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Social Classes in the Digital Age: 2022-2023 Seminar Series Highlights

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Abstract

This document summarises the highlights of the Seminar Series of the Social Classes in the Digital Age (DIGCLASS) Project held between October 2022 and June 2023. The DIGCLASS seminar series is expected to facilitate the exchange of cutting-edge ideas and debates between social science academics from research institutions worldwide, policymakers and a general audience. The topics of the seminars are interdisciplinary including social inequality and stratification, labour economics, political economy, and political behaviour.

Acknowledgements

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Contents

Abstract.....	1
Acknowledgements	2
Contents.....	3
I. Introduction.....	4
II. Session 1. October 25th, 2022. Challenges to the welfare state. Speaker: Silja Häusermann, University of Zurich	5
III. Session 2. November 29th, 2022. Global carbon inequality. Speaker: Lucas Chancel, World Inequality Lab, Paris School of Economics	7
IV. Session 3. December 20th, 2022. College admission policies. Speaker: Caterina Calsamiglia, Institute of Political Economy and Governance	9
V. Session 4. January 24th, 2023. Health inequities. Speaker: Michael Marmot, University College London	11
VI. Session 5. February 21st, 2023. Technological change and new work. Speaker: Anna Salomons, Utrecht University & IZA	13
VII. Session 6. March 28th, 2023. Technological change and (un)employment. Speaker: Giorgio Presidente	15
VIII. Session 7. April 26th, 2023. Legal and ethical issues in AI and robots. Speaker: Aída Ponce Del Castillo, European Trade Union Institute	17
IX. Session 8. May 30th, 2023. Wealth and opportunity. Speaker: Fabian Pfeffer, University of Michigan	19
X. Session 9. June 27th, 2023. Deindustrialisation and political consequences. Speaker: Anne-Marie Jeannet, University of Milan	21

Introduction to DIGCLASS

The *DIGCLASS* project was born out of the increasing concern in Europe about the implications of the digital revolution for social inequalities and democratic processes. The objective is to provide a better understanding of how digital technologies alter the mechanisms that generate inequalities in the distribution of resources and life chances, which is crucial for social policies to respond to the challenges of the digital revolution.

DIGCLASS is hosted in the Centre for Advanced Studies (CAS) of the Joint Research Centre (JRC) at the European Commission. The JRC is the Commission's Directorate-General for science and knowledge production. It informs and supports EU policies with independent research throughout the policy cycle.

The CAS aims to enhance the JRC's capabilities to understand better and address the complex and long-term scientific and societal challenges currently facing the EU. The CAS is a strategic JRC programme under the Scientific Development Programmes unit and collaborates closely with other units within the JRC.

Seminar Series

The DIGCLASS seminar series is expected to facilitate the exchange of cutting-edge ideas and debates between JRC researchers and social science academics from research institutions worldwide. With the DIGCLASS seminar series, we want to push this discussion beyond the boundaries of the JRC community by attracting external scholars, policymakers and a general audience.

Areas of interest:

- ✓ Social inequality
- ✓ Social stratification
- ✓ Labour economics
- ✓ Political economy
- ✓ Political behaviour

2022-2023 Programme

1. October 25th, 2022
Silja Häusemann – University of Zurich
Challenges to the welfare state
2. November 29th, 2022
Lucas Chancel – Paris School of Economics
Global carbon inequality
3. December 20th, 2022
Caterina Calsamiglia – IPEG
College admission policies
4. January 24th, 2023
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Wealth and opportunity
9. June 27th, 2023
Anne-Marie Jeannet – University of Milan
Deindustrialisation and political consequences

Acknowledgements

The CAS team would like to thank the speakers for their collaboration and contributions, as well as the Scientific Development Programmes unit for the support provided for the organization of the seminar series. We also thank the speakers for allowing us to print selected materials from their talks.

1 Session

October 25th, 2022

Challenges to the Welfare State

Speaker

Silja Häusermann, University of Zurich

Recorded Session

<https://webcast.ec.europa.eu/digclass-seminar-series-session-1-challenges-to-the-welfare-state-silja-husermann-university-of-zurich>

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*Ares, M., Bürgisser, R., and Häusermann, S. (2021). [Attitudinal Polarization Towards the Redistributive Role of the State in the Wake of the COVID-19 Crisis](#). Journal of Elections, Public Opinion and Parties, 31(1): 41-55.

*Enggist, M., Häusermann, S., and Pinggera, M. (2022). [The COVID-crisis as an opportunity for welfare recalibration? Panel-data evidence on the effect of the COVID-crisis on welfare preferences in Spain, Germany, and Sweden](#). Journal of European Public Policy.

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WELFARE STATE REFORMS AND OPPORTUNITIES

Various welfare state reforms and opportunities have arisen in response to three significant challenges in the 21st century. First, the impact of the high but unequal productivity gains in the knowledge economy. Second, the securing of decent old-age pensions in the face of demographic ageing, the changing nature of labour markets, and fiscal constraints. Third, the politicisation and contestation of the boundaries of solidarity in light of immigration and multiculturalism have challenged traditional notions of social cohesion.

Studying welfare politics today necessitates information on various dimensions and fields of social policy. It is crucial to have data not only on the level of support for these dimensions but also on the relative importance that voters and parties attribute to each of them.

“SECOND DIMENSION” POLITICS

The challenges faced by the welfare state in the 21st century are multifaceted. Structurally, winners and losers of the knowledge economy hold divergent ideas and preferences regarding how social policy should respond to economic structural change, with some advocating for protection while others emphasise adaptation. Politically, new actors on the left and right have emerged, bringing new perspectives on solidarity and community, often aligned with universalistic or particularistic approaches. These factors contribute to the complexity of the welfare state reform discourse, highlighting the need to navigate differing viewpoints and understandings to shape future effective and inclusive social policies.

This narrative is exploited in light of the shifting relationship between capitalism and democracy, which can be categorised into three different periods: the modernisation era (1945-1980), the liberalisation era (1980-2000), and the knowledge-based growth era (starting in the 2000s). The latter is known for polarising “second dimension politics”, manifested in *inclusive* versus *segmenting* policy preferences.

The analysis presented is based on public opinion surveys accounting for a total of 12,500 respondents in 8 countries (Denmark, Sweden, Germany, Netherlands, Italy, Spain, Ireland, and the UK) collected in October-December 2018, as well as follow-up surveys including 10,000 respondents from four countries (Sweden, Germany, Spain, the UK). Additionally, the authors used the Comparative Manifesto Project (CMP) recoding of social policy-related statements from manifestos in all eight countries, which provides valuable insights into welfare priorities and help us understand the dynamics of social policy in different contexts.

SOCIAL POLICY RESPONSES TO THE POLITICISATION OF IMMIGRATION

The politicisation of immigration emerges as a significant challenge to welfare states in the 21st century. This is evident through the distinctive key appeal of right-wing populist parties, immigration and its potential to divide the left; and the salience of immigration in party manifestos.

Welfare chauvinism, a political ideology or perspective that advocates for restricting access to social welfare benefits to only citizens or certain privileged groups within a country, is insufficient to understand the politicisation of immigration. Additional factors to be considered are the polarisation between exclusion and inclusion, as well as the differentiation of segmentation regarding the rights of natives and the exclusion of immigrants.

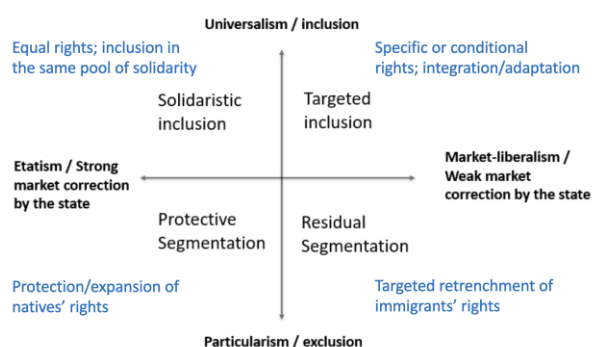


Figure 1: Policy space of reforms adapting welfare states to politicised immigration

Survey data on the positioning of voters and parties can be distributed along two axes, inclusion-segmentation and etatism-market liberalism. Based on existing studies on attitudes and programmatic positions, divisions can be expected within both the left and the right, suggesting a potential for two cross-spectrum coalitions. While one favours *protective segmentation*, the other supports *targeted inclusion*. The latter may be slightly less probable if differentiation within the left block primarily occurs along the vertical dimension (see Figure 2). In either scenario, the centrist left and centrist right parties would play a crucial role in determining the outcome of reform efforts.

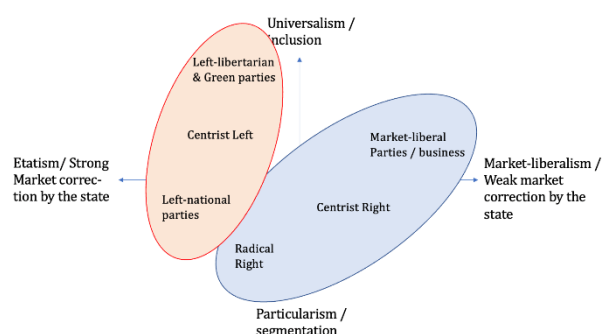


Figure 2: Hypothesised divides within the policy space of welfare reform

The main findings indicate polarisation between *inclusion* and *segmentation*, with higher saliency in continental and Northern Europe. Divisions are more pronounced among the left than the right, with the left showing strong pro-inclusion tendencies contrary to the hypothesis. The centrist right is torn between *targeted inclusion* and *residual segmentation*, while the radical is between *protective* and *residual segmentation*. There is potential for cross-spectrum coalitions, particularly in favour of *targeted inclusion*, a preferred option for the left.

IMPLICATIONS FOR DIGCLASS

- ✓ There are three key challenges to the welfare state in the 21st century, the changing occupational structure, demographic ageing, and immigration, that will differently affect social classes and their preferences about redistribution and social protection.
- ✓ The divisive partisan conflict on immigration challenges the inclusion of new risk groups in the design of social policies aimed at tackling unequal opportunity.
- ✓ There is certain conflict between the working and middle classes over social policy priorities, with the latter attributing higher importance to social investment policies (human capital and activation), and the former to consumption-enhancing policies. This divide has consequences for the formation of coalitions and the sustainability of the social contract.

Global Carbon Inequality

Speaker

Lucas Chancel, World Inequality Lab – Paris School of Economics

Recorded Session

<https://webcast.ec.europa.eu/digclass-seminar-series-session-2-global-carbon-inequality-lucas-chancel-world-inequality-lab-paris-school-of-economics>

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<https://doi.org/10.1038/s41893-022-00955-z>

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*World Inequality Database: <https://wid.world/>

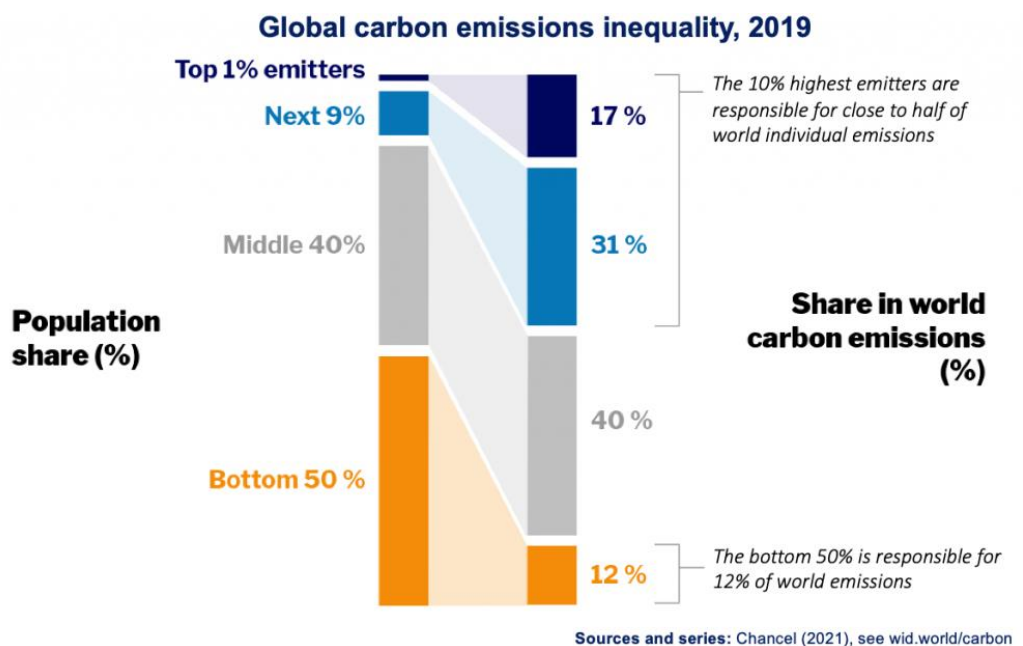
CARBON INEQUALITY WITHIN COUNTRIES WORLDWIDE

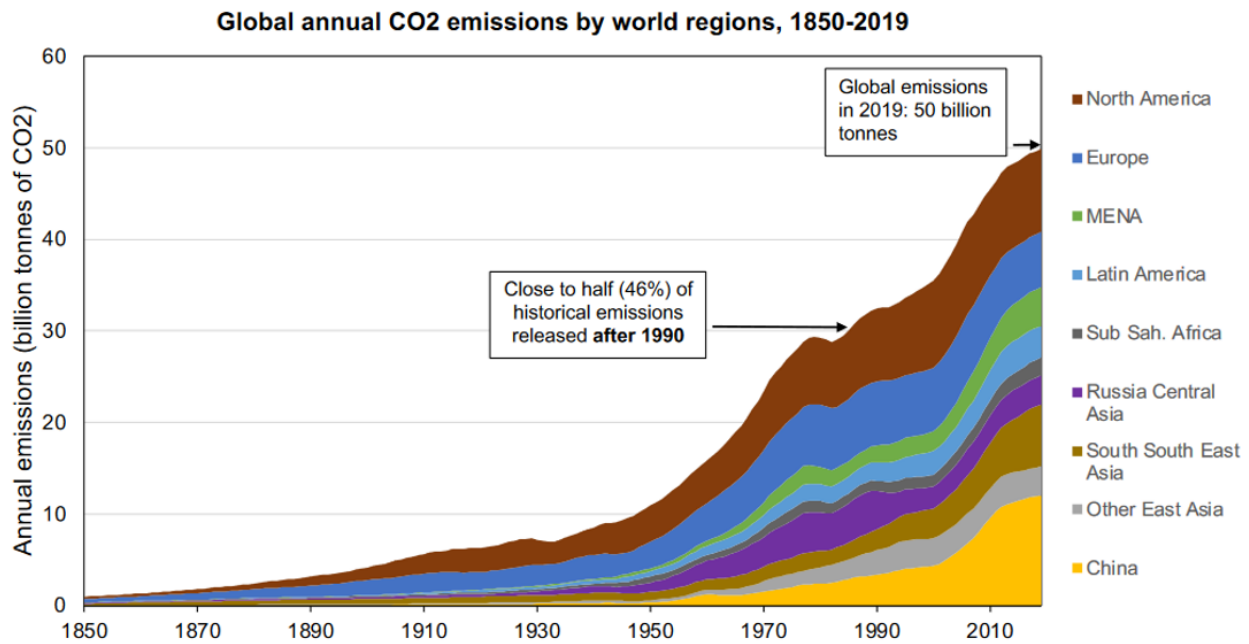
Utilising data from the *World Inequality Database*, Lucas Chancel examines the concept of equity in the green transition by analysing global carbon inequality dynamics. While all individuals contribute to climate change, their contributions vary considerably. Chancel's research focuses on estimating the global inequality of greenhouse gas (GHG) emissions at an individual level from 1990 to 2019. To accomplish this, he compiles income

and wealth inequality data, environmental input-output tables, and a framework that distinguishes between emissions resulting from consumption and investments.

At a global scale, as displayed in the Figure below, the top 10% of emitters (comprising 771 million individuals) have an average annual carbon dioxide (CO₂) emission of 31 tonnes per person, accounting for approximately 48% of total global CO₂ emissions (see Figure below). On the other hand, the bottom 50%, consisting of 3.8 billion individuals, contributed nearly 12% of global carbon emissions in 2019, with an average emission of 1.6 tonnes per person. The top 1% globally contributes to 17% of CO₂ emissions annually, emitting an average of 110 tonnes per person.

Per capita emission inequality worldwide arises from significant disparities in average emissions between countries and even more substantial disparities in emissions within each country. The average emission in Europe is around 10 tonnes of CO₂ per person per year. In North America, the average individual emits approximately 20 tonnes, while China stands at 8 tonnes, South & South-East Asia at 2.6 tonnes, and Sub-Saharan Africa at 1.6 tonnes.





HISTORICAL EMISSIONS INEQUALITY BY REGIONS ARE MASSIVE

A striking historical emissions inequality is observed across regions, as displayed in the Figure above. North America and Europe account for roughly half of all emissions since the onset of the Industrial Revolution, with China representing about 11% and Sub-Saharan Africa only 4% of the historical total.

Since 1990, emissions from the top 1% have risen faster than those from any other group due to increasing economic inequalities within countries and the carbon-intensive nature of their investments.

EMISSIONS BY THE POOREST HALF DECLINED FROM 1990

Emissions from the poorest half of the global population have declined since 1990, with per capita levels rising modestly from 1.2 tonnes to 1.6 tonnes during that period. On average, emissions from the global bottom 50% remain approximately four times lower than the global average.

In several affluent countries, per capita emissions from the poorest half of the population have decreased since 1990, while wealthier groups have experienced the opposite trend. Currently, emissions levels of the poorest half of the population align closely with per capita 2030 climate targets in countries such as the US, the UK, Germany, and France.

Consequently, in these nations, policy efforts should predominantly focus on reducing emissions among the population's top 10% and the top half. Conversely, low-income and emerging countries require urgent action to curtail emissions from the most affluent.

IMPLICATIONS FOR DIGCLASS

- ✓ Taxation policies aimed at addressing climate change have unfairly impacted individuals with lower incomes in the past, primarily through the implementation of flat carbon and energy taxes.
- ✓ It is crucial to shift the focus towards holding affluent polluters accountable, and introducing policy measures that specifically taxes investments in polluting and fossil fuel-related activities.
- ✓ Implementing progressive wealth taxes could be a fair means to generate essential funds for expanding investments in low-carbon infrastructures.

3 Session

December 20th, 2022

College Admission Policies

Speaker

Caterina Calsamiglia, Institute of Political Economy and Governance

Recorded Session

<https://webcast.ec.europa.eu/digclass-seminar-series-session-3-school-choice-and-segregation-caterina-calsamiglia-institute-of-political-economy-and-governance>

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COLLEGE ADMISSION BY GRADES AND HIGH-STAKES TESTS SCORES

With the number of students attending higher education increasing globally, access to college and field of study choice

significantly shape essential outcomes such as earnings and future well-being.

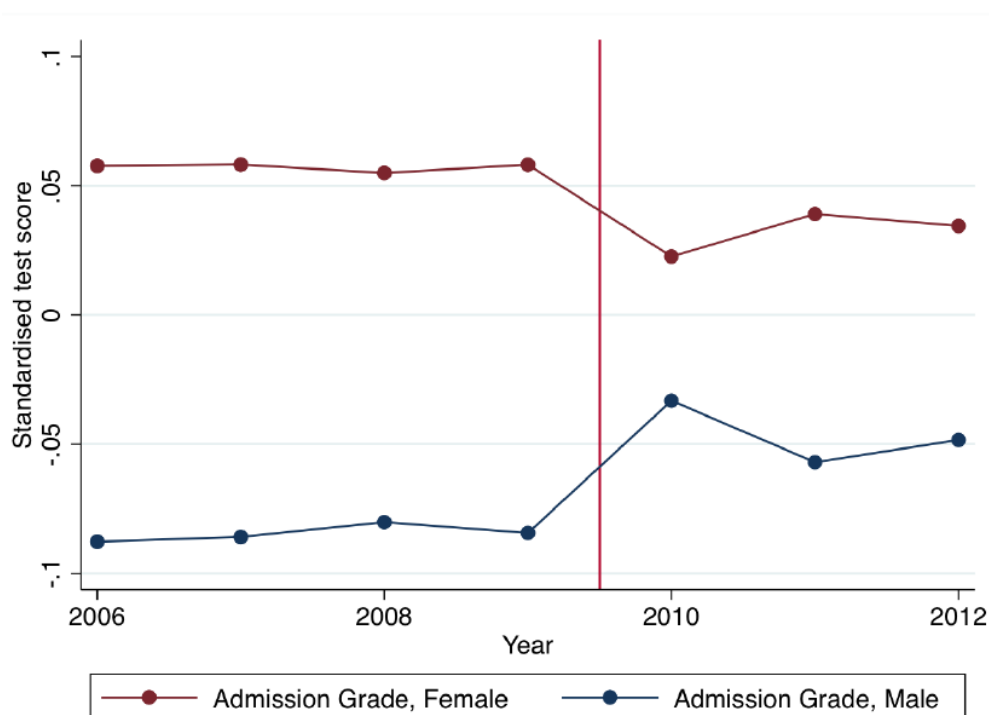
College admission decisions rely on two main factors: standardised exam scores and continuous teacher assessments like high school grades (GPA). Many countries use centralised procedures, where applicants submit ranked preferences, and colleges allocate spots based on a weighted average of GPA and exam scores. These standardised exams are important as they determine what and where individuals can study.

GENDER DIFFERENCES IN HIGH-STAKES TESTS PERFORMANCE

Extensive research has documented gender differences in performance in high-stakes and competitive environments, even when accounting for ability. Men tend to exhibit more elastic performance in competitive settings, while women are less likely to self-select into competitive settings.

Thus, this study highlights the importance of considering the consequences of policy changes in college admission criteria in the weighting of high school GPA and high-stakes testing concerning gender differences in college admission scores (see Figures below).

Furthermore, this study aims to understand whether gender differences in high-stakes performance are linked to disparities in college performance potential. This knowledge might help determine whether admission policies with different weights on high-stakes exams involve a trade-off between gender inequality and match quality.



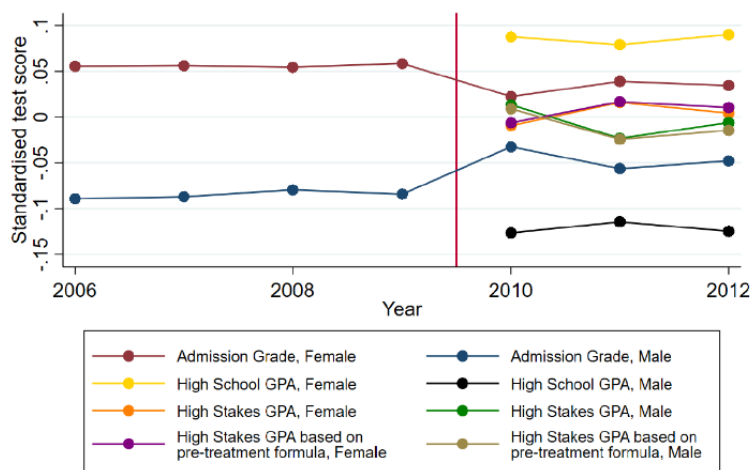
GIVING MORE WEIGHT TO HIGH-STAKES TESTS HARMS FEMALE STUDENTS

The research presented by the authors focuses on the impact of a policy change in Spain (Catalonia) that increased the weight of high-stakes standardised exams for college admissions vis-à-vis high school grades. The study utilises data from Catalonia and examines three key aspects:

1. The effect of gender differences in high-stakes performance under different admission policies, keeping competition constant. This provides insights into whether these gender gaps would change under alternative policies.
2. The consequences of gender differences in high-stakes performance for college allocation and career prospects. By exploring the interactions between students' responses to high-stakes exams and their preferences for college choices, the study sheds light on how policy changes can influence outcomes.
3. The relationship between high-stakes performance and college performance skills, characterising the profile of compliers.

The researchers found that the policy change harmed female admission scores. The magnitude of this effect is similar to other factors affecting educational performance such as birth date, parental education, or exposure to pollution. The policy change slightly amplified the existing gender differences in admission scores, suggesting that students' reactions to the policy may have intensified its consequences.

The policy did not significantly impact college enrolment rates. However, it affected the allocation of female students to more selective programs; they were less likely to attend the most selective programs than their male counterparts. This change in college allocation resulted in worse career prospects for female students, increasing the expected gender wage gap.



To understand the relationship between high-stakes performance and college performance skills, the researchers identified which types of students were most likely to benefit from the policy change based on various factors. Within gender, students predicted to benefit from the reform tended to perform better in college than comparable students with the same admission grade. However, when comparing across genders, the relationship flipped. Female students predicted to lose from the reform performed better in college than comparable male students predicted to win.

The findings of this study have implications for countries that employ similar centralised college allocation mechanisms but differ in the weighting given to the high school and high-stakes GPAs. By understanding the impact of policy changes on gender differences in outcomes, policymakers can evaluate the distributional and efficiency implications of different weighting approaches.

IMPLICATIONS FOR DIGCLASS

- ✓ This study highlights the consequences of policy changes in education with regard to gender differences. Altering the weight given to high-stakes exams in college admissions can have unintended effects on gender disparities in admission scores, college enrolment, and career prospects.
- ✓ Policymakers should carefully consider these trade-offs when designing admission policies to ensure fairness and equal opportunities for all students.

4 Session

January 24th, 2023

Social Justice and Health Equity

Author

Sir Michael Marmot, University College London

Recorded Session

<https://webcast.ec.europa.eu/digclass-seminar-series-session-4-health-inequities-michael-marmot-university-college-london>

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THE SOCIAL GRADIENT IN HEALTH

Previous research conducted by the speaker has consistently shown that ill health is not a problem solely related to poverty. Instead, across countries there is a clear gradient by which health status is worse the lower the socioeconomic position of individuals. This is the case throughout the distribution and so health outcomes are directly linked to degrees of social advantage. Health is similarly unequally distributed at the aggregate level; areas with higher proportions of material deprivation systematically show worse indicators of health.

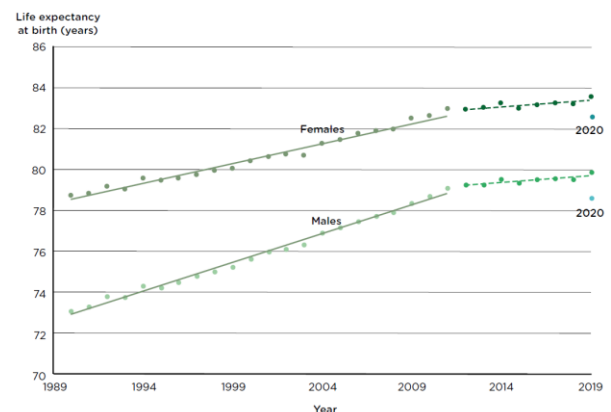
This perspective and the empirical consensus has fostered a very rich line of research on the social determinants of health.

THREE RECENT CHALLENGES TO HEALTH INEQUALITIES

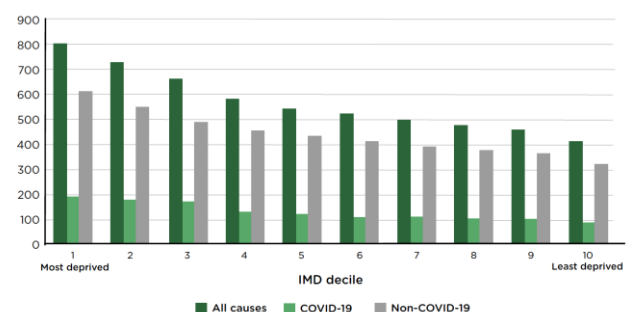
In the United Kingdom, empirical evidence shows that every single recent crisis – the decade of austerity following the Great Recession, the COVID-19 pandemic and the cost of living crisis caused by

the war in Ukraine – have all had evident detrimental effects on health status and on health gaps by socioeconomic status.

If life expectancy – a crucial indicator of a society's overall health status – is for instance analysed, the progress made for decades before the Great Recession came at a stall afterwards, for both women and men. Moreover, there was a clear association with socioeconomic conditions. Deprived geographical areas show systematically lower life expectancy. This pattern coincides with a marked decline in public sector expenditure in policies related to population health, and the decline (not shown) was more severe in more deprived areas.

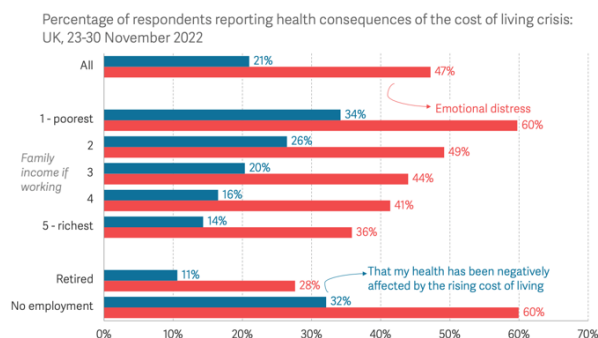


The COVID-19 crisis also had an asymmetric influence on health, with for instance substantially higher mortality rates – from all causes taken together and when distinguishing between COVID-19 and non-COVID-19 – the more deprived the area was. The following figure shows male age-standardised mortality rates from all causes, COVID-19 and other causes (per 100,000 inhabitants), by deprivation deciles in England.



The crisis following the war has witnessed real wages not being to keep up with rising prices. Very substantial proportions of low-income households

have been forced to forego essential goods or services such as keeping their home warm or having all meals. This impoverished economic situation has translated in worsening health status for all, but again a social gradient is evident and people with fewer resources have been those more severely affected. The following figure for instance shows self-reported influence of the price rise on health in the United Kingdom, but results are very similar when objective indicators of health are considered instead.



Food insecurity has increased dramatically since the prices started to rise, and it has done so even more steeply in households with children. In all countries, energy costs represent a much higher proportion of income for the poor households than for the rich, but this gap is especially evident in the UK, where the richest decile of households spent about 6% of their income on energy in 2022 while the poorest decile spent almost 18%.

These three successive shocks have undoubtedly made the already evident social gradient in health even steeper.

FAIR SOCIETY, HEALTHY LIVES: SIX POLICY OBJECTIVES

Even though poverty, as the most extreme manifestation of material disadvantage, needs special reaction, the social gradient in health must remain in focus. Granting some acceptable material well-being for all is a prerequisite for healthy societies, and action needs to be taken not only to improve the living conditions for the worst-off, but also for those who are relatively disadvantaged.

Marmot synthesises these societal needs and the policy interventions to meet them in six general principles: (1) Give every child the best start in life; (2) Enable all children, young people and adults to maximise their capabilities and have control over their lives; (3) Create fair employment and good work for all; (4) Ensure healthy standard of living for all; (5) Create and develop healthy and sustainable places and communities; (6) Strengthen the role and impact of ill health prevention.

Existing evidence confirms that (national) policies actually make a difference and that there is also room for intervention at the levels of cities, towns and local areas. However, policies and interventions should not be confined to the health-care system; they need to address the conditions in which people are born, grow, live, work and age. This notion can be somewhat bluntly summarised in the idea that it is nonsensical to treat individuals and then send them back to the conditions that made them ill, and that the “causes of the causes” should be directly treated. Health and health inequalities are a good indicator of how well or badly a society as a whole is doing, and so following that logic they could be regarded as a measure of societal success.

IMPLICATIONS FOR DIGCLASS

- ✓ Health outcomes are strongly determined by socioeconomic resources. It is not just those severely deprived who experience ill health; rather, there is a health gradient throughout the distribution. This is consequential, both theoretically and empirically, for the analysis of the relationship between social class and life chances.
- ✓ Health outcomes have worsened after every important recent crisis: the Great Recession, the COVID-19 pandemic and the price crisis following the war in Ukraine. The adverse effect has been more marked at lower levels of public spending. This evidence could inform potential adverse consequences following other macro-level shocks such as technological transformations.
- ✓ Social policy interventions, whether traditional or innovative, should not only deal with health per se, but rather address the socioeconomic conditions that determine ill health.

Technological Change and New Work

Speaker

Anna Salomons, Utrecht University

Recorded Session

Recorded session non available

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*James Bessen, Maarten Goos, Anna Salomons, Wiljan van den Berge (2023). What Happens to Workers at Firms that Automate? The Review of Economics and Statistics; doi: https://doi.org/10.1162/rest_a_01284

*David Autor, Caroline Chin, Anna M. Salomons & Bryan Seegmiller (2022); New Frontiers: The Origins and Content of New Work, 1940–2018. NBER WORKING PAPER 30389; doi: <https://doi.org/10.3386/w30389>

a restricted analytic sample of 10,425 unique firms that have experienced automation events and that employed more than 8 million stable workers (workers with at least three years of firm tenure) throughout the period.

They rely on a difference-in-differences design and compare the employment trajectories and conditions of those stable workers that have experienced an automation event the same year (treated group) vis-à-vis those that have experienced an automation event only in a distant year (control group).

THE IMPACT OF AUTOMATION ON WAGES, HIRING AND NON-EMPLOYMENT

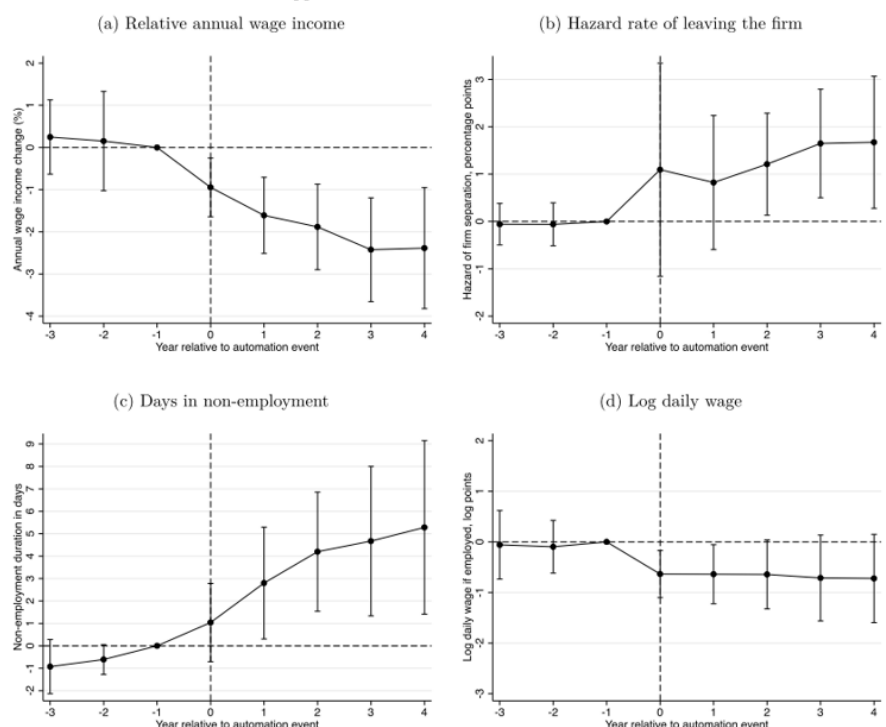
- ✓ Automation contributes to workers losing wage income: it decreases annual wage earnings by 9.3% over the 5 years following the firm's decision to automate (Figure's panel a below).
- ✓ As panel b indicates, the negative impact on wages is partly explained because automation events are associated with a higher probability of leaving the firm.

AIM AND STRATEGY

This study estimates the impact of firm-level automation on individual worker outcomes: mainly on worker's wages, on their probability of leaving the firm, on the days spent in non-employment after an automation event, on welfare benefits, early retirement and self-employment.

The study refers to all automation technologies, and not to a specific form of technology. In order to study their impact on employment, the authors combine survey and administrative data covering the universe of Dutch firms and workers (in non-financial companies with more than 50 workers) in 2000–2016. At the individual worker level, they work with

What happens to workers at firms that automate?



- ✓ Non-employment days for treated workers increase relative to control group workers: the cumulative 5-year impact corresponds to a 12% average increase relative to the duration experienced by the control group (panel c).
- ✓ While the negative effect on annual wages is clear, there are no strong daily wage effects (panel d). This suggests that the decrease in annual wage income for stable workers when their firm automates (panel a) is largely driven by both the higher hazard rate of leaving the firm (panel b) and the observed rise in non-employment spells (panel c).

In the Dutch context, automation does not produce wage-scarring effects, unlike the displacement effects driven by lay-offs or firm closures. The adverse effects automation has on employment tend to be gradual, intensifying over time.

AUTOMATION, RETIREMENT, BENEFITS AND SELF-EMPLOYMENT

- ✓ Stable workers in firms that automate experience a significant increase in the amount of public benefits that they receive: 344 euros on average after 5 years. This is driven by the increase in benefits coming from unemployment insurance; other types of benefits (welfare, disability benefits) do not increase after the automation event.
- ✓ 5 years after the automation event, there is a 40% increase in the incidence of early retirement among treated workers.
- ✓ Automation does not affect the probability of transitioning towards self-employment.

WHO IS HARDEST HIT BY AUTOMATION?

Automation does not affect all workers equally. First, losses in earnings are larger for smaller firms. Automation leads to declining daily wages for workers in smaller but not larger firms. Second, workers aged 50 and older are most negatively affected by automation events. Older workers

separate from the automating firm at higher rates and experience more significant increases in non-employment duration. Third, losses are highest for middle-educated workers and lowest for highly-educated workers. This finding is consistent with the arguments of the *Routine-Biased Technical Change hypothesis* that identify middle-paid routine workers are those at a higher risk of automation. Finally, they find displacement effects in all sectors, not just the manufacturing industry. However, as they do not observe the specific technology being adopted, their estimates may result from an average across different automation technologies, which may have more positive or negative effects on workers. For the same reason, it is impossible to identify the technologies producing these displacement effects and how they do it.

IMPLICATIONS FOR DIGCLASS

- ✓ These results contribute to better identify the segments of the workforce that are at a higher risk of automation: policy measures and programs to offset the negative impacts of automation (such as compensatory benefits, active policies, reskilling and retraining programs, etc.) are much more effective when those more in need are appropriately identified and targeted.
- ✓ The impact of automation on employment is mixed. Accordingly, we should take these findings with caution. Moreover, the effects of automation on employment tend to be rather small. This calls for caution against narratives over-emphasizing the risks of technological change.
- ✓ Future research would benefit from including occupations and/ or social classes in the analysis, since these are key dimensions that help understand how tasks, skills and power are distributed within firms. For instance, we can expect the impact of automation to vary a lot between manual and routine occupations on the one hand and professional or managerial ones on the other.

6 Session

March 28th, 2023

Technological Change and (Un)Employment

Speaker

Giorgio Presidente, Oxford University

Recorded Session

<https://webcast.ec.europa.eu/digclass-seminar-series-session-6-technological-change-and-unemployment-carl-frey-oxford-martin-school>

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*Giorgio Presidente. Institutions, Holdup, and Automation. Industrial and Corporate Change, 2023

There is a growing debate regarding the role that the current wave of technological change will have on the labour market and, especially, on the demand for labour. This is not a new concern. Whenever in history new technologies were introduced, similar concerns arose. So far, the productivity improvements and the evolution of demand have been sufficient to compensate for effects of labour-saving trends. Nevertheless, there is growing concern that the current technological improvements may have more disruptive effects than previous technological waves.

WHAT CAUSES THE ADOPTION OF AUTOMATION TECHNOLOGIES

Adopting automation technologies can be explained by a combination of microeconomic and macroeconomic factors.

At the microeconomic level, routine tasks are more susceptible to automation. Tasks with a higher routine content are easier to automate, thus replacing human labour. Additionally, the size of firms plays a significant role. Since automation and robotisation involve substantial fixed costs, they are primarily implemented in larger firms. Another factor is the need for standardisation; robots and machines enable higher standardisation than humans, who are more prone to variability.

At the macroeconomic level, two main factors come into play. Firstly, demographic factors, such as an aging population, contribute to a scarcity of younger workers. Secondly, this scarcity leads to wage increases, which, in turn, become a strong determinant for investments in automation technologies.

Moreover, institutions also play a crucial role. The degree of automation adoption is positively correlated with labour-friendly labour institutions. Regulations that favor workers tend to increase the rent obtained by workers. As a response, producers may invest in automation technologies to mitigate these rising rents.

Table E5: Partial R2 for institutional and demographic variables.

	Full sample		OECD sample	
	N	Partial R2	N	Partial R2
Expected aging	46	0.230	35	0.326
Labor rights in Constitution	46	0.159	35	0.290
Strong employee representation	46	0.170	35	0.261
Union density	46	0.00162	35	0.0248
Union coverage	46	0.0417	35	0.108

THE IMPACT OF AUTOMATION TECHNOLOGIES IN LOW- AND HIGH-INCOME COUNTRIES

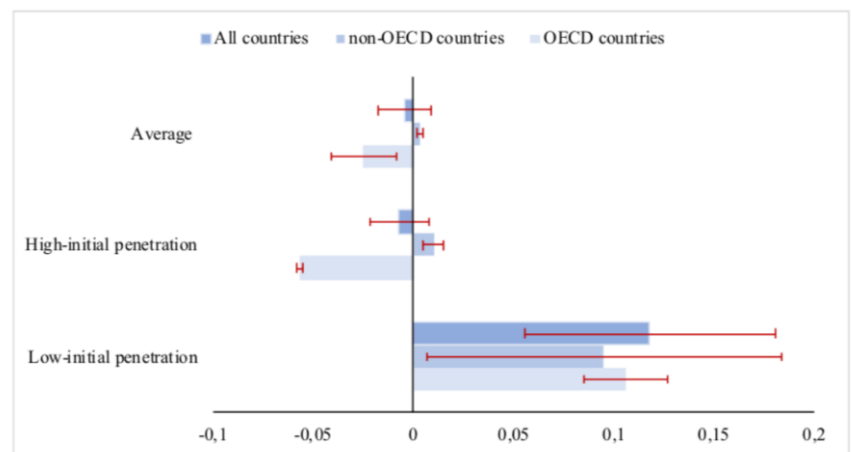
The evidence presented focuses on the cases of Indonesia and the UK. Indonesia has experienced a rapid increase in robot penetration, which may seem counterintuitive given the lower nominal salaries in developing countries. However, it is essential to consider that these countries' labour productivity is relatively low. In this context, using robots can be particularly advantageous in achieving higher productivity levels and improving production standards.

In order to estimate the employment effects, a task-based model is employed. This approach allows for the decomposition of the total employment effect into the productivity effect, which tends to increase labour demand, and the displacement effect, which has the opposite effect and tends to decrease labour demand.

The results reveal that the productivity effect tends to be more substantial in low-income countries compared to high-income ones. This is because the marginal productivity gains resulting from the installation of one robot are higher in developing countries, as they are closer to reaching the top productivity levels. In Indonesia, for instance, the same robot would have a much more significant impact on productivity levels in comparison to the same robot in a high-income country.

As a result, the displacement effect would prevail in developed countries, while substitution effects would dominate in developing countries. Overall, the impact of robots on employment tends to be positive for developing countries and negative for developed countries.

Figure 7: Employment impact of robots in 61 countries and 12 industries (2007-2015).



However, robotisation and automation are not the sole factors that explain the negative impact on employment. Another factor under investigation is the process of international outsourcing, particularly the influx of Chinese imports. Chinese imports have similar effects to robots, acting as potential substitutes for domestic labour.

In conclusion, it is important to highlight that investment in automation technologies is a widespread global trend, but the underlying reasons for this trend may vary. In low-income countries, automation is primarily adopted to reduce labour costs. Conversely, in high-income countries, the primary motive is to enhance quality and productivity, allowing them to narrow the gap with more advanced economies.

IMPLICATIONS FOR DIGCLASS

- ✓ The effects of automation technologies can vary across countries. The debate on the effects on employment demand is still open and there is ample room for making theoretical and empirical contributions aiming at explaining this large variation.
- ✓ Institutional factors are important determinants for the adoption of automation technologies. This invites policy-makers to provide insights about how to promote technological adoptions that are consistent with employment retention and creation.

7 Session

April 26th, 2023

Legal and Ethical Issues in AI and Robots

Speaker

Aída Ponce Del Castillo - European Trade Union Institute

Recorded Session

<https://webcast.ec.europa.eu/digclass-seminar-series-session-7-legal-and-ethical-issues-in-ai-and-robots-ada-ponce-del-castillo-european-trade-union-institute>

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* Ponce Del Castillo, A (2021) The AI Regulation: entering an AI regulatory winter? Why an ad hoc directive on AI in employment is required. ETUI Foresight Brief.

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A NEW SOCIAL CONTRACT IN EUROPE FOR THE DIGITAL AGE?

The impact of artificial intelligence (AI) on society is undeniable and raises several important questions. How will it affect our lives, both positively and negatively? How can we develop a social contract that upholds fundamental and social rights? Will the forthcoming AI Act effectively address and mitigate AI-driven social inequalities? This presentation explored the implications of AI and Robotics on employment, focusing on key areas that require legal protections, such as autonomy, privacy, data protection, surveillance, tracking, monitoring, and safety in human-machine interaction. It also provided a critical analysis of the AI Act, with particular attention paid to its chosen governance approach. Ultimately, it argued that a comprehensive AI governance framework is needed that integrates principles of precaution and prevention to address potential risks and challenges associated with AI.

AREAS NOT ADDRESSED BY CURRENT REGULATORY FRAMEWORKS

The seminar went through seven areas in which the current regulation is insufficiently developed and some potential implications.

1. **Safeguarding worker privacy and data protection.** Although the current regulation, in particular GDPR, provides some generic protection to workers' privacy and data, it is not tailored specifically to the work domain. In some cases, it is unclear how to apply this regulation when the worker is in a relation of subordination to employers, and specific regulation could provide some certainty and better protection in this respect.
2. **Addressing surveillance, tracking and monitoring.** Monitoring work is a right of employers, but the use of digital tools for monitoring can lead to excessive levels of surveillance. It would be necessary to set clear rules and limitations with respect to digital monitoring and algorithmic management in this respect.
3. **Making the purpose of AI algorithms transparent.** Algorithmic transparency at work concerns not only information, but also explicability and accountability.
4. **Ensuring the exercise of the "right to explanation"** for decisions made by algorithms or machine learning models. Building on GDPR, mechanisms and frameworks should be created so that workers can exercise this right. In practice, this means obtaining information that makes it possible to understand the significance and consequences of an automated decision, obtain an explanation and, if necessary, challenge the decision.

5. Preserving the security and safety of workers in human-machine interactions. This concerns industrial and collaborative robots and involves integrating the GDPR's requirements concerning "privacy by design" and "privacy by default" into machines and work processes.

6. Boosting workers' autonomy in human-machine interactions. This is particularly important when joint (human/machine) problem-solving takes place, and when AI is used to automate some tasks. In this context, we should try to preserve the workforce's tacit knowledge, and prevent skills disappearance.

7. Enabling workers to become "AI literate". Technical digital skills are not enough. Workers need to be able to critically understand AI's role, its impact on their work and how it will transform it. Workers' representatives can play a new important role here, flagging up digitally-related new risks, assessing the uncertainty of invisible technologies and finding new ways of integrating tacit knowledge into the work process.



IMPLICATIONS FOR DIGCLASS

- ✓ The use of digital tools for monitoring and automating decision-making at work can potentially alter some of the key mechanisms behind the differentiation of social classes.
- ✓ In the EU, it seems increasingly clear that labour regulation must be updated to respond to the challenges of AI and robots. This is one of the areas where there is ample scope for empirical and legal work.
- ✓ These regulatory changes will also necessarily have strong implications for the socioeconomic structure and for power balances and imbalances in the workplace and beyond.

8 Session

May 30th, 2023

Wealth and Opportunity

Speaker

Fabian Pfeffer, University of Michigan

Recorded Session

<https://webcast.ec.europa.eu/digclass-seminar-series-session-8-wealth-and-opportunity-fabian-pfeffer-university-of-michigan>

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*Fabian T. Pfeffer, Alexandra Killewald, Generations of Advantage. Multigenerational Correlations in Family Wealth, *Social Forces*, Volume 96, Issue 4, June 2018.

*Fabian T. Pfeffer & Alexandra Killewald, Intergenerational Wealth Mobility and Racial Inequality, *Socius*, Volume 5, 2019.

The seminar focused on the issue of wealth inequality, a problem that the COVID-19 pandemic highlighted and further exacerbated. Dr. Fabian Pfeffer particularly explored the intricacies of wealth distribution trends, the transmission of wealth across generations, and the racial disparities interlaced with wealth inequality.

To set the stage, three descriptive facts were presented:

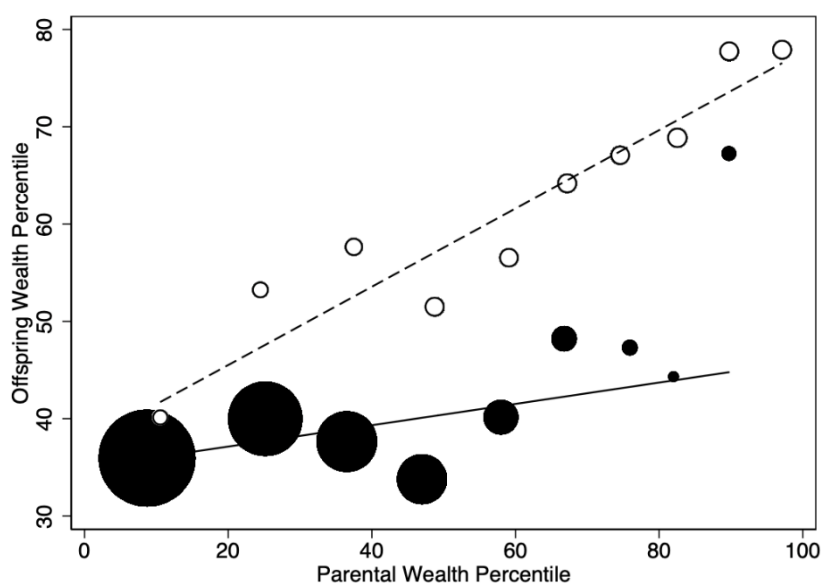
1. Wealth is different from other dimension of economic well-being
2. Wealth inequality is extreme
3. Wealth is transmitted across generations and cements other social divisions

Wealth, distinct from income or consumption, has unique characteristics that make it a crucial dimension of economic well-being. While income is a flow of resources over time, wealth represents the accumulation of resources. This accumulation provides a safety net against economic shocks, grants individuals and families the means to invest in their futures, and represents a crucial determinant of individuals' life opportunities.

Wealth inequality, particularly in the United States, is alarming, especially due to the concentration of wealth at the top of the distribution, where a small fraction of households holds a disproportionate share of total wealth. This severe imbalance in wealth distribution significantly overshadows disparities in income or consumption, cementing the divide between the economically advantaged and disadvantaged.

INTERGENERATIONAL WEALTH TRANSMISSION AND MOBILITY AND THE RACIAL WEALTH GAP

A significant component of Dr. Pfeffer's research focuses on the powerful role of wealth on the perpetuation of inequalities across generations. The Figure below depicts the parental wealth percentile on the x-axis and the offspring wealth percentile on



Pfeffer/Killewald (2018): Generations of Advantage. *Social Forces*

the y-axis, demonstrating a powerful correlation between the two, though much more markedly for white households (white dots) than for black (black dots).

Moreover, the research illustrates an existing imbalance in terms of wealth mobility. Children from wealthier households were more likely to experience upward mobility, while those from less affluent families often found themselves ensnared in a cycle of downward mobility.

The racial disparities in this wealth mobility pattern are stark. Black children from wealthier households face a steeper decline in intergenerational mobility compared to their white counterparts. Although the racial wealth gap forms a subset of the broader wealth inequality issue, its significance in the case of the United States is large, indicating a deep-seated systemic issue that necessitates dedicated attention.

Dr. Pfeffer's research showcased a harsh reality check on the prevalence of racial disparities in the wealth distribution. He unpacked how historical and contemporary structural barriers work in tandem to uphold racial wealth disparities, with past exclusionary practices continuing to echo in today's economic landscape. In his assessment, the racial wealth gap is not just a contemporary issue, but a legacy of long-standing racialized economic disadvantages that have perpetuated over generations.

ADDRESSING THE WEALTH GAP

Addressing wealth inequality necessitates the dismantling of deeply entrenched structural barriers that have historically shaped the economic landscape. What is required is a multi-faceted, comprehensive interventions to address both the racial and income aspects of wealth inequality. Policy reforms promoting economic justice were identified as critical to this effort. Education, housing policies, and tax reforms were highlighted as pivotal in leveling the playing field. A broad-based, inclusive approach is vital to grapple with the complexity of the issue and dismantle the structural barriers perpetuating wealth inequality.

In conclusion, Dr. Pfeffer's presentation offered a compelling argument for the urgency of addressing wealth inequality in all its dimensions. The persistent wealth gap, visible through these generational transitions, highlighted the need for decisive action towards achieving economic equity and social justice.

IMPLICATIONS FOR DIGCLASS

- ✓ Wealth holds a unique position in the economic well-being hierarchy due to its extremely unequal distribution and its potential for generational transmission. This highlights the necessity of policies focusing not only on income or consumption, but on wealth accumulation and distribution.
- ✓ The extreme wealth inequality, its strong persistence across generations, and its tendency to cement other social divisions calls for the urgency for dedicated, multifaceted interventions.
- ✓ The racial wealth gap underscores the need for race-conscious interventions and systemic reform to remove structural barriers that perpetuate wealth disadvantage among racial minorities. The interaction between race and social class needs to be considered too.
- ✓ Structural reform, particularly in the areas of education, housing, and tax policies, can be instrumental in reducing wealth inequality. Some of the policy tools analysed in DIGCLASS could have such potential.

9 Session

June 27th, 2023

Deindustrialization and the Political Consequences

Speaker

Anne-Marie Jeannet, University of Milan

Recorded Session

<https://webcast.ec.europa.eu/digclass-seminar-series-session-9-deindustrialization-and-political-consequences-anne-marie-jeannet-university-of-milan>

References

*ERC Project DESPO: <https://cordis.europa.eu/project/id/853033>

Anne-Marie Jeannet centered her session around the concept of deindustrialization – economic transitions from manufacturing-based to service-based –, its far-reaching implications on the economic landscape, and its associated political repercussions. By focusing on Western Europe and

North America, she deepened the understanding of the socio-economic transformations of the past few decades and the subsequent political consequences.

Two primary narratives of the political consequences of deindustrialization were outlined:

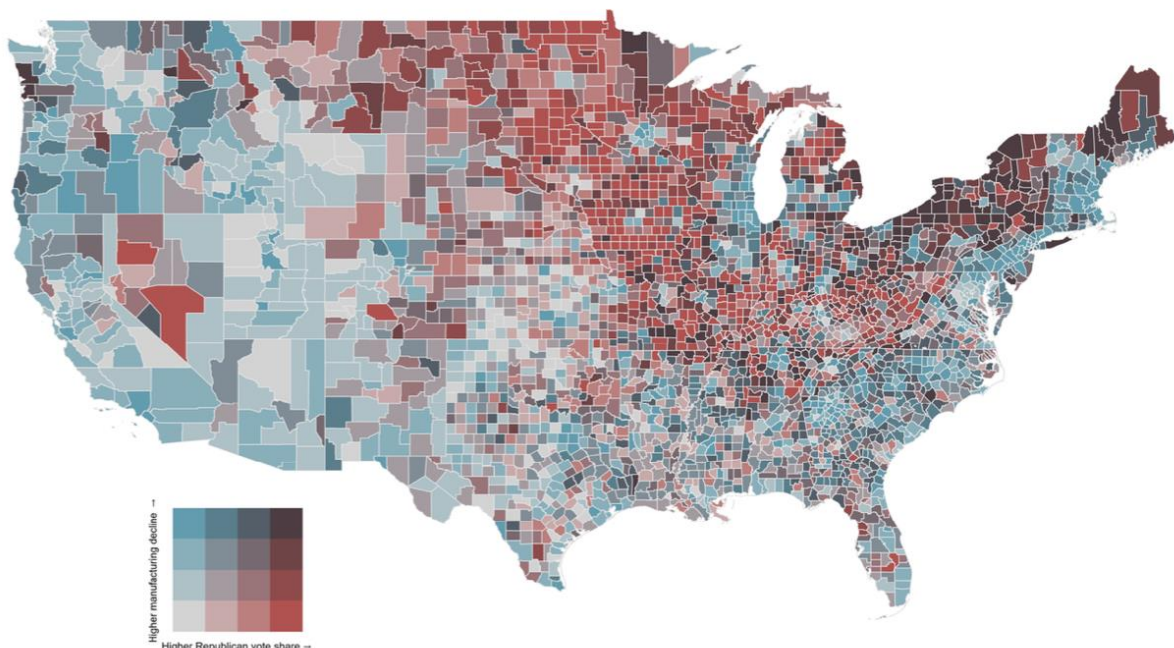
1. The "decline and despair" narrative.
2. The "backlash" narrative.

The "decline and despair" narrative depicts deindustrialization as a destructive process causing severe economic and social disruptions. Regions once dominated by manufacturing experience job losses and wage stagnation, contributing to rising social inequalities. The erosion of the middle class leads to a polarized society with widening socio-economic gaps.

Conversely, the "backlash" narrative views deindustrialization as a trigger for social and political revolt against the perceived negative impacts of globalization and broader economic restructuring. In this scenario, communities facing deindustrialization may turn towards populist movements and protectionist policies as a form of

Manufacturing decline (1980-2015) and the Republican vote share (2012-2016)

Data : MIT election lab & Maneuvrier-Hervieu & Jeannet, 2022.



Author: Paul Maneuvrier-Hervieu, 2022 - Licence Creative Commons : CC-BY-NC-ND

protest and self-preservation (i.e., Brexit, far-right parties, etc.).

Both these narratives are reductionist and normatively charged interpretations. There is a more nuanced picture that requires empirical work differentiating between the specific (occupational exposure) and diffuse effects (exposure via family, kin, community, and time period) of deindustrialization.

DEBUNKING MYTHS

Besides the narratives, there are some myths about deindustrialization that can be rebutted with data. Here are five points to take into account, where data was shown for the case of the United States:

1. Deindustrialization is not a sudden shock, but a gradual decline. In fact, we can observe a steady declining share of manufacturing employment since the 1980s that stabilizes around 2010.
2. It does not occur only in one particular area but is widespread. In other words, deindustrialization is mostly commonplace.
3. Deindustrialization is mostly urban. The decline in manufacturing employment in non-metropolitan areas has been much less than in metropolitan areas.
4. It is highly asynchronous. Deindustrialization does not take place at the same time in all regions. In fact, there is wide variation in the temporal dimension for regions close to each other.
5. Deindustrialization does not necessarily mean job loss. As it is only a fraction of total employment, it can be offset by growth in other sectors.

DO DEINDUSTRIALIZING AREAS VOTE REPUBLICAN?

The research aims to establish the relationship between voting behavior and deindustrialization in the United States by addressing limitations of previous research, such as atomistic fallacies (from displaced workers to 'left-behind' places), local

variations within working class or indicators of industrialization, amongst others.

In order to test whether there is indeed a relationship between deindustrialization and vote choice, in particular the Republican Party in the United States, the study employs administrative data from the US Bureau of Labor Statistics (1975–2022). Econometric methods (panel models) are used to estimate the effect of the manufacturing decline on the Republican vote share (while holding constant other explanatory factors such as demographic, economic and geographic features of counties).

The findings, illustrated in the Figure above, show that there is no evidence for a relationship between deindustrialization and vote in the US presidential elections. Importantly, this null finding provides evidence that there is no causal relationship between local economic restructuring and electoral outcomes in the case of the US, an implication that might also be applicable to European countries.

IMPLICATIONS FOR DIGCLASS

- ✓ Deindustrialization, as a transition from manufacturing to services, can have far-reaching economic and political consequences, and it necessitates a nuanced understanding beyond simplified narratives. The same might apply to other macro transformations such as technological change.
- ✓ The "decline and despair" and "backlash" narratives were presented as reductionist interpretations. Similarly, many widespread interpretations of deindustrialization are mere myths. In this and related topics, rigorous empirical research needs to be produced to unpack the complex dynamics at play.
- ✓ The research underscores that there is no causal evidence linking deindustrialization to voting behaviour, specifically for the Republican Party in the US. This calls into question assumptions about the political consequences of economic restructuring, possibly extending to the European context. More research into how this affects the social contract is needed.

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