15, Japan, Norway, Switzerland, Australia and Canada. However, due to data limitations, only more recent years in Germany and Netherlands are available.

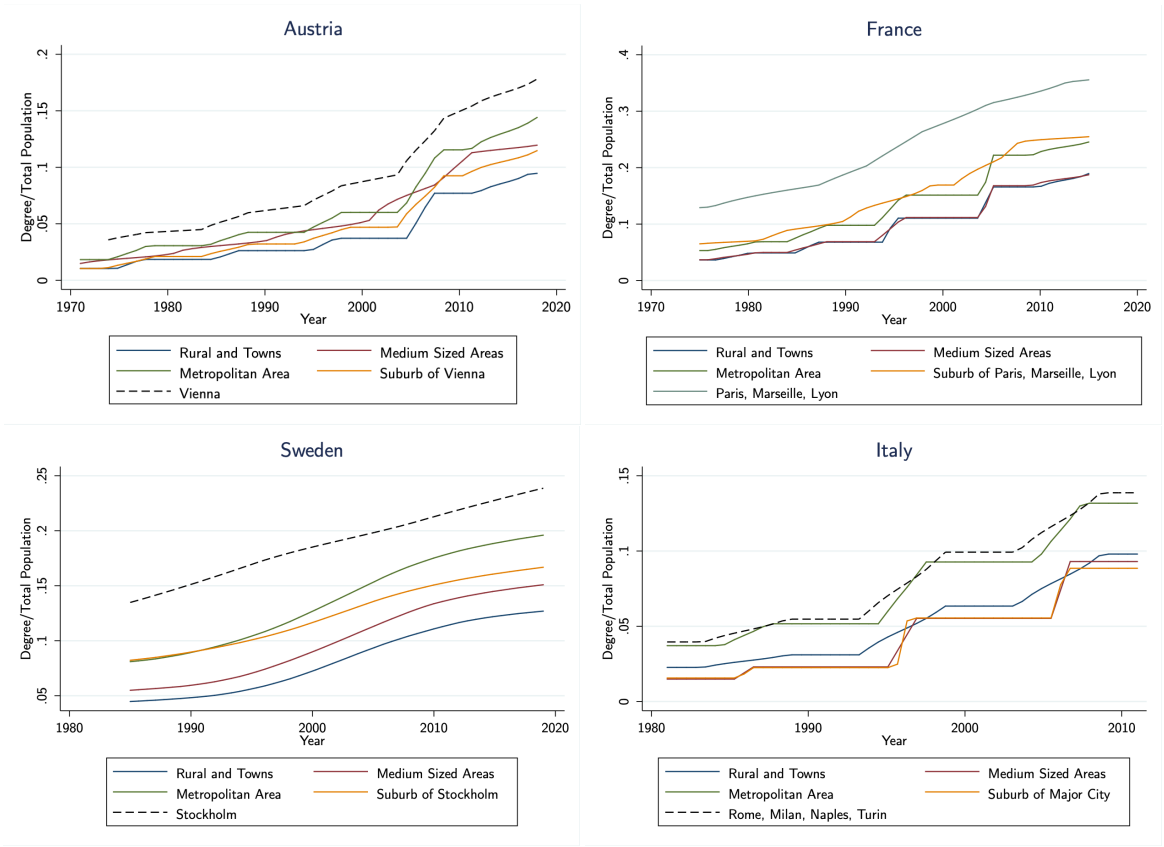

Figure 13: Urban Structures and Education in four European countries

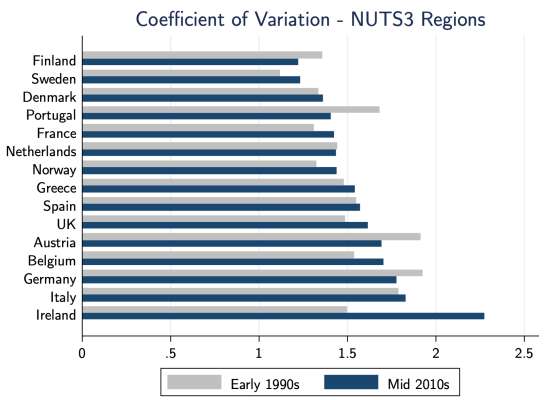

Figure 14: Eighty-Twenty Regional Ratio in GDP

matically changed the country's economic model, there are varying patterns, with no across the board increase in regional inequality of the type of experienced in the US in more recent years. Both the viability of more de-concentrated models of the manufacturing - and the very sizeable redistribution of resources from capital regions (and medium sized cities) to the rest of the country via traditional welfare programs and public employment - continue to reduce regional variation.

In short, both labor market and redistributive institutions *have* shaped the ways in which the gains of rising education have emerged across individuals and places (Hope and Martelli 2019), tempering some of the stark divides in individual and geographic inequality along educational lines witnessed in the United States.

3.2 The politics of variation

One of the questions that political commentators have pondered over the last three decades is whether the collective institutions (in the labor market and through the welfare state) can withstand - or have withstood - changes in the demand and supply of skills. This work suggests that rising education, far from a solution for inequality, could be enhancing it, by reducing support for the core institutions that historically produced it - unions and welfare programs. Where underlying rates of productivity diverge, are solidaristic structures labor market and welfare structures viable? (Note, this question could be asked in the reverse, when do unions/welfare institutions promote or limit growth adopting technology).

Early work probing this question started from the perspective of labor market institutions. Rising unemployment in Europe through the 1990s put questions of labor market deregulation on the agenda (and indeed, most countries have subsequently deregulated their *temporary* employment policies, but not necessarily employment protection for non-temporary workers). According to Boix (1998), maintaining solidarity under these circumstances required increasing the productivity of the low skilled - in line with an SBTC argument - to maintain a viable social wage. Absent these investments, 'insider-outsider' problems were likely to become more severe, pulling apart the interests of those in highly skilled secure jobs from other workers (Rueda 2005).

Most of these arguments were initially cast in terms of divides between the skilled manufacturing sector and the service sector. However, in private services, returns to what Eckert, Ganapati and Walsh (2019) refer to as 'skilled tradeable services' have increasingly been large contributors to growing income inequality. These sectors have grown in particular in the Nordic countries, alongside the technology sector, with these countries leading (along with the Anglo countries) in sectors reliant on intangible assets. These very high skilled workers are more likely to be 'underpaid' by global (i.e. US) standards in these countries, raising questions about the viability of solidaristic institutions as these sectors grow.

Thelen (2014) argues that despite these pres-

sures, collective bargaining institutions remain effective and have incorporated new skills in the Nordic countries. Early moves to incorporate female public sector workers - both high and low skilled - into the union movement, maintained a more extensive coalition around wage compression in the Nordic countries than in the Continent. The result is that high skilled women are more likely to be part of collective bargaining institutions in the former countries than the latter, creating a powerful force against their disintegration. Nonetheless, wage inequality has increased substantially in both sets of countries, as has their strategies of incorporation of the low skilled (Ibsen and Thelen 2017).

A second line of work has examined these questions from the perspective of voters. Early work on rising education and the changing nature of social class, suggested that the new middle classes might be a conservative force, limiting support for unions and the welfare state (Goldthorpe 1982). While workers with more firm specific skills were theorized to be major supporters of redistributive and collective bargaining institutions due to the risk of a prolonged unemployment shock (Iversen and Soskice 2001; Rehm 2016), those with high general skills are less vested in them. Their skills are portable, and education is more akin to a capital endowment - not an ongoing position in the labor market that requires collective representation and institutional reciprocity.

The popularity of the de-regulatory and more conservative ideologies of Thatcher and Reagan provided some indicative evidence of these shifts. In both the UK and the US, Marshall (2016*a*,*b*) employs regression discontinuity designs around the expansion of compulsory secondary education to show that rising secondary education led to more conservative voting - largely through a life time income effect. Moreover, in the context of growing educational attainment, younger cohorts in many countries appeared to be becoming *more* conservative than their parents at the same age - something Grasso et al. (2017) label a 'Thatcher's Children' effect in the UK. More recently in Sweden, the Moderate-led Reinfeldt government (2006-2014) engaged in reforms directly targeting unions - something that had historically been politically difficult - introducing private experience rated unemployment contributions (which led to a relatively substantial initial decline in unionization.

However, these Swedish shifts proved unpopular, with even the other center-right parties supporting limits on them. And indeed, the youngest cohorts - the children of the financial crisis - and 'Thatcher's children' cohorts have in fact also shifted towards more redistributive attitudes in the last decade.

These shifts build on a change, occurring from the 1990s, of a general ideological realignment along educational lines - one that was not distinctly conservative. While on aggregate education remains moderately associated with more restrictive views on redistribution and less propensity for the left - most of this effect works through its effect on income. A sizeable new share of educated voters - in almost all countries - are now the core constituency of left parties (Gingrich and Häusermann 2015). These new left voters are more likely to be 'socio-cultural professionals' (Kitschelt and Rehm 2014; Oesch 2013), highly educated workers in service professions.

Figure 15 shows these trends based on data I have collected from 17 national election studies where there is at least one election study available in the 1990s, 2000s, 2010s, drawing on the CSES (2018) and supplementing it with additional election studies.[16] The figures estimate the predicted

[16]This includes: Belgium, Denmark, Finland, France, Germany, Italy, the Netherlands, Norway, Spain, Swe-

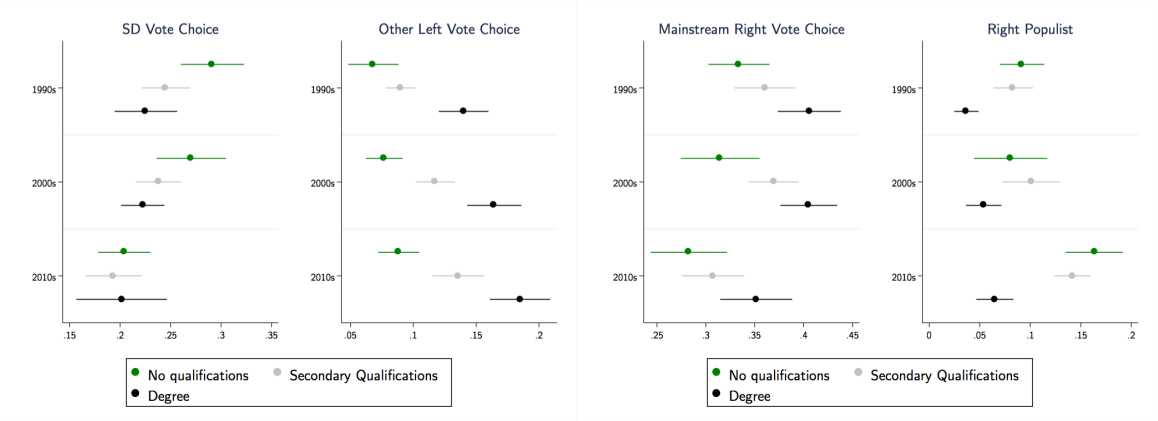

Figure 15: Voting and the Changing Education Gradient

probability of voting for different party families by skill level. They show that increasingly, especially for the non-social democratic left, highly educated voters are now the modal voter, and overall, the highly skilled split evenly between left and right. The low skilled are split among party groups, but both low and mid-skilled voters are more likely to vote for the populist right.

The question then, is whether these shifts in voter alignment enhance - or undermine - the relationship between educational institutions and other forms of collective labor market institutions. When the educated dominate politics on the left, and low and mid-skilled voters to move the right, is there a coalition for the types of collective power that defined the post-war period?

Much of the detailed work in Europe (and the US) on voters' preferences suggests three things: first, educated voters who turn to the left do so increasingly for cultural (or 'second dimension') reasons - not solely economic reasons - and the flip side is true for lower educated voters moving to the right (Häusermann and Kriesi 2015); second, however, in surveys, these voters are strongly supportive of economically left policies; third, when asked to choose between range of 'social investment' policies - in particular education - and traditionally redistributive policies, they are much more strongly supportive of education spending than income support.

This latter point has now been relatively well documented by two large research teams, Busemeyer, Garritzmann and Neimanns (2020) and Häusermann et al. (2019*a*,*b*), using survey techniques aimed at eliciting tradeoff across priorities. Here we see clear evidence that new middle class high-education voters prioritize forms of spending differently, see for instance, e.g. Busemeyer et al 2018.

However, the relative preference for education over other forms of spending raises questions about whether these voters support the types

den, Switzerland and the UK, Canada, the United States, Japanese, New Zealand, and Australian. Each regression uses a multinomial logit model, looking at party choice and including a non-voting option. I control for age, age squared, sex, income measured in quintiles, and a dummy for being employed. I include country fixed effects and cluster the standard errors by country. The key variable of interest is education levels. I recode the CSES education variable into three groups - those with no upper secondary qualifications, those with upper-secondary and post-secondary non-university qualifications, and those with university degrees. In the 2010s, about 25% of the sample was in both the high and low skill group, with the remainder in the mid-skilled group.

of institutions complementary to particular types of skilling outlined above. Gelepithis and Giani (2020) argue that highly educated voters are less solidaristic. Educated voters are likely a powerful force to push more investment in education, but they are, when pushed, more skeptical of traditional welfare policies (pensions, unemployment insurance). In the case of wealthy tech employees for instance, support both redistribution and education, but less regulation (Broockman, Ferenstein and Malhotra 2017). This constellation of preferences raises a potential disintegration of the coalitional space around collective institutions: those who support more spending on education may be less willing to support market shaping institutions (e.g. collective bargaining), whereas the voters who want redistribution as less keen to support the educational institutions that long made these institutions effective at producing growth.

These relationships, however, remain uncertain. Figure 16 illustrates an example. It shows the county level share (as of November 11) in California of voters supporting a partial repeal of property tax limits on commercial real estate (i.e. a tax increased on commercial properties) to fund education spending. This ballot measure failed in the state as a whole, but sizeable majorities voted for it *i.e. to raise their own taxes* in California's most educated counties. By contrast, less educated regions regions (and voters) did not prioritize education spending over commercial tax relief. However, these exact same patterns emerge (although with a lower baseline level of support) for proposition 22, which would more formally reclassify 'gig workers' and make it more difficult for them to receive benefits. San Franciscans voted both to raise taxes for education, and more protections for Uber drivers - whereas voters in the poorer Lassen county - whose primary industry is prisons - voted by a similarly wide margin

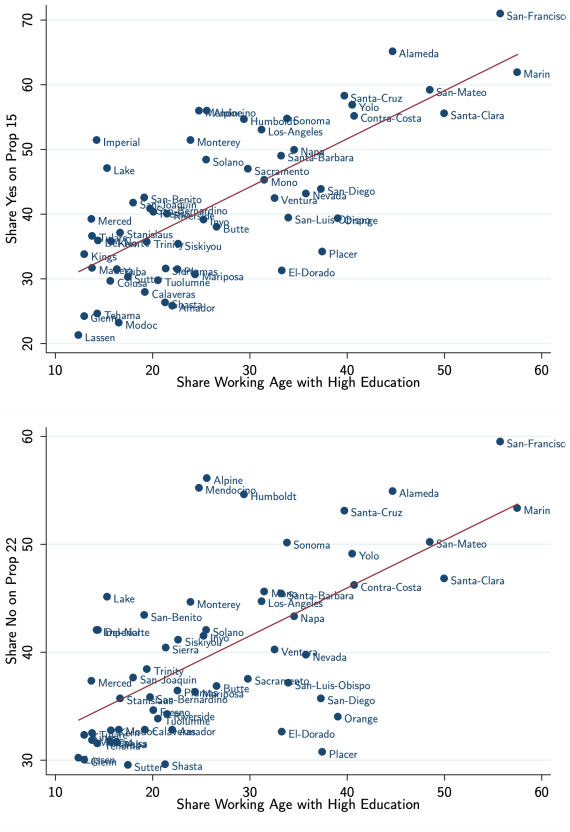

Figure 16: California Voting, 2020

in the reverse. Indeed, overall, the wealthier regions of the United States are the ones voting to expend redistributive resources (Rodden 2019), see also this Brookings Institution report on the US election.

The California example is, of course just illustrative, but it points the coalitional uncertainty around solidaristic polices. In the US, the educated are increasingly likely to vote for the left. In Europe (as other work I have done shows), there are highly educated workers in new sectors who are quite anti-redistributive. But, redistribution remains more extensive and resilient in Europe.

In recent years - particularly after Trump's 2016 victory - many have argued the reverse, that low and mid skilled (white) voters have moved to

the right do to the weak educational opportunities offered to them. Iversen and Soskice (2019) argue that in a knowledge economy, systems with more elitist higher education systems or unequal opportunities for mobility, breed populism. The recent book by Hacker and Pierson (2020), argues that a particular form of what they call 'Plutocratic populism' exists in the US case, where the extremely wealthy have formed a populist alliance with lower skilled white voters, built on exploiting racial resentment in the interests of wealthy backers. Hacker and Pierson (2020) are specifically focused on the American story, with moneyed interests having different levers of influence outside of the US.

However, the more general populism-welfare-education nexus is very much a matter of empirical debate. On aggregate, there is not a strong relationship between welfare strategies on populist voting (Gingrich 2019). For instance, Finland, with its high performing education system and very redistributive welfare state, has a rural populist party (the 'Finns', formerly 'True Finns') that was the second largest in the 2019 election, as does France with its more elitist education system but redistributive safety net and so on. However, there is evidence that cutbacks to the state do matter - i.e. austerity is associated with mobilization (Dal Bó et al. 2018; Fetzer 2019) - with populist movements often pushing for exclusionary welfare policies and *limited* support for higher education. Indeed, on the whole, populist voters are the only party group consistently skeptical of higher education (Busemeyer, Garritzmann and Neimanns 2020).

If there is a link between rising skills and reduced support for labor market or welfare institutions in the electorate, it does not run directly through highly educated in most cases (either individually or geographically). However, the more general complementarity between skills, voting, and interest organizations that underpinned collective institutions have changed in ways that make simultaneous investments in skills and other institutions more complex, as the rise of education-skeptical populist movements shows. The disruptive potential of these dynamics are likely enhanced in systems like the US, Canada, and the UK, which combine large regional economic divides with majoritarian electoral systems, and are particularly exacerbated in the US where campaign finance rules are weak, but the tensions are felt elsewhere.

4 Puzzle 3: Education, the family and competition for positional goods

While supporters of the 'education solution' focus on how governments can expand citizens' skill levels through education policy, a critical line of educational sociologists have long pointed to the way the more diffuse behaviour of class actors (citizens, occupational groups and so on) use skill-based credentials as a way of reducing social mobility. The concept of 'social closure' emphasises the tendency of privileged groups to develop mechanisms that sustain their social advantages. Education has long been such a mechanism, with some arguing that the inflation of credentials and skill requirements in the labor market operates essentially as a mechanism of class exclusion (Ball 2003; Collins 1979; Khan and Jerolmack 2013; Murphy 1988; Parkin 1974). Education then, has a janus face - it is both a core mechanism for producing equality and reproducing inequality (Bourdieu and Passeron 1990; Domina, Penner and Penner 2017; Raudenbush and Eschmann 2015; Van de Werfhorst and Mijs 2010).

Work in the last decade on social mobility has suggested positional competition in unequal labor markets can enhance the disequalizing effects

of education. The famous Gatsby curve highlights the correlation between inter-generational income elasticities and overall income inequality at the country level. Raj Chetty's (Chetty et al. 2014) phenomenal data collection on income mobility in the United States shows the deep link between racial inequality and mobility. Places with less residential segregation and more equality tend to have higher mobility. Indeed, as Corak et al. (2017) shows, pockets of low mobility also exist in parts of Canada - particularly in parts of the country with larger Indigenous populations - but overall, mobility in the densely populated Canadian border regions is much higher than in the United States.

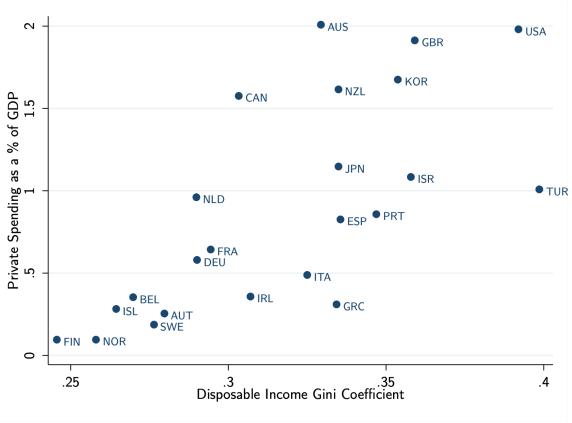

Figure 17: Private Education Spending as a% of GDP

What underpins these relationships? Corak (2013) builds on the logic of Becker and Tomes (1976) and others to argue that the incentives of parents to invest in their child's human capital - but also in access to other positional goods (connections, networks and so on) - varies with inequality. Where the payoff of these investments rise due to unequal wages, the incentives of parents to devote more resources to their children's success also rises. Figure 17 plots private spending on education against the post-tax and transfer gini coefficient, showing a moderately positive relationship that is suggestive of this mechanism. However, the ability to invest is not symmetric across groups, the rich can invest more than the poor. The poor face credit constraints, or exploitative access to credit, creating weaker access to neighborhoods with high quality schools.

These effects may be stronger for younger children, as Heckman and Masterov (2007) have long argued, but even access to high quality university education can matter. Bloome, Dyer and Zhou (2018) find that in the US, higher education is a core mechanism for limiting intergenerational persistence - i.e. those that experience higher education are more likely to experience upward income mobility - but unequal access to education outweighs these effects. Even where access to tertiary education does exists, it may be of a lower and uneven quality. In her work on for-profit colleges in the US, Mettler (2014) shows that Black and minority students are often exploited by business models that rely on high student debt without a high equality education. As Chetty et al. (2017) show in their work on US universities, there are similar numbers of students from the top 1% of the income distribution at elite universities (Ivy+) as from the bottom half the distribution.

In the tracked systems of Continental Europe there is much debate about the relationship between tracking and income and educational mobility (Burger 2016). Income mobility among the young has historically been higher, both due to smoother school-to-work transitions and higher wages due to unionization in many vocationally trained jobs; however, the system as a whole also maintains stratified outcomes over the life-cycle. As inequality grows in these contexts, many of the same questions are amplified, with pressure on the heavily tracked system to accommodate rising demand for academically oriented educa-

tion.

There is a theoretical and empirical debate as to whether education *systems* do have an independent effect on intergenerational mobility (Breen and Jonsson 2005; Jerrim and Macmillan 2015). The above work suggests that education can be equalizing, but access to the most positionally advantaged education is deeply unequal. If inequality adversely affects children's chances from the pre-birth (through the stress, care and nutrition their mothers have access to) up to higher education, can education policy itself (i.e. rather than income redistribution) play a role?

Sociologists often distinguish between 'primary' and 'secondary' effects of class background on intergenerational educational outcomes (and also income mobility) (Jackson 2013). Primary effects involve the way class is transmitted between parents and children in the household, for instance, parenting styles, genetics, stress levels. Secondary effects refer to the indirect effects of class background on other types experiences, especially access to high-quality schooling. Jackson and Jonsson (2013), reviewing the evidence from eight country based cohort studies, argue that primary effects both differ less across countries than secondary effects and are more difficult to target through policies. Secondary effects, by contrast, are potentially sensitive to policies that sever or enhance the link between class background and educational choices. Jackson and Jonsson's argument is important because it suggests that governments have key levers to address intergenerational mobility via structural features of the education system, operating largely through how they shape the scope for parents or children to exercise educational choice.

What then matters is the ability for the state to limit the link between parental *choice* and school quality - either by limiting choices themselves (the model employed in the 1950-1980s in most countries) or equalizing the resources of schools and the human capital of teachers (the more recent model) it can sever these links.

At the compulsory school level, where access is not directly on resources, the state has many tools at its disposal to shape this connection - it could draw catchment areas to create more social mixing in schools, expand funding and so on. However, the capacity (and political will) of governments to do this can be constrained. Jeremy Fiel (2013) analysis of racial segregation in US schools, shows that local education policies have often been equalising - desegregation efforts by local governments have led to a more even distribution of white and minority pupils across schools within a district. However, at the same time, the racial composition of local areas has often pushed towards 'resegregation' among schools. He attributes this latter pattern to demographic shifts and residential choices motivated by the aims of social closure among white parents. The work of Jessica Trounstine (2018) further shows the intersection of local institutions (zoning rules, municipal structures) with household behaviors create ongoing patterns of racial and income segregation. These may be particularly pronounced among high income areas, with the rise of wealthy enclaves that may have particular access to high quality services (Bischoff and Reardon 2014). Even where there are explicit policies aimed to create diverse high-performing schools, Shedd (2015) work on Chicago public schools shows that lower income pupils attending these schools, particularly Black pupils in the US, experience these opportunities unequally.

The above examples are American, but these dynamics are not unique to the United States. In my work on schools in the England and Sweden - but of which have much lower (or negative)

school level relationships between funding and pupil composition - there is nonetheless strong tensions between parental incentives to sort and equitable structures. In England, the massive expansion of high school completion in the 2000s - which followed from a mix of both improving standards and a degree of grade 'inflation' - dramatically reduced the socio-economic gradient at the school level. However, these shifts did not unseat sorting behaviors, and schools in wealthy areas were able to keep positional advantages. Figure 18 shows the relationship between school performance in 1998 and 2015 on standardized tests (measured at the school level), looking at those in the top third of performance. Those in areas with higher housing prices (x-axis) were more likely to maintain positional advantage, whereas those in the bottom third with low house prices, were much more likely to remain low performing. This work suggests policies can matter, but they are always intersecting with other economic forces that shape their efficacy (Gingrich and Ansell 2014). Positional composition is - not surprisingly - difficult to unseat, but policies that expand access and reduce differentiation, can reduce its effects on attainment outcome, whether these create more equity in long-term labor market outcomes, however, is uncertain.

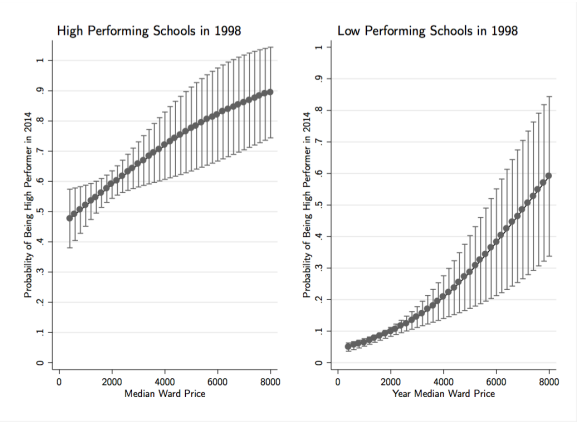

Figure 18: Local House Prices and Educational advantage

5 Conclusion: Role of the state

The above sections have argued that we still face substantial puzzles in understanding variation in investment and performance across education systems, the stability (or lack thereof) of political coalitions around education and redistribution, and where and when policies are able to limit sorting behaviors among families. I want to conclude by drawing on some preliminary thoughts I am developing from my research (with Anja Giudici) on the post-war development of secondary education systems. I argue that we need to think more about the sources of state capacity, and introduce two ideas about what might shape state stances, the early *segmentation* of producer groups, and their later *political* alignment.

To return to the theoretical literature on investment in skills, there are three questions that remain puzzling.

First, when do we get investments in the skills of bottom third of the income distribution? Theoretical work on democratic institutions shows that electoral mechanisms often do not represent the poor. As Ross (2006) argues, democratic institutions are built to represent the median voter (generally the median earner) not the poor. Where and whether poorer citizens can form an alliance with middle income voters is an old question, and Jusko (2017) argues that historically, even the shock of (proportional) suffrage extension, did not necessarily produce pro-poor mobilization in many contexts.

Unions and other labor market actors historically also tended to mobilize higher skilled workers (the 'labor aristocracy'), not those with the

lowest skills. The move towards more 'insider' forms of labor representation in recent years demonstrates these dynamics (Rueda 2005), however unequal representation of the low skilled is not new. The political interests of lower-skilled citizens, then, whether through democratic or interest group mechanisms, are not necessarily on aggregate represented by generic political or labor market institutions. These dynamics are enhanced in systems like the US, where both electoral and non-electoral institutions (lobbying) are seemingly biased towards the affluent (Gilens 2012).

While Iversen and Soskice (2006) argue that pro-poor coalitions are more likely to emerge in proportional electoral systems where the incentives for leftward alignment between the middle and lower classes are stronger - when we look at education systems, the link between electoral system type and educational equity is not straightforward. It is true, that the most extensive directed equity building projects emerged in the Scandinavian countries and were deeply linked to partisan politics. However, outside of Scandinavia, the link is less clear. There is much variation within majoritarian systems - Canada, the US, Australia, and the UK, for instance - both over time and across place, and center-right parties have often invested in effective educational structures. This variation may be largely compositional - and the history of racial repression in the US, although not unique in its brutality (as the history of residential schools in Canada and Australia shows) - is potentially exceptional in its extent. However, even outside of this case, there is variation. The same is true of the proportional and mixed electoral systems in Europe.

Second, the benefits of investment in education take a while to pay off. In their study of investment in children, for instance, Hendren and Sprung-Keyser (2020) argue these policies have a net-positive budgetary effect over the long term. However, as is well known, the benefits and costs occur in different periods, raising the question of how to create the incentives for inter-temporal coalitions.

The question of how to create credible commitments to long-run skill investments is also an old one. Indeed, education spending in many cases has proven vulnerable to swings economic structure. In the US, the squeeze on state budgets post-financial crisis often meant a decline in education spending even as more young people sought out post-secondary training during periods of high unemployment (Barr and Turner 2013). More generally, Haffert and Mehrtens (2015) finds that austerity leads to cuts in investment- including in human capital - that do not always return when the economy improves. While there is little evidence of the long-standing critique that democratic structures cannot enact policy that requires inter-temporal tradeoffs, as Jacobs (2016) argues, we need to theorize the conditions under which policymakers can 'govern for the long-term.' In education politics, we see again wide variation in the insulation of support for education.

Third, educational quality is hard to assess. Investment in actual quality is difficult for voters to monitor (or other actors) to verify. Mani and Mukand (2007), theorizing about the developing world context, argue that under conditions of non-verifiability, politicians can have incentives to invest in high-visibility policies (e.g. more school buildings) rather than less visible but potentially effective policies. As Bruns, Macdonald and Schneider (2019) argue, again with respect to developing countries, investments in more structural aspects of quality can be particularly difficult, as they are often both uncertain and contentious and opposed by vested stakeholders.

Collectively then, the conjunction of weak elec-

toral incentives to invest in the low-skilled, combined with large inter-temporal tradeoffs, and difficulty of verifying effort, all suggest that the political conditions for inclusive education are often weak. And yet, some countries do effectively do precisely this type of investment.

Under some conditions, bureaucratic actors - defined broadly to include national/state (and provincial) government actors and teachers and local governments - have the capacity to overcome these traps: they may have strong internal incentives to improve overall performance via investment in the low skilled, theses actors face fewer inter-temporal tradeoffs since they have a longer tenure; and unlike voters, they have more information on which to assess and measure quality. However, these same actors can also act to preserve inequalities and drive policy in the direction of their own interests.

I argue then, we need to think about the conditions where there is some political consensus in technocratic policies - i.e. a non-politicization of the bureaucracy - but high levels of attention to education that prevent bureaucratic drift. This question is close to Peter Evans' (Evans 2012) notion of embedded autonomy - or more recently Fukuyama (2013) on governance. Where the education bureaucracy is overly politicized then both spending is vulnerable (as in US higher education) to partisan swings, and more importantly, attention to large scale structural reforms (e.g. charter schools, vouchers) can undercut long run investment in less glamorous, but important, features of educational quality - such as teacher retention and qualifications, life long learning, targeted support for vulnerable pupils. Where producers (both teachers and civil servants) are too powerful however, as Bruns, Macdonald and Schneider (2019) show in Latin America, public actors may have few incentives to make performance improvements.

What produces a state capable of making sometimes unpopular but effective investments in skills? The search for 'goldilocks' outcomes, is of course, a perennial question. I want to conclude with two very preliminary ideas about this question in the historical evolution of post-war education systems.

I argue that we need to look at the politics of the producer side of the state - teachers and church actors as well as bureaucrats. These claims build in part on Moe's (Moe 2006, 2011; Moe and Wiborg 2016) critical contributions to interest group politics in education. However, whereas Moe sees teacher organizations as largely blocking and rent-seeking actors that limit effective policies, I argue that we need to ask how their structure matters for the politicization of the state.

Historically, teachers unions' and religious actors varied in both their *segmentation* and *alignment* with key political actors. Segmentation refers to how divided producers are across levels or types of education, and alignment refers to the implicit political connections (in terms of finance or mobilizing votes) to political parties.

In the teaching profession, in the postwar period, in some countries, teachers were heavily divided organizationally across secondary and primary schools, in others they were not. The same is true for religious actors - in some cases, they were more concentrated in secondary or primary schools, in others they were more broadly based (or had a marginal presence). Figure 19 provides an illustrative indicator of these divisions among teachers, demonstrating the ratio of maximum primary teacher salaries to maximum secondary salaries in 1938. In countries like Germany, for instance, the collective mobilization (and employment conditions) of teachers was dramatically different across the elite gymnasium teachers and the mass primary schools.

However, the relative status of this workforce also varied within these structures, the figure on the right plots female primary to secondary teachers in the 1950s. Here we see that teaching was still the preserve of traditional more elite male teachers in some contexts (Norway, Japan), but had moved towards female dominance in others (Finland, Italy and the U.S)[17]

During the early post-war era, the key question for policymakers was how to extend secondary education to the masses - through a more non-streamed mass comprehensive model, or by extending the stratified pre-war structures. I argue that the segmentation of producers in early period created different incentives for investment in a particular forms of educational management.

Where upper secondary were teachers organizationally distinct, they opposed moves towards mass comprehensive education in nearly all countries, with the church taking a more mixed position depending on its position. Where the left was programmatical strong, as in Scandinavia, they were able to overcome these divisions among teachers, effectively creating a new public constituency in the non-streamed education system (Wiborg 2016). In Continental Europe, these dynamics played out differently. In Italy, France, Austria, Netherlands, Germany as moves towards more equitable structures emerged in political discussion, Christian Democratic (and conservative) parties were initially ambivalent. These core parties considered detracking in all countries, but ultimately, only moved towards it in France and Italy.

In the former cases, the upper secondary teachers were highly successful at mobilizing parents - and the parties themselves (with whom they were often closely aligned) against de-tracking. The result was a form of stable educational corporatism around more stratified systems in some cases. By contrast, in France and Italy, the upper-secondary teachers (who were largely aligned with the left, unlike primary teachers), extracted concessions - for instance, the inclusion of Latin streams (which effectively protected elite teachers) - but did not block the creation of new comprehensive middle schools. The result was a mix of policies towards educational equity - from the highly egalitarian model in Scandanavian, to aspects of more institutional equality in France and Italy (and later Spain, Greece and Portugal) but with many levers of implicit differentiation, and highly stratified systems in Continental Europe.

In the more decentralized and low population-density countries (US, Canada, Australia) the divisions among teachers were less prominent, however, there were latent divisions between Catholic and public schools. Through the 1950s to 1970s, however, there was a pragmatic build up local provision but with more mixed investment in federal state capacity - with even centrist and conservative actors supporting public non-tracked high schools but less strong state steering. In the UK, the debates about selection through this period were polarizing - with high level debates over the comprehensive schools dominating education politics - however, locally, Conservative and Labour politicians often moved to develop comprehensive schools, with neither party vesting substantial power in the central bureaucracy (i.e. there was less curricular standardization).

By the 1980s, however, the politics of education had changed. The post-war expansion was largely over, as size of birth cohorts in most countries were contracting, and the above mentioned dynamics of rising returns to skills were beginning to become political salient. Politically, voters and parties were beginning to devote more attention to education, as demonstrated in Figure

[17] These data are drawn from the International Bureau of Education Yearbook 1939, and UNESCO (1958, 1960)

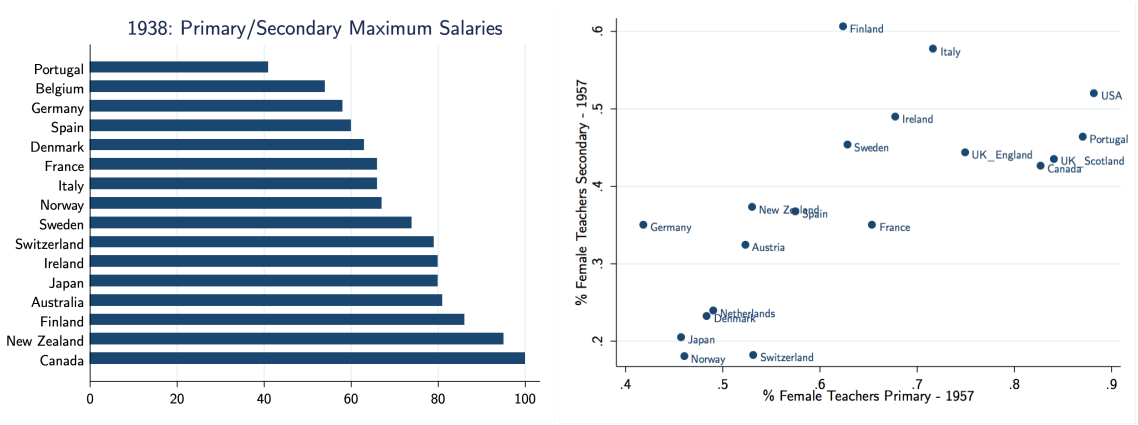

Figure 19: Gender

20 which shows mentions of education in party manifestos averaged across the advanced democracies. These shifts in educational salience combined with - in some countries - shifts in the older cleavage structures, for instance, the political relevance of the church. The task in the post-industrial period in secondary education, was no longer expansion, but to improve quality and promote the expansion of higher education. Here the stable but embedded state becomes increasingly important, because the nature of education reform involves changing practices and quality (especially for disadvantaged pupils). This climate of improvement is harder to achieve in a highly combative environment, where political conflict over state structures is recurrent. Equally, very static structures with no pressure for change, can also limit improvement.

In approaching reform, some countries followed a more technocratic path, whereas in others education became highly politicized. This politicization contributed to a new dynamic of state capacity building. One of the features driving this politicization follows from the *alignment* of teachers unions/churches.

In some countries, teachers had long been aligned to both the left and the right. In Austria, Germany and to some extent the Netherlands, and Italy (among the primary school *maestri*), Christian teachers' organizations had historically played an important role in the Christian democratic parties. This mixed alignment meant that support for a degree of educational corporatism existed across party-lines, with the mainstream parties all having links to the teaching profession. By contrast, in the Scandinavian countries, France, the US, and to some extent the UK, teachers (and in the UK, local governments) were increasingly linked to the political left, with an increasing party-line politicization of aspects of the profession.

As teachers and bureaucratic structures more generally began to become a mobilizing resource for the left, starting in the 1980s, conservative parties began to mobilize against them. This mobilization meant advocacy of new forms of state control in some areas (high stakes test) and decentralization of it in others (marketization, pay decentralization). Where these moves promoted a substantial and sustained backlash, I argue it can be state capacity distorting, by polarizing educational management. This outcome is most extreme in the US, where both the highly politicized and well funded education reform move-

ment and private philanthropists (Henig, Jacobsen and Reckhow 2019; Reckhow 2012) have targeted public sectors workers Hertel-Fernandez (2018), who in turn, have mobilized to maintain many pay, training, and employment structures. This conflict, I would argue, has been non-capacity building. Here, attempts to build state capacity, such as through No Child Left Behind, were only weakly institutionalized.

While the US is extreme, aspects of these dynamics occurred in the large Scandinavian states, where public sector reforms - or teacher training in France - became increasingly politicized through the 1980s. In the Scandinavian countries, powerful national bureaucracies emerged in the 1960s and 1970s, which were heavily controlled by the teaching profession, which in turn, was increasingly linked to the dominant social democratic parties. Center-right parties in the 1980s began to question these structures, ushering in an era of more contentious educational politics. In Denmark, unions and local governments were able to resist many proposed shifts towards marketization and decentralization in education, but in Sweden, education politics became increasingly focused on structural issues in this period (Gingrich 2011). The dominant Social Democrats engaged in substantial decentralizing reforms (against the wishes of upper secondary teachers), with a center-right government in the early 1990s introducing public funding for private schools - radically changing the education landscape (upwards of a 1/5 of upper secondary schools are now private publicly funded schools). There is little evidence that these shifts have been quality enhancing, although the counter-factual is difficult to assess.

However, this climate stands in contrast to Finland, where both right and left parties have invested in technocratic reforms. Here the core teachers' union, the OAJ, has links to the center-

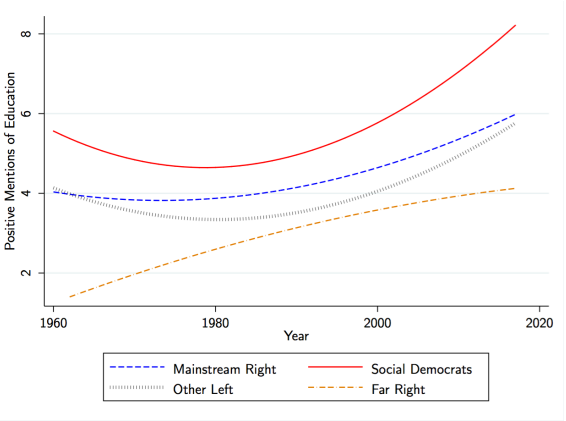

Figure 20: Comparative Manifesto Project

right (Wiborg 2016), and partisan alternation led to a less extensive politicization of the apparatus of the state, but nonetheless, extensive attention to educational issues. The result was a more sustained collaborative set of relationships, that worked to develop the relatively high skill systems. Canada also forms a contrast to the US . While education politics at points has been highly conflictual between governments and teachers (for instance, under the Conservative Harris government in Ontario 1995-2002), center-right and center-left parties have both engaged in incremental capacity building reforms like equalizing funding and increasing the selectivity of teacher training - these shifts have been not been crowded out by attention to structural reform. For instance, Progressive Conservative governments in Alberta have engaged in school choice and charter school reforms, but also introduced changes in the school funding formulas in the 1990s and 2000s that had extensive equalizing effects.

The above arguments are not to claim that teacher alignment is necessarily positively or negatively correlated to quality - or to make a strong argument about the direction of causality (alignment is of course endogenous to politicization).

Rather, it is to suggest that these types of alignments may be important for understanding when and where more constructive and stable coalitions can emerge around education governance.

Whether this particular model of understanding education politics is convincing or not, as the bulk of this memo has argued, understanding how education systems work in producing equity requires examining the intersection of equity, education governance, and other institutions.

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