

DOCTORAL THESIS

Reimagining the Digital Welfare
State through Experimental
Governance: Adapting to the
New Era of Work

Johanna Vallistu

TALLINN UNIVERSITY OF TECHNOLOGY
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**Reimagining the Digital Welfare State
through Experimental Governance:
Adapting to the New Era of Work**

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Declaration:

Hereby I declare that this doctoral thesis, my original investigation and achievement, submitted for the doctoral degree at Tallinn University of Technology has not been submitted for doctoral or equivalent academic degree.

Johanna Vallistu

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Digitaalse heaoluriigi ümbermõtestamine katsetava valitsemise kaudu: kohanemine uue ajastu tööga

JOHANNA VALLISTU



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List of publications

The list of author's publications, on the basis of which the thesis has been prepared:

- I **Vallistu, J.** (2023). Digital social security accounts for platform workers: The case of Estonia's entrepreneur account. *International Social Security Review*, 76(3), 3–24. <https://doi.org/10.1111/issr.12337> (1.1)
- II **Vallistu, J.** (2024). Bridge to security: Exploring unemployment insurance for solo self-employed in Estonia. *European Journal of Social Security*, 26(2), 155–168. <https://doi.org/10.1177/13882627241264969> (1.1)
- III Raudla, R., Sarapuu, K., **Vallistu, J.**, & Harbuzova, N. (2024). It is about time! Exploring the clashing timeframes of politics and public policy experiments. *Perspectives on Public Management and Governance*, 7(4), 137–148. <https://doi.org/10.1093/ppmgov/gvae008> (1.1)
- IV Raudla, R., Sarapuu, K., Juuse, E., Harbuzova, N., Onno, K., **Vallistu, J.**, & Cepilovs, A. (2022). To experiment or not to experiment in tax policy? *Halduskultuur*, 22(1), 27–48. <https://doi.org/10.32994/hk.v22i1> (1.1)

Appendix:

- V **Vallistu, J.** (2024). Navigating the Digital Horizon: Challenges and Opportunities for Social Security Systems in an Era of Data Transformation. EISS publication: *Living and Working Tomorrow* (2.5)

Author's contribution to the publications

Contribution to the papers in this thesis are:

- I The author of the thesis was the sole author of the paper and was responsible for designing the study, conducting the literature review, analysing the empirical case of the Estonian entrepreneur account, and writing the article. The author independently handled the submission and revision process.
- II The author of the thesis was the sole author of the article and independently designed the study, carried out the literature review, conducted the empirical research, analysed the findings, and managed the submission and revision process.
- III The author of the thesis contributed to the literature review and helped define the research gap together with other authors. The author conducted a proportion of the interviews in Estonia and Finland, transcribed the data of the conducted interviews, and was one of two coders for the project. The author also co-wrote the theoretical and empirical sections and revised the manuscript together with the author group during the submission process.
- IV The author of the thesis contributed to the development of the conceptual framework and co-wrote the article together with the research group. During the research process, the author also participated in the conceptual discussions underpinning the article.
- V The author of the thesis was the sole author of the article and independently developed the theoretical framework, conducted the literature review, and wrote the analysis.

1 Introduction

“/.../to date, astonishingly little attention has been paid to the ways in which new technologies might transform the welfare state for the better. Instead of obsessing about fraud, cost savings, sanctions and market-driven definitions of efficiency, the starting point should be how existing or even expanded welfare budgets could be transformed through technology to ensure a higher standard of living for the vulnerable and disadvantaged and to devise new ways of caring for those who have been left behind and more effective techniques for addressing the needs of those who are struggling to enter or re-enter the labour market. That would be the real digital welfare state revolution.” (Philip Alston in the *Report of the Special Rapporteur on Extreme Poverty and Human Rights* (aka the Alston Report), p. 23).

The rapid evolution of the labour market driven by digital technologies has raised pressing questions about how governments should adapt social policies, social protection mechanisms, and labour market approaches to meet their commitments to citizens in a changing world (Larasati et al., 2023; Petropoulos et al., 2019). These discussions are unfolding within the broader framework of the future of the welfare state (Pasi & Misuraca, 2020). In this thesis, the welfare state is viewed as a flexible and evolving system through which governments manage social risks and ensure citizen well-being while reducing inequality (Briggs, 1961). It is not a fixed institution but rather a dynamic social relation, shaped by the historical and societal context in which it operates (Fuenfschilling & Truffer, 2014; Garland, 2016).

Novel forms of work are emerging as a result of the digital transformation of work (de Stefano, 2016; Palier, 2019). These include platform-based, freelance, and gig work, disrupting traditional employment categories and creating new opportunities as well as risks and vulnerabilities (Spasova, 2017; de Stefano, 2016; Behrendt et al., 2019). On the one hand, work is becoming much more fluid – independent of one’s physical location or employer, involving multiple employment forms (Huws, 2014; Bauman, 2013; Beck, 2014) and employing increasing human-digital configurations (Baptista et al., 2020). A good example to illustrate this tendency is the emergence of digital nomadism, which, in many cases, means self-employed digital work independent of one’s location (Richter & Richter, 2020). On the other hand, the digital transformation of work has meant that the risks previously taken care of by the state or the employer are shifting more towards the workers themselves (de Stefano, 2016). There are also new risks emerging (Larasati et al., 2024; Dunleavy & Margetts, 2023). Today, digital platforms are not just facilitating work—they are redefining the very nature of labour and the relationships between employees, employers, and the state (Vallas & Schor, 2020). The platformisation of work is not limited to digital labour platforms but has become a key characteristic of different kinds of work due to algorithmic management, data-based control, and new feedback systems (Huws et al., 2019).

These shifts challenge the welfare state’s ability to deliver on its fundamental promises of security and stability, particularly as the boundaries between traditional employment, self-employment, and non-work blur (Cherry, 2016; Joyce et al., 2023). Throughout this thesis, the author uses the term “the new era of work” to succinctly describe the structural shift in the labour market and work organisation driven by digital technologies, which impose novel demands on welfare states.

Governments are increasingly intrigued by the potential of digital technologies to shape existing welfare state systems (Alston, 2019; van Toorn et al., 2024). Digital technology is seen not only as a disruptor but also as a potential enabler of novel solutions that provide security to workers in this fluid, fast-evolving labour landscape; not to mention promising a more efficient service delivery (Lee-Archer, 2023). Advanced data analytics, platform-based services, automated decision-making mechanisms, and other digital tools form the backbone of what is now termed the digital welfare state (van Zoonen, 2020; Engin & Treleaven, 2019; Larasati et al., 2023). However, this shift can convey false promises. Rather than creating structural adaptations to the new era of work, the digital solutions in the realm of the welfare state are focusing on process digitisation without rethinking the underlying social frameworks and policy models (Alston, 2019; van Gerven et al., forthcoming). This approach fails to address the broader consequences of an ever-more fluid labour market and risks perpetuating deepening inequalities (Alston, 2019; Dencik, 2022). A broader perspective on the evolving requirements of the welfare state is essential in an era marked by rapid transitions.

At the same time, there is an overarching sense of living in the “risk society” (Beck, 2014), with the labour market being only one of the many areas experiencing profound disruption. Environmental crises, geopolitical tensions, and the recent pandemic are just some of the unprecedented challenges and uncertainties that have spurred calls for novel governance approaches. These approaches must address growing complexity through increased collaboration (Bryson et al., 2015; Bianchi et al., 2021) and enhance the coherence and effectiveness of governance mechanisms to navigate long-term societal change (Loorbach, 2009). Anticipating diverse future challenges to inform today’s actions has become an essential focus (Mallard & Lakoff, 2011). As Dufva and Dufva (2019, p. 26) put it: “from the futures standpoint, one could see the disruption as an open window for change. The question is therefore which direction to take.”

One of the approaches proposed to explore these windows of change and to deal with complex policy challenges is policy experimentation (Bravo-Biosca, 2020; Rangoni & Zeitlin, 2021). Experiments can be defined, time-limited tests of new policy solutions that provide information for further policy decisions (Bravo-Biosca 2020, p. 195; McFadgen & Huitema, 2018; Nair & Howlett, 2016, p. 69). Experimenting has been suggested as a strategy for dealing with novel challenges and uncertainty (Rangoni & Zeitlin, 2021; Voß & Simons, 2018). As a result, an experimentalist turn in policymaking has been emerging (Huitema et al., 2018). This shift includes the emergence of “experimentalist governance” (Sabel & Zeitlin, 2012) and the “randomistas” approach to development (Kvangraven, 2020). Furthermore, the design-in-government and design-thinking movements (McGann et al., 2018) have resulted in governments creating new units of behavioural insight and experimental policymaking (Tönurist et al., 2017). While it is believed that experimenting has a role in strengthening evidence-based policymaking (Sanderson, 2002), it is equally seen as a way to comprehend developments in complex systems (Bravo-Biosca, 2020) and to tackle novel technological developments (Ranchordas, 2013).

Yet, it remains unclear whether and how experimental policymaking can live up to these promises in an era where incremental changes to policies seem insufficient in finding the “new normal”. Researchers have highlighted the lack of development frameworks when discussing experimentation beyond one-off interventions and rather as a governance approach (Sabel & Zeitlin, 2012). The gap in studying experimentation as a governance approach is particularly noticeable in the field of social and welfare

policy experimentation, while sustainability transition studies have extensively explored this issue over the past few decades (see, for example, Kivimaa & Kern, 2016; Schot & Kanger, 2018; Grin et al., 2010; Elzen et al., 2004).

While a growing body of research explores the digital welfare state as a sociotechnical system (van Gerven et al., forthcoming; Winby & Mohrman, 2018), there remains a gap in analysing the potential of experimentation as a promising approach in the field of digital welfare policies. Public policy experimentation and experimental governance is a potential approach to navigate this complexity, enabling the development of novel configurations that integrate diverse stakeholder perspectives and potentially steer the system towards more desirable outcomes (Bravo-Biosca, 2020; Eneqvist, 2022).

With this gap in mind, this thesis aims to study the interlinkages between the novel demands on welfare states in the new era of work, how governments are addressing these demands through digital welfare state approaches, and how policy experimentation could serve as a means to better adapt to these new demands. Three research questions are thus posed:

1. *What new demands are emerging for the welfare state due to digitalisation-driven changes in the labour market?* (**Articles I, II, V**)
2. *Which considerations must be taken into account to reconfigure the digital welfare state to achieve a more balanced and inclusive approach that addresses not only technological opportunities but also the pressures of the new era of work?* (**Articles I, V**)
3. *How can experimental governance serve as an analytical and practical framework for adapting the (digital) welfare state to the evolving demands of the new era of work?* (**Articles I, III, IV, V**)

These issues are analysed in five publications. The single-authored **Article I**, “Digital Social Security Accounts for Platform Workers: the Case of Estonia’s Entrepreneur Account” (2023), is a case study on digital social security accounts and their role in enabling a more balanced welfare state approach in the new era of work. The case study of the Estonian entrepreneur account exemplifies how adopting a novel digital solution does not necessarily lead to a structural shift in responding to the requirements of the new era of work but can reinforce the previously existing social security solution. While the creation of the entrepreneur account was not framed as an experiment, the case is tightly connected to issues of experimental policymaking. It demonstrates how the new solution could have benefitted from a more open and potentially experimental policy design to rethink the transitions perspective in social policy.

The single-authored **Article II**, “Bridge to Security: Exploring Unemployment Insurance for Solo Self-Employed in Estonia”, is a case study that examines the Estonian unemployment insurance system from the perspective of the solo self-employed, including platform workers. The article is part of a special issue for the *European Journal of Social Security*, touching upon unemployment insurance for self-employed workers in Europe. The writing of the article was preceded by an expert group meeting in Antwerp in spring 2023. The motivation for the article stems from technological developments on the labour market, which create an increasing number of opportunities for (solo) self-employment and platform work. However, such workers become vulnerable to risks they would not have to face as employees in a standard employment relationship (SER). On the one hand, the article showcases new vulnerabilities stemming from technological developments on the labour market. On the other hand, the article provides an in-depth analysis of the complexities of existing welfare state structures. It also shows how the

mental models prevalent in policymaking and rooted in traditional understandings of work might influence the reluctance to change.

Article III, “It Is About Time! Exploring the Clashing Timeframes of Politics and Public Policy Experiments”, is co-authored with Ringa Raudla, Külli Sarapuu, and Nastassia Harbuzova. The article explores the political dimension of policy experimentation, and more specifically, the clash of experimental timeframes with political cycles and problem cycles, using the Estonian and Finland case studies as examples. It showcases why policy experimentation cannot be treated as a neutral research activity and how various power dynamics, stakeholder relationships as well as motivations play a crucial role in agenda-setting, design, and learning from experiments.

Article IV, titled “To Experiment or not to Experiment in Tax Policy?” (2023), is a collaborative paper by the research group working on the project of experimental policymaking (Ringa Raudla, Külli Sarapuu, Egert Juuse, Nastassia Harbuzova, Kerli Onno, and Aleksandrs Cepilovs). It examines the promises and pitfalls of public policy experimentation in the field of tax policy from a theoretical perspective. The article also explores the potential of using experiments to address novel technological challenges, analysing different experimental designs.

Article V, “Navigating the Digital Horizon: Challenges and Opportunities for Social Security Systems in an Era of Data Transformation”, included as an appendix, is a single-authored theoretical analysis of the issues of digitalisation. It delves into the future challenges of the welfare state, such as digitalisation, datafication, the increasing power of private digital platforms, and the challenges of the new era of work. It was published as part of the KU Leuven’s research project in a book *Living and Working Tomorrow (2035). Challenges for Social Security (Administration)*. It offers an analytical perspective on the implications of labour market transitions in a digitally-enabled era for social security systems and administrators, highlighting the novel challenges that lie ahead.

Rather than focusing solely on the potential of experimentation within the field of the (digital) welfare state, the thesis provides a comprehensive walkthrough of the broader problem area. It is structured as follows: Chapter 2 outlines the research approach of the doctoral thesis. Chapter 3 establishes the theoretical foundation by first examining the shifts brought about by digital technologies in the new era of work. It then analyses contesting welfare state ideas for the future, alongside emerging digital welfare state approaches, as detailed in sections 3.1 and 3.2. The chapter concludes by examining the role of experiments and experimental governance in shaping and advancing changes in the digital welfare state. Chapter 4 presents the key findings of the thesis, structured around the three central research questions posed. Chapter 5 concludes the thesis and discusses further avenues for research.

The thesis contributes to the ongoing discourse on the evolving role of the welfare state in the context of digital transformation and shifting labour markets. It specifically focuses on the new requirements emerging in this context and how the digital welfare state approach addresses them. It shows how the current trajectory of the digital welfare state approach largely ignores the need for a structural adjustment to better address the new requirements that the changing nature of work poses. The thesis demonstrates that by maintaining this trajectory, welfare states risk failing to adapt to structural changes, thus ignoring critical gaps in social protection, further deepening inequality and taking on a long-term financial burden of caring for people who have fallen through safety nets. These gaps are exacerbated by the growing role of private digital platforms, which blur traditional employment boundaries. The thesis analyses how these gaps are particularly

pronounced in areas related to the emergence of solo self-employment, such as platform work, where traditional employment-based models of social security fail to offer comprehensive coverage, leaving many workers exposed to income insecurity and precarious conditions.

In this context, the thesis advocates for a reconfiguration of welfare state policies to address the structural shifts in the labour market driven by digital technologies. It highlights the importance of considering alternative welfare models – such as hybrid and universalist approaches – to ensure that protection extends beyond standard employment relationships. The research demonstrates how innovations like digital social security accounts can act as stepping stones toward more inclusive welfare systems when combined with strategic policy experimentation and co-production approaches.

In this light, the thesis also takes an in-depth look at policy experimentation as a promising governance tool to manage the uncertainties and complexities of the new era of work. It explores how experimental approaches can foster institutional learning and policy innovation, enabling governments to test, adapt, and scale solutions that meet the evolving needs of workers. Through case studies in Estonia and Finland, the research reveals how political timeframes, institutional settings, and stakeholder dynamics influence the success of experimental governance initiatives. One of the key findings shows that while policy experimentation has great potential in the field of digital welfare state innovations, experiments are often constrained by short-term political goals and a lack of alignment between the pace of policy change and the evolving needs of the labour market. As a result, policy experiments risk becoming isolated initiatives rather than serving as catalysts for systemic transformation. The thesis argues that embedding experimentation as a continuous and adaptive governance approach is crucial for ensuring that welfare states remain resilient and responsive in the face of rapid labour market transitions.

Adopting an interdisciplinary approach, the thesis explores the interlinkages among multiple problem areas. Instead of undertaking an in-depth examination of any single topic, it offers a research agenda-style analysis of the changing nature of work in the digital era, the digital welfare state, and the role of experiments and experimental governance in shaping these systems. One of its main contributions lies in integrating diverse scholarly streams of thought, including studies on social protection and labour markets, investigations into the digital welfare state, and the role of experiments and experimental governance in ideating, designing, and learning from innovative solutions. By doing this, the thesis adopts a normative stance on experimental governance. Rather than questioning whether experimental approaches should be used at all, it critically examines how their transformative potential can be effectively positioned within the context of the future welfare state.

2 Research strategy

This thesis provides an interdisciplinary perspective on the intersection of three key domains: (1) the changing nature of work in the digital era; (2) state responses through the digital welfare state; and (3) the potential of experimental policymaking to address the challenges of the welfare state in this changing environment. This work is a cumulative thesis that results from published peer-reviewed articles in academic journals (**I–IV**) and one book chapter (**V**). The articles have been published as part of the project on experimental policymaking in Estonia and Finland financed by the Estonian Research Council (Grant PRG1125). However, they each followed a different research logic and process.

The choice and use of social science methods are closely tied to the researcher's assumptions about reality, grounded in epistemological, theoretical, and methodological perspectives (Crotty, 1998). In this thesis, the research approach aligns with a constructivist and interpretive policy analysis tradition, emphasising socially constructed meanings and the co-production of knowledge (Callon, 1999; Jasanoff, 2004; Burr, 2015). This perspective acknowledges that technological and social developments are interrelated and co-evolving, allowing for a deeper analysis of these interrelations that shape the future of the welfare state.

Given these ontological and epistemological viewpoints, the thesis predominantly employs qualitative methods within a case study framework. As Yin (2015) notes, qualitative research is well-suited to capturing the complexities of phenomena, providing a holistic view and incorporating multiple stakeholder perspectives. Accordingly, the thesis draws on a variety of data collection methods in addition to a literature review, including interviews (**Articles I, III**), legal analysis (**Article II**), and document analysis (**Articles I–V**).

The articles encompass single case studies (**II, III**), comparative case studies (**IV**), and interdisciplinary theoretical analyses (**I, V**). The choice of a case study method reflects its strength in enabling an in-depth examination of complex phenomena in real-world settings (Stake, 1995; Yin, 2018). The choice of case studies aligned with the aims and focus of each separate research article. The Estonian entrepreneur account (**I**) was chosen as a unique digital solution in the field of the welfare state. Furthermore, this analysis was complemented by the analysis of the Estonian unemployment insurance system (**II**). This way, the thesis discusses Estonian welfare state design from the perspective of the social security system design as well as the digital welfare state aspects.

Choosing Estonia and Finland as the subjects of the comparative case study (**III**) stemmed from their strong interest in policy experimentation, while demonstrating different outcomes and approaches in the field. Both of these countries have parliamentary democratic systems and are neighbouring countries in Northern Europe, with seemingly similar public administration systems. Thus, the case reveals systemic factors that have enabled the top-down and more widespread policy experimentation in Finland, while in Estonia, experiments have mostly been conducted at the grassroots level of the public sector.

The methodological approach of the thesis articles is presented in Table 1, along with the main research problem, aim, data collection method, level of analysis, and research questions of each article.

Table 1 Methodological approaches of the publications

Article	Focus	Methodology	Data sources	Analytical approach
I	Case study of the Estonian entrepreneur account as a social security solution for atypical workers	Qualitative single case study	Policy documents, labour and entrepreneurship regulations, and 13 semi-structured interviews with policymakers, platform managers, and platform/self-employed workers	In-depth exploration of the efficacy of digital solutions in addressing social security challenges, considering multiple stakeholder perspectives
II	Socio-legal analysis of unemployment insurance schemes for platform workers and the self-employed in Estonia	Case study of the Estonian system; policy and legal analysis with socio-economic contextual overview	Official legal documents and policy papers (e.g., Estonia's Unemployment Insurance Act)	Focused on contextualising unemployment schemes and outcomes for platform workers and self-employed individuals
III	Comparative case study of experimental policymaking in Finland and Estonia	Qualitative comparative case study	66 semi-structured interviews (32 in Estonia, 34 in Finland) with central government officials at various hierarchical levels	Combined (abductive) approaches using MAXQDA for coding
IV	Theoretical analysis of experimental policymaking in tax policy	Comparative theoretical framework	Existing literature on experimental policymaking approaches (e.g., RCTs, policy pilots, and design experiments)	Comparative analysis of the promises and pitfalls of experimental approaches in the context of tax policy
V	Conceptual analysis of digitalisation in social security	Conceptual and scenario-building methodology	Synthesised theoretical perspectives on digitalisation and social security systems	Scenario narratives developed to address uncertainties in digital welfare systems and propose strategic directions for administrations

Article I is an individual case study of the Estonian entrepreneur account as a social security solution for atypical workers. It combines qualitative data analysis (policy documents, Estonian labour and entrepreneurship regulations) with 13 semi-structured interviews conducted from late 2019 to early 2021 with stakeholders associated with the entrepreneur account, including policymakers, platform managers, platform workers, self-employed workers. The methodology was designed to allow for an in-depth exploration of how digital solutions like the entrepreneur account address social security challenges for platform workers. It considers the viewpoints of different stakeholders while highlighting the account's limitations and potential for broader application.

Article II is based on a combination of policy and legal analysis, complemented by a socio-economic contextual overview of unemployment schemes and their outcomes from the perspectives of platform workers and self-employed individuals in Estonia. Official legal documents and policy papers served as the primary data sources for the analysis.

Article III is a qualitative comparative case study on experimental policymaking in Finland and Estonia, based on a total of 66 interviews conducted by the research group on experimental policymaking (32 in Estonia and 34 in Finland). Interviews included officials from central government institutions such as the Government Office, Prime Minister's Office, fiscal and financial policy institutions, and other public organisations. Participants represented different hierarchical levels (top-level, middle-level, and expert-level officials) and perspectives from various ministries and agencies. MAXQDA was used for coding the interview data. First, a theoretical framework was developed based on previous research on temporal timeframes, political and policy cycles, and experimental timeframes. Then, the theoretical framework was compared with the results of the interviews. The article combined deductive (based on the theoretical framework) and inductive (emerging themes from interviews) approaches to data analysis.

Article IV is a theoretical analysis of experimental policymaking approaches in tax policy. It adopts a comparative framework to analyse the promises and pitfalls of experimental approaches in tax policy, specifically focusing on the comparison of RCTs, policy pilots, and design experiments.

Article V is primarily a conceptual work that synthesises theoretical perspectives on the digitalisation of social security. It draws conclusions for social security administrations and proposes ideas for future scenario narratives.

3 Theoretical framework

The thesis begins by outlining the novel issues that arise from digitalisation and the changing nature of work, along with proposed responses for the welfare state. It then examines the digital welfare state approach and the problems stemming from a lack of structural adaptation to these developments. Finally, it explores the role of experimentation as a way of addressing these complexities.

3.1 The digital nature of work and new requirements for the welfare state

In most developed nations, employment has generally occurred in the form of a standard employment relationship (SER), characterised by continuity, full-time work, and a direct employer-employee connection (Schoukens & Barrio, 2017; International Labour Organization, 2016). While structural shifts in the labour market have often come with disruptions, requiring workers to adjust to new realities, the historically evolved contractual and institutional relationships revolving around the SER have provided a framework for addressing sudden risks from the perspectives of workers and society.

The emergence of digital technologies – particularly the rise of digital labour platforms since 2008 – has significantly transformed the nature of work, challenging traditional labour market frameworks based on SER. Multiple forms of non-standard employment (NSE) have emerged, such as platform-mediated self-employment and casual work. In addition to digital technologies and platformisation, the rise of the services sector, globalisation, and the changes in organisational strategies have added to the pressures behind the rise of non-standard employment (International Labour Organization, 2016).

The structural changes associated with digitally enabled labour market shifts can be characterised by three trends: 1) the fragmentation of tasks and the emergence of diverse ways of organising work, such as the atomisation of companies, self-employment, and other atypical types of work (Lane, 2011; International Labour Organization, 2016; de Stefano, 2016); 2) the blurring of boundaries between employment and entrepreneurship alongside the fragmentation of legal work categories (de Stefano, 2016); and 3) the growing prevalence of algorithmic management of work (Huws, 2014; Jarrahi et al., 2021). On the one hand, these developments are characteristic of platform work – a distinct category of digitally mediated labour. Platform workers can be defined as: “persons selected online from a pool of workers through the intermediation of a platform to perform personally on-demand short-term tasks for different persons or companies in exchange for income” (Schoukens et al., 2018, p. 223). Different studies completed over the past ten years have shown that an increasing number of people have engaged in platform work, either on a regular basis or occasionally. For example, in Estonia, Vallistu and Piirits (2021) found that about 7 per cent of the working-age population engages in platform work regularly while almost a quarter have tried it at least once.

At the same time, the platformisation of work has extended these dynamics to more traditional forms of employment, embedding algorithmic management, data-driven control, and rapid feedback mechanisms into mainstream labour practices (Huws et al., 2019). As noted by de Stefano and Aloisi (2019, p. 1) “Naturally, nonetheless, these problems go much beyond platform work and extend to a far vaster area of work that does not fall in the realm of the standard, open-ended, full-time employment relationship (SER).” Similarly, Joyce et al. (2019) explore the social security dynamics of

platform workers, stating that due to combined social protection approaches and diverse contractual arrangements, the most effective policy responses would target the issues of insecure work on a more general level.

This change in the labour market, referred to as “the new era of work,” represents a structural shift rather than a mere technological adjustment, necessitating a fundamental rethinking of social policies and the roles of the welfare state (de Stefano, 2016; Berg, 2015, I, II). More frequent and systematic vulnerabilities, such as income instability, lack of social protection, and limited access to benefits (OECD, 2018) are symptoms of the increasing mismatch between a welfare state designed for the needs of a standard employment relationship and the new era of work. While the topics covered in this thesis are often addressed through the lenses of social policy, social security, or social protection, these traditional categorisations are typically constrained by existing policy frameworks and legal considerations. These shifts present numerous challenges beyond the scope of traditional social protection and welfare systems. For example, the discussion about the classification of workers – whether platform workers fall under the scope of self-employed or employment categories – illustrates how potentially novel categories are discussed within previously established frameworks. What can be considered an extensive digital transformation of work would mean that existing legal frameworks are too constrained to describe the emerging challenges (Cherry, 2016; I, II).

Such approaches often leave limited room for exploring entirely novel perspectives. Therefore, this thesis adopts a broad approach by investigating the concept of the welfare state as a comprehensive framework for analysing the challenges and opportunities of the new era of work from the perspective of public policy. The welfare state has long been understood as a framework through which governments address social risks and provide security to citizens. This thesis adopts the understanding that the welfare state is not a fixed institution but rather a dynamic social relation embedded in the historical and societal context in which it operates. Fuenfschilling and Truffer (2014) frame the state as an “ideal type” where institutional sectors shape society through control structures, actors with power, strategies, authority, and norms. As such, the definition of the welfare state goes beyond mere welfare provision for the poor; it is conceived as a “fundamental dimension of the modern government” (Garland, 2016, p. 2). The new era of work, in combination with the changing demographic situation, has left the European welfare states confronting existential questions about their future (European Commission, 2023).

First, an increasing number of workers are transitioning from “employment” to self-employment, assuming risks traditionally associated with entrepreneurship (Behrendt et al., 2019; Vallas & Schor, 2020). However, under the algorithmic management of digital platforms, solo self-employed workers often bear the risks without corresponding opportunities for entrepreneurial rewards (Dunn, 2020), thus becoming dependent self-employed workers (Petropoulos et al., 2019). Platform workers, along with some self-employed workers, might not only be less protected but might fall entirely outside the scope of traditional social protection systems (de Stefano & Aloisi, 2019). Second, the irregularity of work schedules and the mixing of legal forms complicate the determination of legal thresholds and eligibility criteria for accessing benefits or services, creating gaps in coverage (Behrendt et al., 2019). Lastly, governments face novel challenges arising from algorithmic management and the platformisation of work (Rosenblat & Stark, 2016). These include addressing unemployment among self-employed individuals whose primary income originates from labour platforms, ensuring transparency

in algorithmic decision-making, and navigating the complexities of global digital platforms that mediate work without a local physical presence.

Scholars and analysts have put forth competing and alternative propositions on how states could fundamentally rethink welfare policies to address the challenges of the new era of work. For example, making legislative changes to worker classifications, such as creating intermediate legal categories for the economically dependent self-employed (Behrendt et al., 2019; De Stefano, 2016). Other suggestions include revising eligibility criteria to make benefit and service thresholds more flexible (Behrendt et al., 2019) or moving towards a universalist (Behrendt & Nguyen, 2018) or a human rights-based approach (Alfers et al., 2017; Razavi et al., 2022). More radical alternatives propose shifting from employment-related schemes to collective insurance models (Eichhorst et al., 2020) or implementing universal basic income as a solution to address inequalities and administrative burdens (Balliester & Elsheikhi, 2018; Joyce et al., 2019; Razavi et al., 2022). These propositions require moving beyond piecemeal reforms or viewing technology as a cure-all (Grosh et al., 2022). Structural changes to cope with the new era of work necessitate a departure from the traditional work-related social protection model based on the SER, which includes revising contractual arrangements or eliminating less expensive contractual options that benefit employers (Aloisi, 2022). Such changes would also mean redistributing responsibility between workers and employers (Behrendt et al., 2019) and expanding protection beyond specific employment contracts (Kuddo et al., 2015). Adopting a broader structural framework, such as the social protection floor anchored in universality, adequacy, portability, transparency, and risk-sharing, would also require rethinking social rights and the financing mechanisms of the welfare state.

Although these propositions emerged relatively early after the platformisation of work highlighted significant structural shifts, they have not gained much traction in policy discussions or implementation. Despite the evident need for comprehensive reform, these ideas remain largely underexplored or sidelined (Behrendt et al., 2019).

3.2 Digitalisation and the new trajectories of the welfare state

The aim of this section is to show that despite the early recognition of the structural shifts brought about by the digital transformation of work, efforts to advance these proposals have largely stalled, leaving structural reforms underexplored or sidelined (Alston, 2019; Behrendt et al., 2019). Instead, governments have predominantly turned to digital technologies to reinforce existing welfare state institutions, framing the digital welfare state as more efficient and personal than the previous non-digital ones (Alston, 2019; Lee-Archer, 2023). The notion of the digital welfare state gained prominence with Philip Alston's report on human rights for the United Nations (2019) where he warned humanity against "stumbling zombie-like into a digital welfare dystopia" (p. 1). Initially, the term "digital welfare state" was used by scholars in relation to data, e.g., when referring to data-driven social policy (Van Zoonen, 2020) and dataism, which is the belief that data can be used to make the best decisions regarding the welfare of citizens (Pedersen, 2019). Although van Gerven (2022) asserts that the debate is "conceptually fuzzy" (p. 251), over time, the digital welfare state has started to be associated with a broad digital technology development used for shaping the social and administrative functions of the state. As defined by van Toorn et al. (2024): "*Broadly speaking, the digital welfare state refers to a particular state formation in which wide-ranging digital technologies, including automated decision-making systems, algorithms, big data analytics and artificial intelligence (AI), are integrated into the administration and*

provision of welfare services by government agencies, which, in some cases, are then delivered through a complex set of contracted providers.” (p. 508)

Positioned at the intersection of two social science disciplines – digitalisation and welfare states – the digital welfare state poses a challenge for researchers as a rapidly evolving interdisciplinary field (Toorn et al., 2024). Multiple viewpoints can be adopted when discussing the digital welfare state.

On the one hand, digitalisation has now allowed governments to design their welfare systems to become more human-centred by offering tailored, adapted, and more personalised services and interventions, often associated with efficiency gains (Lee-Archer, 2023). New digital solutions continue to emerge to tackle social security challenges (I, V). From the perspective of social security, it has allowed administrations to “record through digital data, a living history of people’s experiences of social risks” (Lee-Archer, 2023, p. 4). This includes a vision for a lifespan approach, more proactive services, and an invisible state where citizens’ needs are anticipated and addressed seamlessly, minimising bureaucratic friction and maximising accessibility, equity, and responsiveness in welfare provision. The use of digital technologies by governments, such as government portals, digital identities, smart contracts, distributed ledger systems, big data, blockchain technologies, AI technologies, the Internet of Things (IoT), roboadvisors, intelligent assistants, etc., has the potential to “revolutionize the government” (Engin & Treleaven, 2018, p. 448).

The prerequisites of these types of solutions are the implementation of “once-only” principles, “one-stop-shop” service delivery portals, and a heavy reliance on data-based infrastructures (Peña-López, 2020). Other types of digital solutions serve to identify the risk of fraud (van Zoonen, 2020). A new level of personalisation is potentially on the horizon thanks to the continuous growth of artificial intelligence solutions.

Finally, an advantage of digitalisation is seen in pre-emptively shaping the behavioural aspects of citizens with data-based solutions (Engin & Treleaven, 2018). For example, such approaches were used during the COVID-19 pandemic through contact-tracing applications, text messages to warn about distance requirements, and digital identity verifications (Whitelaw et al., 2020). Additionally, digital solutions hold significant promise for influencing citizen behaviour in the field of pension savings or the gamification of healthy behaviour.

Despite the possibilities of using digitalisation as a means to shape modern welfare policies, the emerging “digital welfare state” has received overwhelming criticism from scholars concerning the efforts of embedding digital solutions into social and welfare policies, claiming that the current digitalisation trends are insufficient in addressing systemic challenges, while the accelerating data transition in social policy entails considerable risks (see, for example, Alston, 2019; Zuboff, 2023; Dencik et al., 2019). As Engin & Treleaven (2018) note regarding the use of digital technologies in government:

“[...] the issues around the use of private citizen data, fairness of algorithmic decision-making practices, transparency of public operations, the accountability for any damages caused by computer-assisted processes and the natural threat of potential job-losses are all extremely valid and timely considerations.” (p. 458)

The most fundamental data-related issues have emerged regarding the question of privacy and control. Countries have started to experiment with data as an instrument for social policy in a way that goes under the radar of democratic decision making (van Zoonen, 2020). The high level of private sector involvement in developing much of the digital welfare state infrastructure is seen as highly problematic for prioritising profit

over social equity and locking the public sector in with private sector solutions (Alston, 2019), as well as raising concerns about the emergence of the “surveillance welfare state” (Fenger & Simonse, 2024).

Another set of issues revolves around the data-deterministic approach of the digital welfare state in the context of incumbent or path-dependent data approaches. Reliance on outdated approaches has hindered the transition towards real-time data and the various data sources needed to really move towards a human-centred approach, as service delivery remains fragmented and data interoperability is low (Lukersmith et al., 2016; Lee-Archer, 2023). This means that while there are claims that public institutions over-use data, they also struggle to leverage data optimally due to technical and structural limitations, underutilising the potential of data for genuine welfare improvement.

Furthermore, the risk of algorithmic biases and the lack of transparency in data-based decisions are considered major challenges for governments (Henman, 2020; Dencik et al., 2019). There are cases from multiple countries that show how automated decision-making (ADM) and datafication have led to the miscalculation of benefits or wrongful accusations of fraud (see, Eubanks, 2018 for the USA cases; Hadwick & Lan 2021 for the Dutch childcare scandal).

The “digital-only” solutions may not meet the expectations or needs of the citizens due to their channel preferences and inability to participate in the digital realm because of connectivity or digital ability issues (Welby & Tan, 2022). Thus, digital services would require a more thoughtfully designed approach, utilising design thinking and service design (Mergel, 2022).

To sum up, while digital welfare tools hold potential for enhancing efficiency, accessibility, and personalisation, critics warn that they create new forms of government control and limits to citizen activity (Lindgren et al., 2019; Dencik, 2022), risking the creation of “digital poorhouse” (Eubanks, 2019). “Systems of social protection and assistance are increasingly driven by digital data and technologies that are used to automate, predict, identify, surveil, detect, target and punish” (Alston, 2019). Thus, they risk exacerbating inequalities and reinforcing existing power imbalances if not carefully governed (Dunleavy & Margetts, 2023).

Most importantly, the novel digital solutions do not seem to respond to the transformative pressures of the welfare state, instead reinforcing or merely reacting to previously discussed emerging challenges (Alston, 2019; II, V). Digitalisation holds the potential to enable governments to come up with entirely novel ways of structuring the welfare system (II, V) and to “design new disruptive digital systems” (Campbell & Hanschitz, 2018, p. 2). These include the shift towards account-based and portable social security systems (II, Freudenberg, 2019) accounting for different types of income data. Importantly, digitalisation also facilitates novel ways of funding through digital record keeping and online tax account systems (Casey & Castro, 2015). Yet, these solutions have not led to a structural shift in the welfare state (I).

Despite this overwhelming criticism, it can be assumed that governments will continue to use digitalisation and datafication approaches and render their welfare systems increasingly digital. Along with the rest of the digital turn trajectory, the digital welfare state is expected to become the new normal. This clearly indicates a need to broaden the technology-normative perception when designing and implementing digital welfare state solutions. It is essential to consider the effects beyond mere efficiency gains from digitalisation and to achieve a more balanced development from society’s viewpoint (I, V).

One of the reasons for these shortcomings is that the sociotechnical nature of digitalisation is overlooked, exacerbating the policy implementation gap (van Gerven, forthcoming). Technological progress does not occur in isolation, it is inherently intertwined with ongoing societal developments (Mazmanian, et al., 2014; Jasanoff & Kim, 2019; Orlikowski, 1992; Johnson & Acemoglu, 2023). Understanding the interaction and co-evolution of both would have to be a requirement in designing novel digital welfare approaches.

3.3 Experimental governance as a way towards novel reconfigurations of digital welfare states

Although calls for a “systemic” change of the welfare state are gaining ground, practical pathways toward more balanced social policies and welfare state configurations remain underexplored. This thesis explores experimentation as one such pathway that has been previously suggested by scholars.

3.3.1 What is policy experimentation?

Policy experimentation refers to policy-relevant tests conducted by government organisations to generate evidence on the impacts of new policy solutions and inform decision-making (Bravo-Biosca, 2020; Heldeweg, 2015; McFadgen & Huitema, 2017; Nair & Howlett, 2016). Experiments are temporary and reversible interventions, tested within restricted environments defined by time, space, or scope (Heldeweg, 2015; McFadgen & Huitema, 2017). Their goal is structured learning – generating data and insights about both intended and unintended policy impacts (Haynes et al., 2012; Bravo-Biosca, 2020). In general, experimental designs can be divided into three ideal groups: randomised controlled trials (RCTs), non-randomised policy pilots, and design experiments (IV).

An experiment progresses through iterative cycles of design, real-world testing, and redesign, ensuring adaptability and responsiveness (Stoker & John, 2009; van der Heijden & Hong, 2021). Some types of experiments, such as some policy pilots, are grounded in design thinking, which emphasises systems thinking, user centism, creativity, and continuous recalibration (Clarke & Craft, 2019; Ansell & Bartenberger, 2016). In contrast, experiments like RCTs follow a more structured approach, focusing on controlled conditions to understand the causal conditions of the project, policy, or program tested (Bravo-Biosca, 2020).

Policy experiments provide a mechanism for generating knowledge that might otherwise remain inaccessible. They enable policymakers to test proposed policies on a smaller scale before broader implementation, reducing informational asymmetries and refining policy designs (Bailey et al., 2017). This approach facilitates evidence-informed policymaking by identifying intended impacts, unintended consequences, and stakeholder responses (Sanderson, 2002; Ranchordas, 2013).

Experiments are increasingly viewed as an approach for introducing and governing change:

“The idea behind experiments in a real-world context is that they can provide a clear manifestation of a possible future, an opportunity to explore alternative trajectories, and an arena for different actors to share problem definitions and different perspectives, and, most importantly, to develop practical actions that can be achieved through learning-by-doing.” (Eneqvist, 2022, p. 16).

The increasing complexity and uncertainty of contemporary challenges – ranging from technological disruption to societal transformation – has elevated the need for experimentation as a means to navigate and address novel solutions (Rangoni & Zeitlin, 2021; Voß & Simons, 2018). Experimental approaches are claimed to be well-suited for understanding complex systems where actors, institutions, and policies continuously evolve and interact (Bravo-Biosca, 2020). Moreover, they are seen as critical in responding to disruptive technological and societal developments, creating momentum for a broader change (Berkhout et al., 2010). Beyond informing individual policy decisions, experiments have the potential to facilitate broader institutional and social change. They act as catalysts for long-term systemic transitions by aligning emerging ideas, practices, technologies, and social relations into new socio-technical configurations that challenge and potentially transform existing regimes (Fuenfschilling et al., 2019). This alignment process is critical for fostering institutional learning and building capacity within governance systems. Furthermore, experiments contribute to the development of novel institutional arrangements and governance models, offering pathways for creating more adaptive and resilient systems (Borrás & Serger, 2022).

3.3.2 Limitations of policy experiments

Despite their promises, policy experiments have also faced significant criticism. One of the most frequently cited issues is the restricted scale and scope of experimentation. Typically conducted as small-scale, time-bound initiatives, experiments are designed to test specific interventions in controlled or semi-controlled conditions. While these localised efforts provide valuable insights, they often fail to capture the broader systemic impacts that emerge during large-scale implementation (Bauknecht et al., 2020; Werner & Riedl, 2019). This limitation is particularly relevant in welfare state reforms, where structural interdependencies and multi-level governance require an understanding of cascading effects across interconnected systems.

Another critical limitation is the temporal nature of policy experiments. Short-term initiatives often cannot capture the long-term dynamics of interventions, such as delayed effects, unintended consequences, or shifts in stakeholder behaviour. These challenges are particularly pronounced in areas like taxation or welfare reform, where cumulative impacts over extended periods are crucial for evaluating the success of a policy (Burtless, 1995). In the digital era, where rapid technological developments interact with slower-moving institutional frameworks, this temporal mismatch can undermine the validity and applicability of experimental findings.

Policy-making is often shaped by the logic of electoral cycles, accountability demands, and the need for immediate results. This contrasts sharply with the open-ended, iterative nature of experimentation, which relies on uncertainty, adaptability, and ongoing refinement (Voß & Simons, 2018). The “political dynamics” surrounding an experiment may determine its fate, including who reaps the benefits and who bears the costs (Huitema et al., 2018). Limited resources, ideological conflicts, and competing priorities exacerbate these challenges, making it difficult to secure the institutional commitment necessary for meaningful experimentation (Bravo-Biosca, 2020). For welfare state reforms, this tension is particularly problematic as political incentives often favour short-term wins over systemic, long-term solutions.

A further critique relates to the vagueness of how experiments contribute to broader transitions and transformations in practice (De Bruijne et al., 2010; Ghosh et al., 2021). While experiments may successfully demonstrate specific innovations, their ability to

catalyse large-scale structural adaptation remains uncertain. This limitation is especially relevant for issues within the welfare state, as such issues are often characterised as “wicked problems” (Rittel & Weber, 1973) – complex, interdependent challenges that resist definitive solutions. The inherent unsolvability of such problems raises questions about the extent to which experimentation can meaningfully address them.

In the context of the digital welfare state, these limitations are further magnified by the rapid pace of technological change, which can render experimental insights obsolete before they are scaled or institutionalised. Moreover, digitalisation introduces its own set of “wicked” challenges, such as ensuring data security, balancing equity with efficiency, and addressing algorithmic biases – all of which require systemic and adaptive responses that go beyond the scope of isolated experiments.

3.3.3 Experimental governance for the welfare state

One way to address the criticisms levelled at policy experiments is to shift the focus from individual experiments to the broader concept of experimental governance. Eneqvist (2022) argues that experiments often target large (sustainable) transformations and should therefore be conceptualised not as isolated events with limited timeframes but as a governance approach. Similarly, Kivimaa et al. (2017) emphasise the potential of experiments to drive regime change, suggesting that meaningful adaptation comes not from merely scaling up unique experiments but from creating a network of experiments that can shift systems toward new dominant designs. This aligns with the idea of transition governance, which emphasises the importance of long-term sustainable outcomes achieved by fostering short-term innovation at societal and not merely policy levels (Loorbach, 2009).

In the context of the digital welfare state, experimental governance provides a framework for addressing the challenges posed by the changing nature of work and rapid technological developments. As digitalisation disrupts traditional employment structures and introduces new socio-technical configurations, welfare systems must adapt to include platform workers, self-employed individuals, and other non-standard labour forms. Experimental governance could enable policymakers to test and refine inclusive solutions while addressing systemic inequities.

However, to achieve systemic change, experimental governance should extend beyond the execution of isolated experiments and represent a broader framework of interconnected processes. Eneqvist (2022, p. 38) describes it as embracing “collaborations, experiments, and partnerships that create hybrid organizations informed by competing logics and informal shadow structures.” This iterative, networked, and systemic practice (Laakso et al., 2017; Sabel & Zeitlin, 2012) could be applied to address the complexity of the digital welfare state, where technological, institutional, and social innovations must align. By engaging in iterative cycles, policymakers can refine socio-technical solutions and foster adaptability to address emerging challenges (Fuenfschilling et al., 2019), such as the need for dynamic unemployment systems or portable social security mechanisms.

The participatory dimension of experimental governance is critical for ensuring that welfare solutions are not only technologically viable but also socially inclusive and legitimate (Laakso et al., 2017; Loorbach, 2009). This is especially relevant in the context of digital welfare, where the risk of marginalising vulnerable groups is significant. These groups could include the digitally disadvantaged or groups historically disqualified from standard welfare state systems. By engaging diverse stakeholders in the design,

implementation, and evaluation of experiments, participatory processes foster co-creation, which balances competing interests and ensures equitable outcomes (Ansell & Bartenberger, 2016). Governance, in this sense, reflects the patterns of interaction among social, political, and administrative actors (Kooiman, 2003). Lange et al. (2013) argue for a multidimensional governance framework that integrates political processes (politics), institutional structures (polity), and substantive policy content (policy).

Research on sustainability transformations offers valuable insights for understanding the potential of experimental governance in welfare systems for systemic change (see, for example, Grin et al., 2010; Elzen et al., 2004; Geels, 2011). Strategic niche management, for example, has shown that experiments can serve as protected spaces for testing and learning about new technologies while fostering their adoption (Kemp et al., 1998). However, achieving meaningful change requires experimentation not only within niches but also across broader socio-technical regimes and landscapes (Fuenfschilling & Truffer, 2014). For digital welfare systems, this might involve testing innovations in social security delivery while also rethinking underlying institutional frameworks and data governance.

Building on this, Kivimaa et al. (2017) identify four purposes of experiments in societal transitions: niche creation, market creation, spatial development, and societal problem-solving. In the case of digital welfare state systems, experiments can drive innovation in social security models, promote interoperability across systems, and address equity issues. Moreover, Weber and Rohracher (2012) identify four transformational system failures – lack of directionality, misaligned demand articulation, inadequate policy coordination, and reflexivity failure – which experimental governance must address to create meaningful transitions in welfare systems.

Finally, the co-evolutionary nature of experimental interventions and their surrounding systems is particularly relevant for digital welfare states. Experiments interact with and shape broader socio-technical dynamics, making it challenging to isolate their effects. Instead, the success of experimental governance in this context should be evaluated based on its ability to foster stakeholder collaboration, catalyse systemic change, and address structural challenges, such as the inclusion of non-standard workers or the development of ethical data practices (Geels, 2002; Voß & Simons, 2018).

4 Key results and discussion

In the introductory chapter, the author pointed out that it is equally important to consider and understand the new demands on governments and welfare systems emerging from the digitalisation of work (**Articles I, II, V**); to understand the role of digital welfare states in responding to these novel challenges (**Articles I, II, V**); and to grasp the logics, opportunities, and pitfalls of (digital welfare state) experimentation as a means of responding to such novel challenges (**Articles I, III; IV**). The thesis, therefore, covers the field of inquiry holistically by discussing the welfare state problematic (the problem space), exploring potential solutions within the welfare state (the solution space), and providing insights on experimentation as a potential approach (the method). The key findings of the thesis are discussed according to the three research questions posed in the first chapter.

What new demands are emerging for the welfare state due to digitalisation-driven changes in the labour market?

Article I examines the Estonian entrepreneur account, a pioneering initiative that supports solo self-employed individuals, including platform workers. One private Estonian bank provides this as a regular bank account, automatically taxing entrepreneurial income. Tax payments contribute toward gaining social security benefits, such as health and pension insurance. While the entrepreneur account can be considered innovative among the calls made to governments to leverage their data and digital tools (see, for example, Behrendt et al., 2019; Freudenberg, 2019), it provides a more in-depth understanding of how critical mismatches between the design of the social security system and the realities of non-standard work unfold. For example, account owners must meet specific thresholds to maintain continuous health insurance, requiring regular contributions while the irregular income patterns common among platform workers and solo self-employed often result in insufficient contributions (Schoukens, 2020; Pesole et al., 2018; I). Similarly to many European social security systems for the solo self-employed (see Matsaganis et al., 2016), the entrepreneur account system leaves many solo self-employed individuals without effective coverage, rendering it effectively voluntary for its participants.

Article II builds on these insights by examining the options for solo self-employed individuals to access unemployment insurance within the Estonian system. Historically, the unemployment system in Estonia was designed with traditional employees in focus. However, as the findings emphasise, solo self-employed individuals also face significant external risks of losing their income. This became especially evident during the COVID-19 crisis where external circumstances left a substantial number of self-employed people without work (**II**; Schoukens & Weber, 2020). For standard employees with traditional contracts, the system is straightforward. However, for solo self-employed workers, the thresholds or requirements of formal employment make it very complicated, if not impossible, to secure against unemployment (**II**).

These two cases reveal stark discrepancies between the “old” (existing) system and the expectations of the new era of work. First, the tax and benefit thresholds designed for standard employees fail to account for the irregular income patterns of the solo self-employed. **Article I** illustrates this by showing why account holders fail to meet the minimum thresholds for health insurance due to their vulnerable economic position.

Among the interviewees, an event was described in which an account holder lost their access to health insurance at a crucial time due to a late payment by the client. This anecdotal example shows how the format of the entrepreneur account can become an unreliable solution for solo self-employed individuals seeking to secure their access to health insurance. Another illustrative aspect is that the average monthly income of account users is often below the required minimum, leaving them exposed to risks of inadequate social protection, in line with the findings of other studies in the EU (Joyce et al., 2019; Huws et al., 2019).

A second key finding, particularly evident in **Article II**, concerns the dual division between employment and entrepreneurship in existing legal frameworks. The entrepreneur account places users in a legal limbo, without clear classification as either employees or traditional self-employed workers, thus leaving them solely responsible for their working conditions (e.g., sick leave, working hours, etc.) (I). Additionally, there are multiple legal categories the self-employed can use. For example, they can register their own company (OÜ) and be employed by it, they can register as a sole proprietor (FIE), or opt for an independent contractor status via a special contract form (contract under the Law of Obligations Act (VÕS)). Each of these legal forms implies a different tax obligation, potentially varying levels of protection, and ultimately different net earnings (II). In many cases, such as platform-mediated work, the digital platform defines the permissible contractual arrangements. Most Estonian digital labour platforms, for instance, engage only with private companies as service providers (I, II). Consequently, it is up to each platform worker to make provisions for their social security and working conditions. The Estonian context highlights how the solo self-employed must navigate multiple legal categories, each with its own rules and opportunities. **Articles I and II** demonstrate how it shifts the responsibility as well as risks to the workers themselves. Self-employed individuals must be knowledgeable of their social security options and the long-term implications of their choices. As the literature suggests, self-employment is often a choice for lower-income groups to benefit from reduced tax burdens (Dunn, 2020). At the same time, these groups of self-employed people are also economically more dependent (on one client or platform) which in itself is more correlated with lower social protection coverage (Joyce et al., 2019). This reveals structural patterns of vulnerability among groups of self-employed individuals.

The findings also emphasise the broader societal implications of excluding these workers from comprehensive social security systems. Minimising social security contributions for short-term economic benefits undermines the workers' long-term security and increases the burden on the welfare state. The broader welfare system ultimately bears the costs of exclusion when individuals lack access to unemployment insurance, pensions, or health insurance, redirecting resources from other critical areas. Demographic shifts will further exacerbate this issue in the future, as ageing populations increasingly rely on contributory employment-based systems for sufficient retirement income. Without reform, the exclusion of platform workers and the solo self-employed risks perpetuating inequalities, undermining social cohesion, and imposing unsustainable costs on welfare systems in the long run (I, V, European Commission, 2023).

These cases underline the need for a fundamental redesign of welfare systems to address the mismatch between traditional frameworks and the demands of digital labour markets. **Articles I and II** highlight the importance of greater flexibility and inclusivity in social security systems to accommodate diverse work forms. **Article V**, while theoretical, expands on this by suggesting a shift toward more universal, human rights-based

approaches, which could better address the complexities of platform work and self-employment. Furthermore, the articles highlight the importance of shifting the mindset and acknowledging that self-employment is not always a voluntary entrepreneurial position, while stressing the importance of educating workers about the long-term costs of inadequate contributions (II, V).

Ultimately, it is necessary to make choices about long-term welfare priorities now. Acknowledging the systemic costs of excluding non-standard workers is crucial to designing a welfare system that balances immediate economic realities with long-term sustainability.

Which considerations must be taken into account to reconfigure the digital welfare state to achieve a more balanced and inclusive approach that addresses not only technological opportunities but also the pressures of the new era of work?

Articles I and V discuss how governments are increasingly using data and digital tools to reshape welfare states, often leveraging technological opportunities to modernise service delivery. The entrepreneur account discussed in **Article I** emerged from the technological possibility of automated data exchange between the tax authority and a private bank. Similarly, global examples of the use of digital technologies by governments show that the increasing reliance on such tools in welfare provision can now be considered the new normal (e.g., Mattfolk & Emfeldt, 2019). However, the Estonian case highlights significant shortcomings in the conceptualisation and implementation of these systems, which frequently fail to adequately address the new requirements outlined in the previous section.

Digitalisation is not merely about introducing e-government tools but involves a broader opportunity for a systemic change in how welfare is designed, administered, and delivered (I, V, Dunleavy & Margetts, 2023, Lember et al., 2018). This perspective aligns with Alston's (2019) argument that the digitisation of the welfare state should target structural changes rather than replicate existing systems in a more digital or data-centric form. **Article I** demonstrates how a narrow focus on technical feasibility shaped the entrepreneur account, rather than addressing the systemic challenges of non-standard employment. While the automated taxation and health insurance mechanisms represented an administrative breakthrough, they failed to accommodate the irregular income patterns of platform workers and solo self-employed individuals, effectively excluding many from continuous coverage. This demonstrates that technological solutions, no matter how innovative, cannot substitute for structural reforms that align welfare systems with the realities of the digital era (I, V).

The role of private companies in digital welfare systems also requires careful consideration. **Article I** demonstrates that a private bank implemented the Estonian entrepreneur account as a commercial product, integrating diverse data sources like tax records, employment data, and social security contributions. While this collaboration facilitated a technically advanced solution, it centralised control among a limited number of actors and sidelined broader societal voices. Dufva and Dufva (2019) caution that platform-led models run the risk of consolidating power among technologists and entrepreneurs, often excluding marginalised groups. **Article V** highlights that governments' digitisation efforts are occurring amidst a broader wave of digital transformation and evolving digital-human interactions, which shape citizens' expectations of novel solutions. The article warns that, over time, private solutions might

compete with and even outperform state-provided welfare services (Mattfolk & Emfeldt, 2019). Such private-sector dominance may undermine the long-term sustainability of state welfare systems, exacerbate inequality, and accelerate welfare system privatisation. Future designs of digital welfare systems must thus consider the interests of diverse stakeholders to prevent the potential deepening of power imbalances. **Articles I** and **V** emphasise the importance of co-production in digital welfare initiatives, where vulnerable populations and other stakeholders actively participate in shaping policy design and implementation.

Article I highlights how legacy systems, such as Estonia's unemployment insurance framework, have become so complex and path-dependent that introducing meaningful reforms presents significant challenges. The findings reveal that the implementation of digital tools often occurs within existing institutional logic, potentially reinforcing outdated frameworks instead of addressing the structural inequities of platformised and fragmented labour markets.

To achieve a more balanced and inclusive digital welfare state, it is essential to assess social impacts before implementing lasting changes. **Articles I** and **V** advocate for iterative and experimental approaches that allow policymakers to test and refine digital welfare initiatives, as discussed in the next section.

How can experimental governance serve as an analytical and practical framework for adapting the (digital) welfare state to the evolving demands of the new era of work?

Policy experimentation has been increasingly proposed as a way to address complex societal challenges, including those posed by the digitalisation of work. However, its potential must be critically assessed, particularly in terms of how and under what conditions experimentation can drive systemic change in welfare systems adapting to the demands of the new era of work. Drawing on findings from **Articles I, III, IV, and V**, this section focusses on (some of the) key aspects that need to be considered for experimentation to work towards adaptive digital welfare state policies.

A key finding across the articles is the necessity of collaborative and co-creative approaches to ensure the systemic impact of experimentation. **Article I** highlights how siloed decision-making processes and technocratic priorities shaped the Estonian entrepreneur account, excluding platform workers and solo self-employed individuals whose needs the system was meant to address. Without an experimental phase or input from diverse stakeholders, the initiative failed to effectively tackle the structural challenges of non-standard employment. **Article III** reinforces this point by examining the Finnish basic income experiment, where the limited inclusion of political actors and stakeholder perspectives contributed to the lack of continuation beyond the initial two-year trial.

As the findings show, experimentation that excludes marginalised groups and alternative perspectives risks perpetuating existing inequalities instead of addressing them.

Collaborative and participatory approaches are thus crucial for the effectiveness and legitimacy of experimental governance. **Article V** underscores the importance of participatory governance frameworks that balance technological efficiency with socio-ethical considerations. Participatory visioning methods and understanding alternative scenarios can help align experiments with long-term societal goals (Kivimaa et al., 2017; Jasanoff & Kim, 2019). **Articles II** and **V** also point to the importance of

integrating diverse perspectives into agenda-setting processes to ensure that experiments address real-world complexities rather than narrow policy objectives. Eneqvist (2022) supports this view, emphasising the need for informal collaborations that bridge divides between public and private sectors, as well as between technocratic and participatory approaches.

Another issue arising from the findings is the inherently political nature of experimentation. While often framed as a neutral research activity, experimental initiatives are deeply embedded in political dynamics and shaped by competing interests, value conflicts, and institutional logics (III; Checkland et al., 2023). **Article III** illustrates the tension between short-term political pressures, such as electoral cycles and public opinion, and the long-term goals necessary for systemic change. Policymakers may prioritise experiments that promise quick, visible results, thereby limiting their scope to incremental adjustments rather than addressing deeper structural challenges (Voß & Simons, 2018). In the worst case, these pressures can discourage experimentation altogether, which is seen in politically sensitive areas like welfare reform. The political dimension can also influence the choice of the experimental design, depending on the role and desired outcome of the exercise (III, IV). RCTs could be employed to assert some specific causality and test out an expected outcome while policy pilots can work towards finding solutions (IV).

The political dimension of experimentation ties closely to legitimacy. **Articles I and V** emphasise the need for embedding experimental outcomes into governance frameworks that are transparent, participatory, and aligned with societal values. Legitimacy also depends on addressing institutional barriers and ensuring that experiments foster trust and accountability. Ghosh et al. (2021) highlight that legitimacy requires the systematic evaluation of experiments and their alignment with transformative societal goals. Similarly, Weber and Rohrer (2012) identify political and reflexivity failures as critical barriers that experimental governance must address.

Finally, the findings stress the need for institutional adaptation to support experimental governance in the digital era. **Articles I and V** argue that digitalisation requires institutions to develop new capabilities, including the ability to integrate experimental insights into long-term policymaking and to foster a culture of learning and reflexivity. Ghosh et al. (2021) call for an explicit experimental culture that leverages evaluation practices to ensure experiments are transformative.

The new demands for the welfare state are primarily explored in the findings of **Articles I and II**, which present case studies of the Estonian entrepreneur account and an in-depth analysis of the Estonian unemployment insurance system. Both examine the Estonian social security framework through the lens of platform workers and the self-employed. Across **Articles I, II, and V**, the findings illustrate how digital technologies exert significant pressure on welfare states to adapt to new labour market realities. Social protection systems have traditionally relied on stable, long-term employer-employee relationships. However, the proliferation of non-standard work forms encouraging self-employment, disrupts these foundational assumptions and exposes gaps in social protection systems.

5 Avenues for further research

The thesis highlights several key results that warrant further investigation. First, it demonstrates how the current trajectory of digital welfare state development risks deepening structural inequalities, particularly for vulnerable groups such as platform workers and the solo self-employed. Despite the promise of digital tools like social security accounts, these innovations often fail to achieve systemic change due to their limited focus on technical feasibility rather than addressing broader structural challenges. Secondly, research reveals that experimental governance offers potential for developing more responsive and adaptive welfare policies. However, its success heavily depends on political timeframes, institutional settings, and the involvement of diverse stakeholders. Private digital platforms increasingly shape welfare service delivery, raising critical questions about public accountability, control over data, and the role of public-private partnerships in shaping the future of welfare systems.

Several important topics emerged while writing the introduction of the thesis, each deserving further exploration. First, the legitimacy of the experimental policymaking process and experimental outcomes deserve further research. While the public sector is under pressure to adapt to increasingly complex environments, the trend of undermining democratic decision-making processes has been a concern for scientists and policy analysts over the past decade. Digital welfare state reforms have mostly been driven by technocratic actors who have faced scrutiny from populist movements in recent years and been subject to low public trust (Esmark, 2021). Future studies could investigate which types of experimental set-ups (co-creative or expert-led) lead to higher levels of legitimacy and the eventual scaling up of experiment results.

Secondly, experimental governance and long-term systemic change in the field of digital welfare policies need more attention. Laakso et al. (2017) argue that for the systemic effect of experimentation to occur, several smaller scale experiments or multiple parallel processes that leverage opportunities for change to shift the wider focus should take place. Future studies could examine which kinds of experimental approaches – and the more specific mechanisms of experimental governance – produce long-term transitional and transformative changes within the welfare state design. This stream of thought has been established within the socio-technical transitions studies (see, for example, Schot & Kanger, 2018). Future analyses could examine the socio-technical nature of digital welfare states and whether lessons learned from experiments in the field of transition studies could also apply to social challenges related to the (digital) future of work and labour markets (van Gerven et al., forthcoming).

Finally, and closely tied to the previous themes is the question of anticipating and envisioning the future as part of the experimental process. While experiments are said to help governments anticipate change, the specific mechanisms by which future scenarios are developed and integrated into the experimental process and design needs to be studied. Shedding light on these processes would also help to answer some crucial questions on the agenda-setting mechanisms of experimentation and the agency of participants. One way or the other, the question intersects with the inherently political nature of experiments as the choice of a long-term agenda is also a political question.

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Abstract

Reimagining the Digital Welfare State through Experimental Governance: Adapting to the New Era of Work

The rapid evolution of the labour market, driven by digital technologies, has introduced profound shifts in employment structures, work organisation, and social protection systems. These transformations raise pressing questions about how governments should adapt their welfare state frameworks to meet the evolving demands of what can be called the new era of work. While the concept of the digital welfare state has emerged as a response to these changes, current approaches often focus on digitising existing approaches rather than addressing the novel structural needs. This thesis explores the role of policy experimentation and experimental governance as a potential approach to reimagining and steering digital welfare policies towards a more favourable trajectory.

The research is motivated by a critical gap in existing literature: while much has been written about the digitalisation of welfare systems and the rise of experimental policymaking, little attention has been paid to how experimentation can serve as a governance tool for addressing systemic challenges in increasingly digital welfare states. The thesis seeks to answer three core research questions: (1) What new demands are emerging for the welfare state due to digitalisation-driven changes in the labour market? (2) How should the digital welfare state be reconfigured to address both technological opportunities and the pressures of the new era of work? (3) How can experimental governance serve as an analytical and practical framework for adapting welfare states to these evolving demands?

To address these questions, the thesis employs an interdisciplinary and qualitative research approach, incorporating case studies, comparative analysis, and conceptual exploration. The empirical work is based on case studies from Estonia and Finland, examining digital welfare innovations like the entrepreneur account solution in Estonia and policy experimentation practices. The research draws on multiple data sources, including semi-structured interviews with policymakers and experts, policy document analysis, and legal assessments of social security mechanisms.

The key findings of this research first illustrate the limitations of current digital welfare state approaches, which often reinforce existing structural barriers rather than fostering systemic adaptation. Case studies of Estonia's entrepreneur account and unemployment insurance system highlight how the current social security approach in combination with digital solutions may be promising in theory but fails to account for the realities of non-standard work, leading to unintended gaps in social protection. The thesis argues that a more fundamental reconfiguration of welfare policies is necessary – one that integrates the evolving nature of work with flexible and inclusive welfare models.

A central contribution of this thesis is its examination of experimental governance as a strategy for addressing these challenges. Policy experimentation has gained traction as a method for testing novel policy solutions under controlled conditions, yet its role in welfare policy adaptation remains underexplored. The research findings suggest that experimental governance, if designed with inclusivity and long-term institutional learning in mind, can help welfare states become more responsive to labour market transformations. However, challenges such as political timeframes, institutional inertia, and the dominance of short-term efficiency goals often hinder the effectiveness of experiments in facilitating meaningful reform.

The thesis concludes that while digital technologies present new opportunities for welfare state innovation, they must be coupled with adaptive governance mechanisms that allow for iterative learning and systemic change. Experimental governance offers a potential pathway for this adaptation, but it requires a shift in perspective – from treating experiments as isolated policy interventions to embedding them within a broader framework of long-term welfare state evolution. Future research should further explore how experimental policymaking approaches can be institutionalised within welfare governance structures, ensuring that digital welfare policies remain equitable, inclusive, and sustainable in the face of ongoing technological disruption.

This research contributes to both theoretical and practical discussions on the digital welfare state, experimental policymaking, and labour market transformations. By integrating insights from policy experimentation with the evolving demands of digitalised labour markets, the thesis advances a novel perspective on how governments can reconfigure welfare state policies to better address the needs of workers and societies at large in the digital era.

Lühikokkuvõte

Digitaalse heaoluriigi ümbermõtestamine katsetava valitsemise kaudu: kohanemine uue ajastu tööga

Digitehnoloogiatest juhitud tööjõuturu kiire areng on toonud kaasa sügavad muutused töösuhetes, töökorralduses ja sotsiaalkaitstesüsteemides. Need muutused tõstatavad olulisi küsimusi selle kohta, kuidas riigid peaksid kohandama oma heaoluriigipõhist suhtumist, et vastata töötamise uue ajastu muutuvatele nõudmistele. Samal ajal on reaktsioonina nendele arengutele tekkinud digitaalse heaoluriigi käsitlus, mis aga ei ole võtnud eesmärgiks luua uusi struktuurseid lähenemisi, vaid keskendub pigem olemasolevate lahenduste digitaliseerimisele. Käesolev doktoritöö uurib katsetava poliitikakujunduse ja eksperimentaalse valitsemise rolli võimaliku vahendina digitaalse heaolupoliitika ümberkujundamiseks ja kohandamiseks, et suunata seda soodsamale arenguteele.

Selle uurimistöö ajendiks oli oluline lünk olemasolevas kirjanduses: kuigi on palju kirjutatud heaoluriikide digitaliseerimisest ja eksperimentaalse poliitikakujundamise esiletõusust, on vähe tähelepanu pööratud sellele, kuidas poliitikakatsetused saaksid toimida valitsemisviisina, et lahendada süsteemseid väljakutseid järjest enam digitaliseeruvates heaoluriikides. Töö käsitleb kolme peamist uurimisküsimust: (1) Millised uued nõudmised tekivad heaoluriigile seoses tööturu digitaliseerimisest tingitud muutustega? (2) Kuidas tuleks digitaalse heaoluriigi raamistikku ümber kujundada, et see arvestaks nii tehnoloogilisi võimalusi kui ka töötamise uue ajastu surveid? (3) Kuidas saab eksperimentaalne valitsemine toimida analüütilise ja praktilise raamistikuna, et kohandada heaoluriike nende muutuvate nõudmistega?

Nende küsimuste käsitlemiseks kasutab doktoritöö interdistsiplinaarset ja kvalitatiivset uurimisviisi, mis hõlmab juhtumiuuringuid, võrdlevat analüüsi ja teooriaanalüüsi. Empiiriline analüüs põhineb Eesti ja Soome juhtumiuuringutel, uurides digitaalse heaoluinovatsiooni näiteid, sealhulgas Eesti ettevõtjakonto lahenduse juhtumiuuring, poliitikakatsetuste praktikate võrdlus ja Eesti töötuskindlustussüsteemi analüüs. Uurimistöö tugineb mitmele andmeallikale, sealhulgas poolstruktureeritud intervjuudele poliitikakujundajate ja ekspertidega, poliitikadokumentide analüüsile ning sotsiaalkindlustuse õiguslike mehhanismide hindamisele.

Uurimistöö peamised tulemused näitlikustavad, kuidas praegused arengud digitaalse heaoluriigi valdkonnas pigem taastoodavad heaoluriigi struktuurseid tõkkeid, selle asemel et soodustada süsteemset kohandumist või uudsete lähenemiste leidmist. Eesti ettevõtjakonto ja töötuskindlustussüsteemi juhtumiuuringud näitavad, kuidas kehtiv sotsiaalkaitsemudel koos digitaalsete lahendustega, kuigi teoreetiliselt paljulubav, ei arvesta ebastandardsete töövormide reaalsusega, tekitades soovimatuid lünki sotsiaalkaitstes. Doktoritöö järeldab, et vaja on põhjalikumalt heaolupoliitikate ümberkujundamist, mis seoks tööturu muutumise dünaamika paindlike ja kaasavate heaolumudelitega.

Töö üheks keskseks panuseks on eksperimentaalse valitsemise käsitlemine strateegiana nende väljakutsete lahendamiseks. Kuigi poliitikakatsetused on üha enam levinud meetod uute poliitiliste lahenduste testimiseks kontrollitud tingimustes, on nende roll heaolupoliitikate struktuursete üleminekute võimendajatena jäänud seni alahinnatuks. Uurimistulemused viitavad sellele, et kui eksperimentaalne valitsemine on üles ehitatud kaasavusele ja pikaajalisele institutsionaalsele õppimisele, võib see aidata

heaoluriikidel tööturu muutustele paindlikumalt reageerida. Siiski takistavad sellise lähenemise tõhusust sageli poliitilised ajaraamid, institutsionaalne inerts ja lühiajalisele efektiivsusele keskendunud eesmärgid.

Doktoritöö järeldeb, et kuigi digitehnoloogiad pakuvad uusi võimalusi heaoluriikide innovatsiooniks, tuleb neid siduda kohanemisvõimeliste valitsemismehhanismidega, mis võimaldavad iteratiivset õppimist ja süsteemset muutust. Eksperimentaalne valitsemine võib pakkuda selleks potentsiaalse tee, kuid see nõuab muutust mõtteviisis – katseid ei tohiks käsitleda eraldiseisvate poliitiliste sekkumistena, vaid need tuleks integreerida laiemasse pikaajalise heaoluriigi arengu raamistikku. Tulevased teadustööd peaksid edasi uurima, kuidas eksperimentaalse poliitikakujundamise meetodeid saab institutsionaliseerida heaoluvalitsemise struktuurides, tagamaks seda, et digitaalsed heaolupoliitikad jääksid õiglaseks, kaasavaks ja elujõuliseks murranguliste digitehnoloogiate jätkuva arengu tingimustes.

Doktoritöö panustab nii teoreetilistesse kui ka praktilistesse aruteludesse digitaalse heaoluriigi, eksperimentaalse poliitikakujundamise ja tööturu muutumise teemal. Ühendades poliitikakatsetuste vaatenurga tööturu digitaliseerimise dünaamikaga, pakub doktoritöö uudse vaate sellele, kuidas riigid saavad ümber kujundada oma heaolupoliitikaid, et paremini toetada töötajate ja ühiskondade vajadusi digiajastul.

Appendix. Publications I–V

Publication I

Vallistu, J. (2023). Digital social security accounts for platform workers: The case of Estonia's entrepreneur account. *International Social Security Review*, 76(3), 3–24. <https://doi.org/10.1111/issr.12337> (1.1)

Digital social security accounts for platform workers: The case of Estonia's entrepreneur account

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Abstract Advancements in technology enable new opportunities for creating digital social security accounts, but the effectiveness of these to solve the accessibility and eligibility issues facing platform workers has not been assessed fully in the literature. The potential of digital social security accounts lies in their ability to consider the possible different streams of income of atypical workers and to improve the effective access of these workers to social security. Tax and social security offices can now exchange information on the income of platform workers in real time, which offers the promise of formalizing the previously informal casual work relationships of the self-employed. This article explores the case of the Estonian entrepreneur account as a digital hybrid solution for improving the effective access to social security of platform workers. Digital portable accounts create the conditions for the structural improvement required to respond adequately to meet the changing social security needs of atypical workers. However, this also requires that the policy design be thought through carefully, to avoid digital portable accounts being simply a digital facilitator of outdated solutions.

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Keywords social security planning, coverage, gaps in coverage, self-employed, atypical work, platform workers, labour market, Estonia

Introduction

The focus of this article is placed on the effective access to social security of people performing tasks via digital labour platforms (hereafter, platforms), who are classified as self-employed workers or platform workers, and the potential of digital social security accounts to improve this access. The article follows the definition of a platform worker proposed by Schoukens, Barrio and Montebovi (2018, p. 223):

“Platform workers can be defined as persons selected online from a pool of workers through the intermediation of a platform to perform personally on-demand short-term tasks for different persons or companies in exchange for income”.

While some classifications of platform work also include professionals such as IT architects working on creating and developing platforms (see, for example, Vallas and Schor, 2020), we exclude this specific category as those workers are mostly employees of the platform company. We also exclude the category of online content creators and influencers (also discussed by Vallas and Schor, 2020), as their remuneration is not mediated by the platform.

A two-part argument supports the idea of seeking alternative solutions for improving the social security of platform workers. First, the income security and key motivation of workers active in platform work varies among workers. Ravenelle (2019) finds that while some platform workers thrive, others struggle. While some engage in platform work arrangements voluntarily, and do so to earn extra income, for others it may represent a last-resort option (Dunn, 2020). For others still, such work may even be viewed as a hobby. At the same time, access to satisfactory levels of social security coverage for platform workers may depend on also having other income from standard employment. The higher the share of personal income that a worker earns from platform work, the lower the level of social protection they experience (Forde et al., 2017). It can thus be expected that those who choose to engage in platform work out of need are also those who risk having gaps in their social security coverage, albeit that this depends on the national characteristics of social security schemes for self-employed workers (Behrendt, Nguyen and Rani, 2019). Nevertheless, even in cases where income for platform work constitutes only a minor share of workers'

income, the social security system should be able to identify, quantify and combine workers' different income sources (Schoukens and Weber, 2020).

Second, from the perspective of the state social security budget, new solutions are needed to create a level playing field for contributions payable from different forms of employment. Platform workers are mostly considered to be, and thus are classified as, independent (own account) contractors who operate in legal forms of work understood as self-employment, rather than being an employed worker (Forde et al., 2017). Platforms do not pay work-based contributions, and instead transfer the burden for insuring against risk to the platform workers. The misclassification of platform workers as own-account workers rather than as employees has led to the "demutualization of risk" in labour markets (De Stefano, 2016). Milanez and Bratta (2019) show that the choice between different forms of work contract is encouraged by parallel differences in how contracted work is taxed, which creates unevenness in the labour market between traditional enterprises and digital platforms, and this has led to a vast uptake of the independent contractor form. Enterprises may equally be using platform-mediated independent contractors, instead of employees, to gain from the leveraged tax position.

In the long run, the lower levels of tax paid by the platforms could be seen as free riding on the state social security system (Behrendt, Nguyen and Rani, 2019). It may also constitute a "potentially significant financial burden for wider society if left unresolved" (Forde et al., 2017), as governments may have to spend more to compensate for the potential income insecurity and inadequate levels of social insurance protection of these workers (Adams and Deakin, 2014). Some scholars argue that digital connectivity, changing habits and the reorganization of work will pave the way for platform work to spread and to become an important work form (Huws et al., 2017; Kenney and Zysman, 2019). Following this argument, the issue of the taxation of platform work, as well as how workers' social security contribution records should be managed, will become increasingly important for the State.

Platform work becoming an additional or even the primary source of income for an increasing number of people necessitates the reconfiguration of social security systems, especially regarding the collection of contributions from those engaged in atypical forms of work. In this regard, it is important to look at solutions that can collect and manage the contributory income of platform workers through portable social security accounts. Creating such accounts has been proposed on multiple occasions in discussions of platform work (Codagnone, Abadie and Biagi, 2016; Berg, 2015). Following a comparative study of 35 European countries, Spasova et al. (2017, p. 15) found that the main reforms introduced so far have targeted the "transferability of social rights between statuses and integration of different sources of earnings into an individual account".

Individual social security accounts allow rights to be attached to an individual rather than to an employment relationship. In this way “workers’ benefits are not tied to any particular job or company; they own their own benefits” (Rolf, Clark and Bryant, 2016, p. 3). Furthermore, individual accounts allow for a more flexible and customized use of funds accumulated, such as withdrawing these for educational purposes or during a time of crisis (OECD, 2018). The Activity account (*Compte personnel d’activité – CPA*) in France is one example of this. In Latvia, the social security system operates based on the individual accumulation of rights (Spasova et al., 2017). Of course, the adoption of individual accounts brings risks, not least that these hinder the fundamental objective of social security systems to redistribute income and share risk across a wide risk pool.

The proposal of individual social security accounts is part of a wider discussion on the portability of social security rights that emerged around 2015 (Codagnone, Abadie and Biagi, 2016). These reforms are in line with suggestions by the World Economic Forum (2017) proposing the creation of portable health and pension plans to include workers in atypical work, but with the solution designed so that the risks would still be shared by workers, employers and the State. The European Commission’s high-level expert group recently similarly proposed creating a Digital Single Window to improve access to social security for Europeans in non-standard forms of employment (European Commission, 2019). Simply put, benefit portability in the context of platform work means creating “individual security accounts to protect the worker as they move from gig to gig” (Berg, 2015, p. 544). The many policy pointers and the emerging academic literature suggest that the rise of the “digital welfare state” (as coined by Alston, 2019) will lead to a wider exploration of digital account solutions in the sphere of social security provision.

The entrepreneur account, established in 2019 in Estonia, is one example of such a digital account. It offers a novel way of combining business income from different sources in a private bank account. All the income received is automatically taxed at a flat rate tax of 20 per cent, or 40 per cent for higher income earners, which represents a combined social security contribution and income tax. Entrepreneur account holders may be eligible for coverage for health insurance, maternity benefits and pensions, depending on the amount of tax they have paid.

This article analyses the entrepreneur account as a digital tool for tax administration that offers portable social security coverage for platform workers. The central research question is: What are the advantages and disadvantages of the entrepreneur account as a digital tool for offering access to social security for platform workers? The article uses interviews with policy makers and account users in Estonia and analyses the relevant literature and policy documents.

The aim is to contribute to the discussion on digitalization as a way of improving social security coverage in an evolving world of work. Much of the current literature focuses on legal aspects of atypical work (ISSR, 2021) or considers policy design (ISSR, 2019). However, as e-government technologies evolve, it is worth adopting an interdisciplinary approach to seek alternative solutions.

The article proceeds as follows. First, the social security coverage challenges facing platform workers are discussed together with potential solutions and their implications for the future of the welfare state. We then address the case study of the entrepreneur account in Estonia, before presenting a discussion of the findings and final conclusions.

Platform work: One facet of a new era of challenges for social security systems

The social security coverage challenges for those in platform-mediated work

European social security systems face issues concerned with the legal as well as effective coverage of the self-employed (Spasova et al., 2017). Schemes for the self-employed are often voluntary, which has resulted in lower-income groups being more likely to opt out of the social security system (Eichhorst et al., 2013; Matsaganis et al., 2016). A survey of 1,200 platform economy workers in eight European Union (EU) countries (Forde et al., 2017) revealed that health care insurance was the most easily available form of social security for platform workers, while access to other types of social insurance, such as benefits for sickness, disability, old age, maternity, caregiving, unemployment and housing, were mostly lacking.

Even though developed economies may have a high level of statutory access to social security for atypical workers, the level of effective access is often limited by the contributory nature of the social insurance schemes used, wherein the achievement of only the minimal necessary accrual of contributions would result in a lower benefit level (Spasova et al., 2017). Eligibility criteria, which are difficult to fulfil because of the nature of self-employment, are the main reason why effective access is limited (Spasova et al., 2017; Schoukens, 2020). For many platform workers, insufficient income or unstable patterns of income act as primary barriers to effective access to social security (Berg, 2015). Consequently, those with low or unstable incomes working in atypical jobs may not satisfy the qualifying conditions for contributory benefits but may have statutory access to means-tested benefits if they satisfy the qualifying conditions for these (Matsaganis et al., 2016).

A social security policy resilient to atypical work

In the face of large-scale societal and economic disruptions – be this the emergence of platform work or the job losses caused by the COVID–19 crisis – European welfare states are confronted by existential questions concerning the nature of future welfare provision (European Commission, 2023). One emerging question is how to provide adequate social security for platform workers. Of importance, what differentiates platform workers from other atypical and self-employed workers is the fact that their income from work mediated through digital platforms is traceable because of the digital nature of transactions (OECD, 2018). Consequently, types of self-employed work that may often have been conducted informally can now be rendered easily visible and formalized, thus offering the possibility to improve effective access to and the adequacy of social security coverage for these workers.

An option to improve the social security of platform workers is to make legislative changes to the classification of workers (Behrendt, Nguyen and Rani, 2019), by creating an intermediate legal category (De Stefano, 2016; Erikson and Rosin, 2018). Such proposals have not gained much ground however, as they still offer employers the ability to opt for less expensive contractual arrangements for the employment relationship that leave the vulnerability of self-employed workers unaddressed (Aloisi, 2022).

Another possible approach to make contributory social security systems more accessible would be to make eligibility criteria less strict. There is also a widening debate on the decoupling of social protection from employment, which would mean sharing risks more between all workers and employers with the aim of enhancing the level of protection (Behrendt, Nguyen and Rani, 2019). Also under discussion is a universal human rights-based approach to social security. Where social security is tied to a specific employment contract, the benefit entitlements earned can be easily lost at the end of the contract period (Kuddo, Robalino and Weber, 2015), and so a move away from the productivist or work-related approach towards a universal human rights-based approach is deemed worthy of consideration, as called for by Alferts, Lund and Moussié (2017) in a discussion on informal and precarious work. The human-rights-based approach also underpins the concept of Social Protection Floors proposed by the International Labour Organization (ILO), with Floors anchored on the goals of universality, adequacy, portability, transparency and risk sharing (Behrendt, Nguyen and Rani, 2019).

All the suggestions for how to move towards a more universalist approach acknowledge that different pathways exist. These suggestions, however, also recognize the need not to undermine work-related social protection, i.e., the social rights of working people acquired over many decades (Behrendt, Nguyen

and Rani, 2019; Alferts, Lund and Moussié, 2017). Moreover, as Behrendt and Nguyen (2018) point out, depending on the country, the discussion on decoupling social protection from employment must remain cognizant of the many ways in which employment rights may link separately with different kinds of social rights delivered by different national social security schemes.

Another approach to tackle the insecurity faced by the increasing number of atypical workers who are left “at the margin of social insurance” is to adopt collective insurance models that are not based on employment (Eichhorst, Hemerijck and Scalise, 2020, p. 29). Private insurance models that increase the portability of benefits for the self-employed, such as multiemployer plans and group insurance, offer one approach (see Rolf, Clark and Bryant, 2016 for a historical overview). For this approach, the outcome depends on how the model is set up and who assumes the risk. Critics argue that private insurance schemes may create more challenges than answers as regards addressing questions of inequality and gender gaps, especially for low-income workers (Alfers, Lund and Moussié, 2017; Behrendt, Nguyen and Rani, 2019). Nevertheless, there are already examples of digital work platforms that offer private insurance options for platform workers, such as Grab in Singapore, which automatically transfers voluntary social security contributions to the Government (Freudenberg, 2019). Where private insurers offer schemes as direct alternatives to public social security, these should be closely monitored for their accessibility and adequacy, to ensure that they do not result in an additional social cost burden for society in the future (Freudenberg, 2019).

Finally, some scholars believe that the challenges of income insecurity and the heterogeneity of atypical work forms are too complex to tackle using the traditional welfare system approach. Rather, they argue that entirely new approaches are needed. Universal Basic Income (UBI), for example, has been suggested as a possible solution (see the overview in Balliester and Elsheikhi, 2018). Largely on the grounds of the projected high cost (Tanner, 2015), UBI proposals remain at the experimental stage. Proponents of the UBI approach, as well as others (see Joyce et al., 2019), argue that social policy interventions should be aimed at the thorny question of insecure work more broadly, rather than targeting the social protection needs of platform workers specifically.

Digitalization and the future of the welfare state

“What can be digitized will be digitized – sooner or later” (in Campbell and Hanschitz, 2018, referring to the Shumpeterian understanding of disruptions in the economy). Digital solutions have not only changed the way enterprises

operate and people work, but they have also provided governments with a set of tools for creating solutions to support public service delivery. However, the role of digitalization in solving the ever-pressing challenges of social security have only been discussed to a limited extent. Largely omitted is the potential of digital technologies not only to make the operations of the pre-digital system more efficient but to “design new disruptive digital systems” (Campbell and Hanschitz, 2018, p. 2). Specifically, innovation in digitalization could help to improve the coverage of platform workers through novel financing and administration approaches (Behrendt, Nguyen and Rani, 2019).

Three ways that digitalization can help address the social security challenges of platform workers can be identified. These are i) the digital recording of economic transactions that are easily traceable by public authorities; ii) the collection of income information concerning a growing number of platform workers, so reducing the administrative burden for the State; and iii) a reduced administrative burden for platform workers (Freudenberg, 2019).

The digitalization of tax administration is one potential avenue for improving the effective social security coverage of platform workers and holds the promise of being able to “reduce bureaucratic hurdles” faced by the self-employed (Campbell and Hanschitz, 2018, p. 6). This could function primarily through the automatic reporting of income to both tax and social security administrations, lessen the burden of consulting tax consultants and reduce the risk of non-compliance in a complicated taxation system.

The International Monetary Fund (IMF) considers that electronic fiscal devices (EFDs), such as online tax account systems and electronic registers, could be a tool for improving tax compliance (Casey and Castro, 2015). The advantages of EFDs lie in the ability to collect tax contributions automatically based on a just-in-time principle. Furthermore, less complicated tax administration could potentially increase income from taxes without raising taxes (Campbell and Hanschitz, 2018).

An example of digital disruption in tax administration is to tie electronic accounting systems to online tax accounts, as was done in Austria in 2012 with the automatic deduction of taxes from stock exchange gains (Campbell and Hanschitz, 2018). Some initial developments have also been made in the domain of platform work, as in Uruguay, which has adopted a phone app that gathers information about the social insurance contributions of ride sharers (Freudenberg, 2019). Another example covers ride sharers in Estonia, for whom the Tax and Customs Board has developed a simplified solution for sharing information on income with the tax authorities that automatically includes the results in the driver's annual tax declaration (Freudenberg, 2019). However, because participation in information sharing is voluntary, the number of drivers reporting their income has remained low. A further example is offered by Chile,

where the electronic invoices of self-employed workers are automatically taxed at 10 per cent (Freudenberg, 2019).

While digitalization offers new ways to administer aspects that support social security programmes, digitalization is not sufficient to address all challenges. The simple act of digitalizing tax administration with EFDs or of creating separate digital solutions to facilitate income reporting by platform workers does not solve the structural issues concerning access to social security that are caused by insufficient income levels or unstable patterns of income. The potential for combining digital accounts with the portability of social security rights thus deserves further analysis, which is the aim of this article.

Methodology

This article is based on qualitative research from a case study analysis of the Estonian entrepreneur account. The case study approach was chosen as it allows a holistic analysis of the subject matter while taking account of the country context (Yin, 2015). The entrepreneur account is a novel solution, and so numerous data sources were used to complete the case study in the form of newspaper articles, policy documents, legal acts as well as earlier published studies. Furthermore, 13 semi-structured interviews were conducted to complement the document and literature analysis (see Appendix, Table A.1). The interviewees were chosen to represent different viewpoints about the solution. Accordingly, to gain insights into real-life experience with the entrepreneur account, the purposive sample of interviewees included policy makers who had been involved in setting up the account solution, entrepreneur account users, and two platform representatives. The interviews took place from late 2019 to early 2021 and sought to capture the evolution of perceptions concerning the account and its use. The interviews lasted from 30 to 90 minutes, depending on the interviewee and their experience. Prior to 2020, the interviews were conducted in person in Estonian (with responses translated into English by the author), and thereafter various digital communications tools were used.

Estonia's entrepreneur account

In this section, we offer a brief overview of the Estonian social security system from the perspective of platform workers, then describe the design logic of the entrepreneur account, before discussing the technological solution the entrepreneur account offers. Finally, the effectiveness and outcomes of the entrepreneur account are analysed.

The Estonian social security system from the perspective of platform workers

The design of the Estonian social security system revolves around standard employment relationships. Employees gain rights to health insurance and pensions from their social tax contribution, which is 33 per cent of their work income and is paid by the employer, with 20 per cent directed towards state pension insurance and 13 per cent towards state health insurance.¹ A minimum threshold for the social tax contribution has been set by law and is obligatory even for part-time work. The threshold is 33 per cent of the minimum wage. In 2023, the monthly minimum wage rate for the standard employment relationship is 654 euros (EUR) and the equivalent social security contribution is EUR 215.82 per month. Paying this minimum contribution each month guarantees the employee access to health insurance. Employers are additionally expected to pay 1 per cent of wages for the unemployment insurance of the employee. There are numerous exceptions that alleviate the tax burden for specific groups. In some cases, the social security payment is made by the State, or the employer is permitted to make reduced payments, and the social insurance payment for students, non-working parents of young children, the unemployed and some other groups is, for example, provided by the State without monthly tax payments. As forms of work have extended beyond the standard employment relationship, so the relationship between work income and social security contributions is no longer as straightforward as it was previously. While the social security tax must be paid by those who hold self-employed status (*Füüsilisest isikust ettevõtja* in Estonian – hereafter, FIE), most independent contractors choose to work through their own company, where the two dominant models of income declaration are i) to declare only a minimum income and use the rest of the income for investment, business expenses or dividends, or ii) to take earned income out as dividends, paying income tax of only 20 per cent. The increase in self-employment or own-account work as an independent contractor thus means, in effect, that participation by these workers in social security schemes is often voluntary and may result in substantially lower social security payments than those made by workers in employment with a similar level of income.

A survey of platform workers conducted in Estonia in 2021 revealed that about 7 per cent of the working-age population engages in platform work regularly (Vallistu and Piirits, 2021). Almost half of this group works up to 10 hours a week, while 21 per cent work for 25–40 hours a week, and 7 per cent work more than 40 hours a week. The social background of platform workers is very

1. See Republic of Estonia Tax and Customs Board, Income and Social Taxes.

heterogeneous as is the combination of both platform and non-platform work tasks undertaken.

The novelty and heterogeneity of platform work, the different legal forms used, and the lack of data on platform workers mean that platform work has remained largely under-discussed in Estonia. The first legislative changes concerning platform workers were enacted in 2017 and were meant to even out the playing field between the taxi industry and rideshare drivers by putting in place a system of permissions and required insurance.² Prior to this, the Estonian Tax and Customs Board had created an information exchange platform allowing direct reporting of income data from the ridesharing applications of Uber and Taxify (now Bolt). However, as the reporting was voluntary, only 69 people declared their income in 2016 and 319 people in 2017.³

As is the case in other countries, platform workers in Estonia are mostly considered to be self-employed but may choose the legal classification under which they operate. The main options for those working on digital platforms are to:

- Register as an employee with a standard employment contract.
- Register as an employee with a more flexible VÕS contract (*Võlaõigusseaduslik leping*) under the law of obligations.
- Register their own private limited company and employ themselves or pay dividends.
- Take casual payments and submit an annual tax declaration with a 20 per cent tax payment.
- Open an entrepreneur account.

The term “self-employment” is thus ambiguous in Estonia. It could mean the specific self-employment status (FIE), but it can also refer to a wider set of employment statuses ranging from an own-account entrepreneur working through a limited liability company to a person undertaking employment contracts under the Law of Obligations Act⁴ as VÕS-contracts. Although EU comparative studies, such as Spasova et al. (2017), find that access to social protection for the self-employed appears relatively strong in Estonia, with full access to health care, sickness benefits, old-age benefits and others, the real picture is much more fractured. Although platform workers could theoretically choose between the statuses listed above, their actual status depends on both the platform’s recommendation and their personal choice. Social security contributions in Estonia are effectively voluntary, which makes it possible for the self-employed, including platform workers, to opt out of the system. This issue has mainly been discussed in the context of the social

2. See the changes made in the [Public Transport Act](#).

3. According to information provided by the Tax and Customs Board. See Äripäev, 29 May 2017 (in Estonian).

4. See the full text of the [Law of Obligations Act](#).

security of the creative self-employed in Estonia (Koppel et al., 2021), but it also extends to other categories of the self-employed. The need for continuous income heightens the risk of losing access to health insurance during periods of low income or vulnerability, such as when the person cannot work because of poor health. It also infers the need for earnings during vacation periods.

The formal logic of the entrepreneur account

The entrepreneur account functions like a regular bank account, with the difference being that all the income is taxed automatically, as the social security payments of 20 per cent and business tax income are transferred to the accounts of the Estonian Tax and Customs Board. The account can be offered by any credit institution operating in the European Economic Area. Any individual with an Estonian personal identification code is permitted to open an entrepreneur account, and this includes e-residents who are mostly not Estonian citizens. People cannot have the dual roles of having an entrepreneur account and self-employed status (FIE), nor can they be liable for valued-added tax for a similar area of activity. Having an entrepreneur account is considered an activity on the labour market regardless of whether it produces income, meaning that a person cannot be simultaneously registered as unemployed and have an account.

The tax to be paid on income (known as the business tax) is deducted from the entrepreneur account as soon as a payment is received. The tax paid is considered as entrepreneurial income earned by a natural person. As of July 2023, annual income of up to EUR 25,000 is taxed at a flat rate of 20 per cent, and income greater than EUR 25,000 but less than EUR 40,000 is taxed at 40 per cent. Similarly, a graduated tax applies to the income of registered companies, but this does not apply to regular employees. All who earn above EUR 40,000 must register a private limited company to conduct their business. The tax rate is favourable for entrepreneur account holders when compared to the regular 20 per cent income tax and the 33 per cent social security contribution. An additional tax of 20 per cent is added when services are provided to a legal person, as this equalises the total tax burden with that of the standard employment relationship.

The idea of the entrepreneur account (*Ettevõtluskonto*) was initiated by the Ministry of Finance of Estonia in the period 2015–2016. Once the Ministry had outlined the initial idea, the Tax and Customs Board became involved in applying it to the existing administrative and technological framework. On 19 June 2017, the Act on Simplified Taxation of Entrepreneurial Income (*Ettevõtlustulu lihtsustatud maksustamise seadus* – ELMS) was passed,⁵ allowing natural persons to open an entrepreneur account to receive payments for selling goods or services.

5. See the [Act on Simplified Taxation of Entrepreneurial Income](#) (in Estonian).

The solution does not bring in any additional revenues for the banks and is a voluntary service. After having become available on 1 January 2019, only one bank, LHV, has since offered the entrepreneur account service.

Following its introduction, the number of entrepreneur account users has increased steadily; on average, 182 new accounts have opened per month, representing monthly growth of 7 per cent, according to data from the Tax and Customs Board. In February 2022, there were 6,908 active accounts. A total of 129,792 transactions had been made by February 2022 for a total value of EUR 17,740,087. The volume of transactions has also increased steadily, with the monthly average number of transactions for the period January 2021 to February 2022 reaching 5,865. The monthly value of transactions has increased from an average of EUR 350,873 a month in 2020 to EUR 819,233 a month since the beginning of 2021.

The business tax collected from the entrepreneur income is meant to function similarly to the social security contributions paid as part of the standard employment contract. It is divided in three parts, with 20/55 of the business tax accounted as income tax, 33/55 as a social security payment, and 2/55 as a mandatory pension contribution. To receive access to health insurance, the monthly social security tax payment must be equal to or greater than the minimum threshold set according to the minimum wage. In 2023, a monthly income of EUR 1,798.50 would be required for the social security contribution to the entrepreneur account to exceed the required minimum social security payment of EUR 215.82.

The entrepreneur account: An administrative and technological solution

The entrepreneur account offers a hybrid solution that functions through cooperation between state registries and bank services. IT developments have been put into place by the Tax and Customs Board as well as the one bank involved. The account user mainly communicates directly with the bank. When opening the account, the person gives the bank permission to deduct the amount of business tax from all the payments received, and to transfer this money to the Estonian Tax and Customs Board. As such, a well-functioning e-banking system is a vital requirement.

Once an entrepreneur account has been opened, the account holder is registered in the employment register managed by the Tax and Customs Board. The main function of the register is to help in determining the person's rights and access to social guarantees, such as health insurance and unemployment insurance.⁶ There is no need to declare business tax activity separately, as it is automatically

6. For more information, see the [Employment register](#) public website.

included in the person's annual tax declaration, which is automatically pre-filled by the Tax and Customs Board. Account holders can view their related payments and access an overview of their account on the Tax and Custom's Board self-service portal. If an individual entrepreneur account contract is terminated, the person's profile is also removed from the employment register.

Results: The entrepreneur account and accessibility to and eligibility for social security

When first established, the main purpose of the entrepreneur account was to provide a legal procedure for people receiving informal payments to declare their income (Interviews 1 and 3). The main issue it helped address was the heavy bureaucratic burden associated with hiring an employee or operating as a self-employed person (Interview 1).

The account is considered well suited to the needs of own-account workers and small-scale entrepreneurs who operate without substantial expenses, as expenses cannot be deducted. Interview responses revealed that the account should work well for some occupations, including babysitters, builders, odd-job workers, handicraft workers and hairdressers, among others. In contrast, the entrepreneur account is deemed less well suited for rideshare drivers, who must bear the important expenses of fuel and car rental. Those interviewees who were account holders indicated that their main motivation was to be able to operate legally with a low level of bureaucracy (Interviews 4, 6, 7 and 10) and with a lighter tax burden (Interviews 9 and 11). To facilitate organizing cross-border work was another reason mentioned (Interviews 7 and 8). In the interviewee sample, only one entrepreneur account holder expressed that it offered a way to gain access to health insurance. This reasoning did not apply to the others, as their monthly income was less than the necessary threshold.

While the account was created with the needs of informal workers to the fore, over time it has come to be understood that it could also address some issues specific to the situation of platform workers:

"We understood that the entrepreneur account is very suitable for platform work. You just open the bank account, associate all your income with it and that's it" (Interview 1).

Indeed, it has become a default solution for platform workers operating through multiple local platforms, such as CareMate, which provides personal care services for the disabled and the elderly. It is considered a flexible way for people to organize their work while retaining legitimacy in the eyes of their clients:

“When developing our prototype (of the digital platform), we were amazed by this solution. It would prevent us from doing anything that was illegal, and the public sector would also be more willing to receive our services” (Interview 5).

Despite these expressed views, platform owners cannot oblige platform workers to register under an entrepreneur account. As stated, because they are considered independent contractors, platform workers have a free choice regarding how to organize and declare their income (Interviews 5 and 13).

As regards platform workers' need for improved social security coverage, especially health insurance, there are three important characteristics of the entrepreneur account that platform workers should consider: portability, accessibility and eligibility.

Portability. The key characteristic of the entrepreneur account is that it creates portable social security that is not tied to an employment relationship. However, the principle of portable social security already existed before the entrepreneur account was introduced. Access to health insurance in Estonia is determined by work-related taxes paid from various sources. Automatic registries allow different work income and business income to be considered when calculating a person's social security status, irrespective of their legal position and the types of contracts they work under. If a person has multiple work contracts and an entrepreneur account, then their chance of receiving health insurance increases. If it is assumed, however, that payments are only received on the entrepreneur account, the threshold is currently too high for many people because the monthly income required for the minimum social security contribution is, de facto, higher due to the lower tax rate applied to accounts.⁷

Accessibility. A lack of income is the first obstacle to accessible health insurance for platform workers using the entrepreneur account, as it turns theoretical legal accessibility into effective non-accessibility. The holder of the entrepreneur account will receive access to health insurance when the business tax they pay – as the equivalent of the social tax – is equal to or greater than the minimum amount required within a standard employment contract. However, as the tax rate of the entrepreneur account is lower than the rate of the social tax, the person needs to have a higher level of monthly income to be eligible for health insurance. For standard employment, the taxable income level in 2023 was a

7. The Estonian platform work survey (Vallistu and Piirits, 2021) reports that the average monthly income from platform work amounts to EUR 1,017.

minimum of EUR 654 per month, on which a further EUR 215.82 is paid towards social security contributions, while the equivalent social security contribution from the entrepreneur account is made when the person's income is equal to or greater than EUR 1,798.50. For a comparison, Statistics Estonia states that the average gross monthly wage in Estonia in March 2023 was EUR 1,810.⁸

"Health insurance is probably not the main reason for creating the account. It would appear that there is only a very small percentage among those with accounts who earn enough to be able to contribute to the insurance" (Interview 8).

The other major obstacle to accessing social security is the irregular nature of income from platform work and self-employment in general. The payments towards social security from income received on an entrepreneur account are contributed each month. One interviewee described a case where their client was late with a monthly payment, consequently they lost their health insurance coverage during that month, which coincided with an unexpected and costly bill for health care (Interview 7).

The importance of accessibility was acknowledged from the outset and the idea of permitting account holders to make additional payments to reach the minimum threshold was considered, as was informing them about the risk of losing health insurance in the following month in the absence of a payment (Interview 1).

"I get my payments quarterly, but the health insurance requires payments once a month" (Interview 7).

As the threshold for receiving health insurance is so high (i.e., a monthly income of EUR 1,798.50 in 2023), it was suggested that there could be an option of voluntary social security payments for those using the account, but this idea was deemed too complicated and not initially included in the design of the system (Interview 8).

Eligibility. The other important obstacle to improved access to social protection for platform workers is their eligibility for only some social security benefits. Entrepreneur account holders make contributions towards health insurance, pension insurance and maternity benefits, but they are not covered for other risks such as unemployment.

8. See [Statistics Estonia](#).

"I am insured against unemployment as long as I also work at my full-time job. If I want to extend my self-employed activities, it does not seem right that I do not have the right to receive unemployment payments" (Interview 4).

As stated, the fact of having an entrepreneur account is considered to represent labour-market activity. Holders of an entrepreneur account who wish to register as unemployed cannot do so until they have closed their account (Interview 12). In this regard, the design of the entrepreneur account is incompatible with the wider design of unemployment policy in Estonia, which encourages at least a low level of work activity.⁹

Discussion

Achieving effective access to social security is not simply a legal matter. Low levels of coverage and structural changes in the labour market are heightening uncertainty among a growing number of workers (Feitsma and Whitehead, 2019). The expansion of platform work, in the sense of work mediated through a platform, poses challenges to social security systems. For some platform workers it is associated with high levels of precariousness, in general with irregular and low levels of income. At the same time, the digital nature of transactions and the potential for enhanced data exchange within the state administrative system could enable the development of novel solutions to enhance the effective social security coverage of platform workers.

Typically, welfare states are slow to change and path-dependent, suggesting that incremental change may be the only way forward. In addition to policy and legislative reforms, developments in digitalization and e-government infrastructure with automatic data exchange are key enablers to develop solutions to tackle knotty policy problems. One way to improve the effective social security of platform workers is the creation of portable social security rights using digital accounts which recognize platform workers' different streams of income. As such, portable accounts should improve the effective social security coverage of platform workers, even if major legislative reforms are not undertaken.

By adopting the entrepreneur account system in 2019, Estonia has moved the development of digital social security account solutions beyond the drawing board and into practice. The account is set up as a regular bank account, and a flat rate tax of 20 per cent, or 40 per cent for higher-income earners, is deducted

9. Since 2020, Estonia has adopted an approach whereby an unemployed person can work temporarily while looking for permanent employment. Up to eight work days per month are allowed. For more information, see [Services and Benefits](#).

automatically from the person's business income received and transferred to the Tax and Customs Board. This tax consists of a social security tax payment and an income tax payment. Although it was designed for use by all own-account workers, it is of interest as a possible solution that could be suitable for platform workers.

The Estonian case highlights the central question of whether digital and portable social security accounts are truly adapted to meet the social security needs of platform workers, or whether they simply facilitate the operations of existing administrative systems.

A first finding of this case study is that policy design matters. The entrepreneur account provides social security coverage under the principles of a standard employment relationship. In terms of the social security provision it offers, the account may be helpful for some workers, but it does not solve the structural issues of social security coverage for platform workers. Platform work is heterogeneous, but the entrepreneur account is a suitable solution only for platform workers with stable and higher levels of regular income. In particular, the income threshold for access to health insurance poses serious potential obstacles for those platform workers whose income typically remains lower than the average wage in Estonia. Of course, the principle of taking all income streams into account when determining access to health insurance should improve the effective coverage of some atypical workers using the entrepreneur account, as well as other workers in legal work forms. Nevertheless, access to social security is hindered by the requirement for the stable monthly payment of contributions. This inflexibility in contribution requirement is at odds with the flexible nature and fluctuating income patterns of platform work. Such inflexibility in the requirement for a continual income flow also constrains platform workers when they have a need for sick leave or, indeed, a vacation. Accordingly, Estonia should consider developing the design of the entrepreneur account further, allowing for voluntary additional payments, or to link access to health insurance to the payment of at least a minimum level of contributions over a longer period to reduce the risk of potential gaps in access resulting from fluctuating monthly income. A final point to consider is the question of the eligibility to claim certain benefits. Although the entrepreneur account provides access to health insurance, pensions and maternity benefits, it is not compatible, for example, with the receipt of unemployment benefits. Therefore, instead of requiring the account to be closed during the period of unemployment, as is currently the case, a person's unemployed status could be tied to a low- or non-existent income flow to the account. Given these existing design features, the entrepreneur account cannot address the precarity that confronts workers with low and fluctuating incomes, including platform workers.

Second, the technology underpinning the entrepreneur account plays a crucial role in the Estonian case. The entrepreneur account is a digital solution that came into being largely because of the existing digital infrastructure of the State, strong

e-banking provision, the IT capabilities of the Tax and Customs Board, and the high levels of trust that citizens have in e-government. The automatic data exchange permits transactions between the Tax and Customs Board and the bank, allowing for the “zero-bureaucracy” experience of its users. The more that countries come to embed their social security solutions in e-government environments, the more these contextual factors will influence the nature of the solution.

As more countries move to address their social security challenges by means of digital solutions, the case of Estonia's entrepreneur account can act to spotlight the risks of pursuing digitalization without considering the underlying needs for structural change in the administrative system. In the Estonian case, digitalization has become a tool to facilitate the solutions that already exist, without creating the disruption needed to respond to emerging challenges.

Conclusion and future research

Governments must address increasing complexity in the forms of work found in national labour markets and, consequently, in the challenges these present for workers to contribute and have adequate access to social security. Increasingly, the tendency is to apply digital solutions to improve compliance in tax and contribution payments among various types of workers. The article has analysed the degree to which the Estonian entrepreneur account, as a digital solution, corresponds to the need to extend access to social security coverage for platform workers. The main contribution of the article has been to demonstrate the relevance of policy design in setting up novel digital solutions. The article shows that while an innovative solution for facilitating tax and contribution payments as well as receiving social security benefits may work well for some of its users, embedding that solution in the historic social security system hinders it in reaching its professed aims. As such, the solution remains merely a facilitator rather than becoming a disruptor of the existing system.

While this study offers a first glimpse of how the entrepreneur account can be used as a social security solution for platform workers, further research could benefit from having access to more precise data on platform workers and insights from the platform workers who use the account. Any similar account-based solutions developed should be analysed to develop further the role of digital solutions in social security systems.

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Appendix

Table A.1. Overview of interviews

Interview No.	Interviewee organization/position	Notes/Audio recordings/Transcripts
1	Ministry of Finance	Yes/Yes/Yes
2	Bank representative	Yes/Yes/Yes
3	Tax and Customs Board	Yes/Yes/Yes
4	Account user	Yes/Yes/Yes
5	Platform representative	Yes/Yes/Yes
6	Account user	Yes/Yes/Yes
7	Account user	Yes/Yes/Yes
8	Account user	Yes/Yes/Yes
9	Account user	Yes/Yes/No
10	Account user	Yes/Yes/Yes
11	Account user	Yes/Yes/No
12	Unemployment Insurance Fund	Yes/Yes/Yes
13	Platform representative	Yes/Yes/Yes

Source: Author's elaboration.

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Bridge to security: Exploring unemployment insurance for solo self-employed in Estonia

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Abstract

The COVID-19 crisis highlighted the need for better access to unemployment insurance, particularly for solo self-employed workers. Traditionally seen as entrepreneurs bearing their own risks, the line between employment and entrepreneurship for solo self-employed has blurred, raising questions about adequate social protection. This shift is largely attributed to the rise of platform work, often linked with dependent self-employment and a precarious social security landscape for workers. In Estonia, where solo self-employment is increasingly common, access to unemployment insurance and the level of protection depends on the workers' awareness and intent, as well as the approach adopted by task-mediating platforms in the case of platform workers. While the self-employed, including platform workers, can access insurance by opting for certain legal forms of work and making regular contributions, effective access remains limited. Low and irregular income poses eligibility challenges, and certain legal forms of self-employment can hinder access to benefits, despite eligibility through other means. In the long run, these challenges could undermine the sustainability of Estonia's social security system, emphasising the critical need for comprehensive reforms to ensure equitable access to unemployment insurance for all self-employed individuals, including those engaged in platform work.

Keywords

Unemployment, unemployment insurance, solo self-employment, platform workers, labour market benefits

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Introduction

This article focuses on unemployment insurance for solo self-employed individuals, including platform workers. Solo self-employment is hereby meant as ‘the economic activity that is conducted on one’s own account without paid employees’ (Cieřlik and van Stel, 2024: 2). Historically, self-employment has been linked with autonomy and entrepreneurship (Eurofound, 2017). Unemployment insurance has traditionally focused on workers in standard employment relationships (SER), overlooking self-employed individuals who were perceived as entrepreneurs expected to bear the risks associated with entrepreneurship. However, recent developments in solo self-employment necessitate a re-evaluation, highlighting the importance of extending unemployment protection to this group.

Developed economies are facing the structural rise of solo self-employment (Semenza and Pichault, 2019). The emergence of ICT, flexible working patterns, transition to the service economy, changing worker expectations and other factors have paved the way for what are referred to as new forms of employment (Eurofound, 2020), which are the work arrangements different from established forms either by employment relationship or work patterns and work organisation. Many of these new forms of employment are undertaken as solo self-employed, for example, interim management, collaborative employment, voucher-based work and, most importantly, platform work.

Concerns around access to social protection have emerged, and more recently unemployment protection has been the focus. The COVID-19 pandemic showed the harsh reality for the self-employed, whereby they often fell through the safety net set up by governments (Aloisi, 2022) and income sources frequently vanished for unknown periods, with bleak prospects for registering as unemployed or relying on emergency interventions for the self-employed (Kalenkoski and Pablonia, 2022). With continuous uncertainty projected for labour markets worldwide and projections on the rise of the precariat (Standing, 2018), it is imperative that governments draw lessons from this experience to better prepare for future unemployment crises affecting the solo self-employed.

With the rise of the autonomous working, solo self-employment has become notably heterogeneous, encompassing a surge in the number of self-employed professionals within the services industry, alongside marked disparities in incomes and working conditions (Semenza and Pichault, 2019). The emergence of independent professionals (iPros) has blurred the lines between employment and entrepreneurship (McKeown, 2015). Cieřlik and van Stel (2023) delineate four contrasting policy perspectives on solo self-employment: entrepreneurship and small business policies; empowerment of marginalised groups through self-employment; addressing deficits in decent work; and enhancing well-being.

On one hand, solo self-employed individuals have become integral to the emerging ‘project economy’ (Burke et al., 2021), comprising a highly skilled workforce adept at navigating the minimally regulated online environment (Ilsøe and Larsen, 2020). Conversely, discussions have surfaced regarding the vulnerable status of the self-employed, particularly concerning low-skilled or migrant workers, unemployed individuals and young people with less competitive positions in the labour market (Ilsøe and Larsen, 2020; Jansen and Sluiter, 2019). Given the dual nature often attributed to labour markets, the solo self-employed are frequently regarded as part of the secondary and more vulnerable segment of the labour market (Cieřlik and van Stel, 2023; Codagnone et al., 2018). Consequently, the prospect of unemployment is a significant concern for the self-employed, like those in standard employment relationships (SERs) (Codagnone et al., 2018).

Platform workers – defined as ‘persons selected online from a pool of workers through the intermediation of a platform to perform personally on-demand short-term tasks for different persons or

companies in exchange for income' (Schoukens et al., 2018: 223) – are a crucial part of the discussion in solo self-employment, as they exemplify some of the major issues of the social protection of the solo self-employed. Platform work is a low-barrier way to access the labour market and gain additional income (Eurofound, 2020). Yet, the promise of flexibility comes at a cost, with reduced worker remuneration levels, unstable income and unfavourable working hours (De Stefano, 2016), all of which have a negative effect on social protection. The platform economy has fragmented risk, formalising certain aspects of work while leaving others informal and precarious, such as working hours and wages (Lata et al., 2023: 7). Consequently, platform work is frequently associated with 'bogus self-employment,' wherein self-employed workers' conditions closely resemble dependent employment, leading to misclassification (Niebler et al., 2023: 1). Platforms are claimed to 'engage in regulatory arbitrage while contractually enforcing the subordination and rightlessness of gig workers' (Doorn, 2020: 136). The heightened bargaining power of platforms has incentivised the adoption of contractual arrangements typical of self-employment over standard employment relationships (Eurofound, 2020).

As a result, a mere 9.7% of primary income earners and 19.1% of secondary income earners from platforms had access to unemployment insurance as of 2017 (Behrendt et al., 2019). Moreover, while regular platform work remains relatively rare, digitalisation has facilitated the platformisation of work (Huws et al., 2019), including online management, booking and feedback systems, thereby expanding opportunities for self-employment in sectors traditionally associated with standard employment relationships.

Inadequate or irregular income streams present significant barriers to providing sufficient social protection for self-employed platform workers (Berg, 2015), including shortcomings in unemployment insurance coverage. Despite the existence of legal frameworks for unemployment insurance, current social security systems often fail to effectively encompass self-employed individuals (Schoukens and Weber, 2020). Additionally, differential tax treatment between standard employees and the self-employed may incentivise the choice of self-employment (Milanez and Bratta, 2019), highlighting the necessity for a unified approach. More simply put, a more favorable taxation scheme for the self-employed has created financial incentives to choose self-employment over standard employment, and is one of the reasons behind the rapid growth of self-employment and platform work. Several countries have reported that the rise of self-accounting is due to tax and regulatory incentives rather than technological change (Hijzen and Schwellnus, 2018). Low awareness of workers' tax obligations may also influence interest in platform work (Mol and Molho, 2024). Thus, we must acknowledge the need to extend unemployment protection to self-employed individuals, including platform workers, and propose innovative solutions that not only uphold these rights but also promote fairness among various work organisations (De Groen et al., 2018).

Discussions regarding the future of social protection increasingly favour extending coverage for solo self-employed individuals. For instance, the International Labour Organization (ILO) proposes a layered approach, transitioning from employment-centric protection to broader coverage encompassing all forms of employment, and eventually, residency-based social protection (Behrendt and Nguyen, 2018). Cieslik and Stiel (2024) suggest that solo self-employed individuals should be considered a distinct category separate from both employees and employers. Alternatively, arguments can be made for mandatory unemployment insurance for the self-employed (Schoukens and Weber, 2020). More recently, the utilisation of digital accounts has emerged as a potential solution for overcoming barriers to social security for solo self-employed individuals and platform workers (Vallistu, 2023).

The article aims to provide a comprehensive examination of the unemployment insurance landscape for solo self-employed individuals in Estonia. Employing an interdisciplinary approach, it focuses on the broader issue of social protection for the self-employed, with particular emphasis on unemployment protection and the unique circumstances of platform workers in Estonia. Although platform workers are classified under the same legal framework as self-employed individuals, their employment status is predominantly dictated by the platform itself, leaving little autonomy to the worker.

In Estonia, there is no distinct social security legislation or system specifically tailored for the self-employed. Instead, their rights are regulated by pertinent legal provisions. Estonia's case is notable due to the diverse avenues available for self-employment. The social security status of, and scope for, unemployment protection for the solo self-employed in Estonia will delineate Estonia's social security system and unemployment protection for solo self-employed individuals. However, as noted by Behrendt and Nguyen (2018: 15), self-employed workers may encounter different, often less favourable, conditions than salaried employees, even if they have access to the same schemes. In Estonia, unemployment protection is effectively voluntary, necessitating consideration of not only the legal framework but also socio-economic factors and the distinctive features of self-employed work, such as irregular income or lower earnings levels. The socio-economic context of these workers will be examined in the legal status and access to unemployment protection of the solo self-employed in Estonia. Recent literature has also explored the reciprocal relationship between platforms and unemployment, with platform work acting as a buffer during economic downturns (Ilsøe and Larsen, 2020). Interestingly, this perspective has gained traction in Estonia and is explored in the rise of the solo self-employment in Estonia, together with other recent policy developments in the country.

The social security status of and scope for unemployment protection for the solo self-employed in Estonia

The hybrid approach to social security and unemployment in Estonia

A hybrid social security framework has been established in Estonia, wherein certain entitlements are contingent upon employment status and earnings, while others depend on residency. For instance, unemployment insurance, parental leave allowances and pensions are earnings-related benefits, whereas subsistence assistance is means-tested and childcare benefits are universally available. According to the common view, the Estonian model of social protection is characterised as adhering to neoliberal principles, emphasising individual responsibility over state intervention (Aidukaitē, 2013). This has been contested by Avlijaš (2020), claiming that the depiction of 'neoliberal retrenchment' fails to adequately capture the intricate nature of the welfare state transformations that occurred in the Baltic region after the fall of socialism. According to this view, the allocation of monetary benefits has been counterbalanced by an increased allocation of resources in social sectors, including education, labour market initiatives, and the augmentation of public services. There has been a gradual increase in the level of unemployment insurance benefits, which is in line with the overall plan in the Baltic states to reduce the impact of increased labour market flexibility (Avlijaš, 2020). The notion is further supported by Estonia's recent implementation of a counter-cyclical approach in deciding the duration of unemployment insurance benefits.

Similarly, unemployment protection is divided into two main areas: means-tested unemployment benefits and contribution-based unemployment insurance.

The unemployment insurance system in Estonia can be characterised as conservative in approach, with long periods of work experience needed to qualify, short duration of payments, low level of benefits and financing only by contributory fund (Laurimäe et al., 2019). The two-level approach requires first registering as unemployed and only then can one apply for benefits or assistance, while at both stages there are many excluding conditions.

The Constitution of the Republic of Estonia (§28) guarantees citizens the right to assistance in various circumstances, such as old age, incapacity for work, loss of a provider, or need.¹ However, the Constitution does not specifically address provisions for the unemployed (Tavits, 2021). The establishment of Estonia's unemployment insurance system began in 1991 with the introduction of flat-rate unemployment allowances, legislated for through the 1994 Social Protection of the Unemployed Act. The system was further solidified by the implementation of the Unemployment Insurance Act (*Töötuskindlustuse seadus* (TkindlS))² in 2002, introducing the contributory unemployment insurance scheme. This system aims to provide labour market services, benefits, and income compensation to insured individuals during periods of unemployment or contract termination, including public servants facing redundancy or bankruptcy of their employer (TkindlS).

Registered unemployed individuals in Estonia are eligible for three types of benefits depending on their monthly income.

First, earnings-related unemployment insurance benefits are designed to provide income replacement during periods of unemployment. These benefits are funded by compulsory unemployment insurance contributions. To be eligible, individuals must have been employed for at least 12 months within the last 36 months and have paid unemployment insurance contributions. The benefit amount is based on previous labour income and is payable for a period of 180 to 360 days.

Second, flat-rate unemployment allowances are financed from general state revenue and aim to provide a basic level of income for unemployed individuals whose monthly income falls below a certain threshold. To qualify, individuals must have been employed for at least 180 days within the last 12 months, or have been engaged in an activity which is considered equivalent to work, such as raising a child or caring for a sick or disabled person.

Finally, active labour market measures include counselling and assistance in finding new employment opportunities, starting one's own company, or acquiring new skills to enhance competitiveness in the labour market. Even if individuals are not eligible for unemployment insurance benefits or the unemployment allowance, they can still receive assistance in seeking new employment opportunities.

Access to unemployment services and benefits is contingent upon certain conditions. Individuals formalising their employment through contracts or agreements under the Law of Obligations Act or employment contracts are required to make monthly unemployment insurance payments. However, access to benefits is only available to registered unemployed individuals, who must meet specific criteria and conditions (TkindlS).

The eligibility criteria for unemployment insurance benefits are primarily tailored to salaried employment situations. For instance, individuals may be eligible if they are made redundant, their place of work is liquidated, or their employment relationship ends for various specified reasons. Furthermore, individuals working under contracts governed by the Law of Obligations Act may be eligible for unemployment insurance benefits if their contracts end (TkindlS).

1 The Constitution of the Republic of Estonia, Passed 28.06.1992, RT 1992, 26, 349, Entry into force 03.07.1992

2 Unemployment Insurance Act: Passed 13.06.2001 RT I 2001, 59, Entry into force 01.01.2002

Eligibility criteria and benefit calculations do not accommodate the circumstances of self-employed individuals (Koppel et al., 2021). Initially focused on employees, the unemployment insurance system did not prioritise solo self-employed individuals. Specifically, the system is closely linked to the standard employment relationship regulated by the Employment Contracts Act.³ Additionally, individuals operating as independent contractors under flexible fixed-term contracts governed by the Law of Obligations Act⁴ are subject to mandatory unemployment insurance payments (Koppel et al., 2021).

As a result of stringent eligibility conditions, only 27% of the registered unemployed received the unemployment insurance benefit in 2023, and 43% of registered unemployed did not receive any kind of support.⁵ In 2021, 39% of the registered unemployed lived in relative poverty.⁶

The legal status and access to unemployment protection of the solo self-employed in Estonia

In Estonia, self-employed people are not covered by a specific social security system or a separate legal statute. Although the status of sole proprietors (referred to as *Füüsilisest isikust ettevõtja* (FIE)) is commonly equated with self-employment, there exist four distinct forms of solo self-employment through which individuals can operate, entailing disparate tax rates and access to social protection (Table 1). Three of them are considered business forms by the Estonian Tax and Customs Board:⁷ (1) registering as a sole proprietor (FIE), governed by regulations outlined in the Commercial Code (*Äriseadustik*);⁸ (2) establishing a private limited company, regulated under the Commercial Code (*Äriseadustik*), where individuals offer goods or services through their own company; and (3) opening an entrepreneur account (*ettevõtuskonto*), whereby all income received on the account is subject to automatic taxation irrespective of the legal status or the contractual structure of the self-employed individual. In addition, the solo self-employed can act as independent contractors under the Law of Obligations Act (*Võlaõigusseadus*),⁹ applicable to individuals offering goods or services under non-standard contracts and regulated under the Commercial Code (*Äriseadustik*).

Access to unemployment insurance varies among these different forms of self-employment in Estonia. While sole proprietors are required to pay social tax and are eligible for health insurance, they are not insured against unemployment according to the Unemployment Insurance Act.¹⁰ However, since 2018, sole proprietors can register as unemployed if the activities of the enterprise have been suspended or the seasonal activities of the enterprise have ended and the person complies with the conditions of receipt of unemployment insurance benefit. Sole proprietors may also receive flat-rate unemployment allowance. Independent contractors working under the Law of Obligations Act are subject to similar taxation rules as regular employees and have access to healthcare and

3 Employment Contracts Act Passed 17.12.2008 RT I 2009, 5, 35 Entry into force 01.07.2009

4 Law of Obligations Act, Passed 26.09.2001 RT I 2001, 81, 487 Entry into force 01.07.2002

5 Unemployment Insurance Fund, Main statistical indicators

6 Statistics Estonia, Relative poverty

7 Estonian Tax and Customs Board, Entrepreneur Account <https://www.emta.ee/en/private-client/taxes-and-payment/taxable-income/entrepreneur-account#comparsion> (Last accessed: 22.03.2024)

8 Commercial Code passed 15.02.1995 RT I 1995, 26, 355 Entry into force 01.09.1995

9 Law of Obligations Act passed 26.09.2001 RT I 2001, 81, 487 Entry into force 01.07.2002

10 Unemployment Insurance Act passed Passed 13.06.2001 RT I 2001, 59, 359 Entry into force 01.01.2002

Table 1. Types of operating forms for solo self-employed in Estonia.

Legal status	Taxes paid	Access to social protection
Sole proprietor (FIE)	Income tax and social tax paid by the person, funded pension contributions are optional.	Access to health insurance and state pensions. The person may opt-out from funded second pillar pension scheme.
Independent contractor under the Law of Obligations Act	Labour taxes paid by the employer, similar to those employed under an employment contract, except that the minimum social tax threshold requirement does not apply.	Labour taxes paid by the employer, similar to those employed under an employment contract, except that the minimum social tax threshold requirement does not apply.
Private limited company	Labour taxes paid by the employer, similar to those employed under an employment contract, except that the minimum social tax threshold requirement does not apply.	Access to health insurance, if the monthly social tax paid exceeds the minimum threshold. The right to state old-age pensions depending on social tax paid.
Entrepreneur account	Access to health insurance, if the monthly social tax paid exceeds the minimum threshold. The right to state old-age pensions depending on social tax paid.	Access to health insurance, if the monthly social tax paid exceeds the minimum threshold. The right to state old-age pensions depending on social tax paid.

Source: author.

pension insurance. They also have the right to unemployment insurance if they meet the eligibility criteria. For those operating under a private limited company, taxation obligations depend on whether they function as an employee or a board member. Employees within the company are subject to labour taxes and have access to social security like those covered by standard employment contracts.

On the other hand, in the case of the entrepreneur account, designed for small-scale solo entrepreneurship without business registration, a flat tax rate is imposed on business income. Although it goes towards health and pension insurance, individuals with entrepreneur accounts need a high monthly turnover to be eligible for health insurance. Notably, no contributions are made towards unemployment insurance through the entrepreneur account, rendering individuals ineligible for unemployment benefits. Additionally, individuals with entrepreneur accounts cannot register as unemployed, periods when they are not receiving income.

Despite the array of legal forms available, a fundamental principle governs access to social protection in Estonia: irrespective of their employment classification, all individuals are entitled to equal rights once they have fulfilled their obligations by contributing to social protection at the minimum threshold level.¹¹ While employees in standard employment relationships are subject to uniform labour taxes, including social tax and unemployment insurance contributions, self-employed individuals are faced with diverse tax obligations that are contingent upon their

11 The social contribution is 33% of wages and other remuneration, of which 20% goes towards state pension insurance and 13% towards health insurance. The unemployment insurance tax rate is 0.8% paid from the person's gross salary, and an additional 1.6% is withheld from the salary.

chosen legal status. Despite these disparities, access to social protection typically hinges on income levels and necessitates sustained contributions meeting predefined thresholds or durations. Eligibility for specific benefits, notably those disbursed by the Health Insurance Fund, may hinge on individuals having satisfied the minimum contribution base. Furthermore, in 2016 a change in legislation was implemented in Estonia whereby all social tax contributions from different contract types (both employment and self-employed contracts) are added together and access to health insurance is granted if the total exceeds a monthly minimum requirement.

Similarly, the self-employed may gain access to unemployment insurance. In case the work is formalised via employment contract or through a contract under the Law of Obligations, a mandatory payment of unemployment insurance is made monthly: employees/contractors pay 1.6% of their gross earnings. In addition to conditions regarding standard employment (which can apply to the self-employed working via limited companies as own-account workers), the conditions specifically mention the category of the self-employed working under the Law of Obligations contract. The worker is eligible for unemployment insurance benefit if their contract under the Law of Obligations has ended and if they meet other criteria for receiving the unemployment benefit. In the case that the solo self-employed individual decides to operate through a private limited company and is employed in the company, the same conditions for gaining access to unemployment protection apply as for a standard employment contract.

The multifaceted nature of self-employment often means that individuals engage in various work relationships simultaneously, potentially providing access to unemployment insurance through standard employment arrangements or self-employed activities registered similarly to employment. However, the self-employed status itself can pose challenges for accessing unemployment insurance, particularly when individuals are unable to engage in any ongoing work activities or earn income to qualify as unemployed. For instance, holding an entrepreneur account precludes individuals from registering as unemployed, even if they would otherwise meet the eligibility criteria for insurance and even if these activities generate no income.

The rise of solo self-employment in Estonia

Like the rest of the developed world, Estonia has experienced a surge in solo self-employment, necessitating innovative approaches to social protection for the self-employed, including unemployment protection. In 2022, approximately 10.5% of Estonia's employed population were not salaried employees, with 4.2% categorised as entrepreneurs with employees and 6.2% as solo self-employed, as reported by Statistics Estonia.¹² Furthermore, data from 2023 revealed an average of over 72,000 active contracts under the Law of Obligations Act. A study examining atypical work during the COVID-19 crisis in 2020 identified 22,600 individuals exclusively working as independent contractors under the Law of Obligations Act, of which only 37% earned more than the monthly minimum wage of €584 (in 2020 and 2021), while 20% earned less than the subsistence-level income of €150 (Koppel et al., 2021). Previous comparative research has indicated that, as observed in other European countries, self-employed individuals in Estonia encounter greater challenges in accessing social protection compared to employees, which is attributed to factors such as legal employment structures, undeclared income, and irregular income patterns (Spasova et al., 2017). Furthermore, the distinction between employees and self-employed

12 Statistics Estonia, Short-term Labour Market Statistics

individuals has become increasingly blurred in Estonia, making it progressively more difficult to discern between employees and dependent self-employed individuals (Erikson and Rosin, 2018).

The discussion surrounding access to social protection for the self-employed, particularly within the context of creative self-employment, has been initiated in Estonia.¹³ Findings suggest that primary obstacles stem from the requirement around continuous contributions, as the solo self-employed often receive irregular income and are particularly vulnerable in cases of poor health, which may disrupt their income streams (Koppel et al., 2021). These findings are instrumental in contextualising the social protection situation of solo self-employed individuals in Estonia, highlighting the need to understand the characteristics of the group to determine the necessary legal provisions.

Viewing platform workers as a distinct subset within the broader category of self-employed individuals characterises the reasons of a larger problem of inadequate access to unemployment protection in Estonia for the self-employed as a whole. Platform work represents a significant component of Estonia's labour landscape, with approximately 7% of the working-age population engaging in it regularly, according to a 2021 survey (Vallistu and Piirits, 2021). Despite offering flexibility and convenience, platform work often yields earnings below the national average wage, and workers face varying levels of access to social protection, depending on the relevant platform's policies (Kall et al., 2021).

This inadequacy is exacerbated by factors such as infrequent and low income, as well as the unsuitable form of operation dictated by the platform as an intermediary. The flexibility inherent in the Estonian tax system also presents challenges for self-employed individuals in accessing unemployment benefits. Although the Tax and Customs Board advises aligning one's salary with industry standards, individuals can opt for a lower wage level and allocate any excess income as business revenue through dividends, subject to a 20% income tax rate. While this approach facilitates access to health-care and unemployment insurance contributions, the resulting benefits are often minimal, leaving self-employed individuals vulnerable in the event of income loss.

Recent policy developments and debates on unemployment insurance in Estonia

To date, the primary objective of Estonia's unemployment insurance system has been to mitigate income loss resulting from job loss and to support individuals in securing new employment opportunities by providing active labour market services. However, discussions surrounding the inclusion of self-employed individuals within the unemployment insurance framework have been limited. It was not until the onset of the COVID-19 crisis that policy-level debates and proposals emerged, prompted by the significant income reductions experienced by self-employed individuals who lacked adequate unemployment protection.

Since 1 January 2018, amendments to the Labour Market Services and Benefits Act¹⁴ have allowed board members of legal entities to register as unemployed under certain conditions, considerably widening the possibilities of unemployment protection for the self-employed.

13 The creative self-employment refers to self-employed (registered as a legal person or acting as a platform worker or using an entrepreneur account) who is working in creative industries (According to ISCO-08 classification), as outlined in Koppel et al. (2021).

14 Labour Market Services and Benefits Act, Passed 28.09.2005, RT I 2005, 54, 430, Entry into force 01.01.2006

Subsequent changes in September 2020 enabled registered unemployed individuals to undertake temporary contracts without affecting their unemployment status, aiming to facilitate easier labour market access and potential transitions to permanent employment.

Despite proposals from the Estonian Unemployment Insurance Fund in 2020 to include sole proprietors and board members in the unemployment insurance system through mandatory contributions, legislative changes were not enacted. However, a counter-cyclical approach to unemployment insurance benefit periods was adopted in June 2023, allowing for adjustments based on the prevailing labour market conditions.¹⁵ At the end of the period, the labour market situation is assessed, and the continuation of the unemployment period is decided upon. If the labour market situation is assessed as being good, the insurance period is not extended. If the labour market situation is average or has worsened, the period of payment is extended.¹⁶

The Estonian government elected in spring 2023 has outlined plans to reform unemployment insurance for the self-employed. Its work programme for 2023 to 2027 includes analysing the feasibility of extending unemployment insurance to various categories of self-employed individuals, such as board members, owners of entrepreneur accounts, and sole proprietors.¹⁷ These individuals would be required to make unemployment insurance contributions and would receive access to benefits on a par with other covered worker groups, although the specific implementation details are contingent upon the political landscape and are yet to be finalised.

The rise of non-standard forms of work and platform-based employment has intensified discussions regarding the expansion of unemployment insurance coverage for these categories of workers in Estonia. Laurimäe et al. (2019) advocate for broadening unemployment protection to encompass all forms of employment and introducing partial unemployment benefits to extend both coverage and benefit amounts. Similarly, Koppel et al. (2021) propose granting access to unemployment insurance to all legal work arrangements, including board members and sole proprietors, and suggest considering various work activities within eligibility criteria, not solely based on periods of employment.

Concluding remarks

While Estonia's unemployment system aims to provide income replacement or minimum income support to registered unemployed individuals, there are significant gaps in coverage for self-employed individuals and platform workers. The prevailing mindset in Estonia tends to view self-employed individuals primarily as entrepreneurs, leading to a lack of recognition of the growing prevalence of solo self-employment and the need for expanded social protection measures tailored to this group. Despite acknowledging the blurring of lines between self-employment and traditional

15 A base period of 180 days applies for those with work experience of less than five years, a period of 210 days applies for those with five to ten years of experience, and a period of 300 days applies for those with ten or more years of experience. A base period refers to the standard maximum duration of payment of unemployment insurance benefits, depending on the length of unemployment insurance period.

16 In order to assess the labour market situation, the number of registered unemployed is compared with the average number of unemployed in the last ten years and the last three years. If the number of registered unemployed is 80% of the average of the last ten years or higher than the average of the last three years, the situation is assessed as being average and the duration of some unemployment might be prolonged. If there are at least 20% more registered unemployed than in the past three years on average, the duration of unemployed is extended automatically I would [revise wording]

17 Government of Estonia, Action program of the Government of the Republic 2023–2027

employment, Estonia has not introduced separate categories or adapted its social security framework accordingly.

Although self-employed individuals theoretically have the option to protect themselves against unemployment through certain legal forms, such as services contract under the Law of Obligations Act, digital labour platforms often do not allow this, favouring structures like the private limited company. This lack of flexibility in legal forms and the narrow eligibility criteria for unemployment benefits hinder effective access to social protection for the self-employed.

The existing unemployment insurance system in Estonia is primarily designed for standard employees and does not specifically address the needs of self-employed individuals or platform workers. Legal forms that resemble traditional employment relationships require monthly unemployment insurance contributions, but options like the entrepreneur account or sole proprietorship do not facilitate such payments, thus limiting access to unemployment benefits. Even when contributions are made, the irregularity and low levels of income characteristic of self-employment can result in minimal or insufficient benefits.

Moving forward, addressing the structural challenges facing self-employed individuals and platform workers in accessing social security will require broader reforms beyond simply widening mandatory unemployment contributions. Consideration must be given to the unique income dynamics and employment arrangements prevalent in these sectors to ensure effective protection against unemployment and other social risks. By acknowledging and addressing these issues, Estonia can better support the growing population of self-employed workers in its labour market. Despite recommendations from international scholars for the creation of a separate legal form for self-employment, Estonia's current system offers various specific legal forms, each with its own nuances and limitations. While this diversity provides some degree of choice, it also contributes to complexity and may inadvertently disadvantage certain individuals within the self-employed community.

A more unified approach to social protection could streamline processes and ensure equitable access to benefits across different legal forms of self-employment. By harmonising eligibility criteria and benefit structures, Estonia could create a level playing field that encourages the uptake of legal forms that offer greater protection against unemployment. However, given that regulatory and tax advantages may be driving the rise in solo self-employment, including platform work, novel solutions must ensure equitable outcomes for these work forms compared to standard employment, to avoid long-term exhaustion of social security funds and erosion of public trust.

Furthermore, Estonia could explore adjustments to innovative initiatives like the entrepreneur account to better cater to the needs of solo entrepreneurs. Adapting this approach to allow for unemployment insurance contributions could provide a viable solution for self-employed individuals seeking protection against income loss due to unemployment.

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Publication III

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It is about time! Exploring the clashing timeframes of politics and public policy experiments

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Abstract

Although existing studies on experimental policymaking have acknowledged the importance of the political setting in which policy experiments take place, we lack systematic knowledge on how various political dimensions affect experimental policymaking. In this article, we address a specific gap in the existing understanding of the politics of experimentation: how political timeframes influence experimental policymaking. Drawing on theoretical discussions on experimental policymaking, public policy, electoral politics, and mediatization of politics, we outline expectations about how electoral and problem cycles may influence the timing, design, and learning from policy experiments. We argue electoral timeframes are likely to discourage politicians from undertaking large-scale policy experiments and if politicians decide to launch experiments, they prefer shorter designs. The electoral cycle may lead politicians to draw too hasty conclusions or ignore the experiment's results altogether. We expect problem cycles to shorten politicians' time horizons further as there is pressure to solve problems quickly. We probe the plausibility of our theoretical expectations using interview data from two different country contexts: Estonia and Finland.

Key words: policy experiments; experimental policymaking; politics of experiments; timeframes.

INTRODUCTION

The increasing complexity of economic, environmental, and societal problems has pressured governments to seek novel ways to adapt existing public policies, as well as design new policy solutions. Experimentation has been proposed as a key strategy for dealing with complexity and producing policies that better address acute challenges (e.g., Ansell and Bartenberger 2016; Bravo-Biosca 2020; McGann, Blomkamp, and Lewis 2018; Pearce and Raman 2014; Rangoni and Zeitlin 2021). Experimental approaches promise to provide a better understanding of policy problems that are characterized by high levels of uncertainty (Bravo-Biosca 2020). Numerous studies point to the increasing use of experimentation in contemporary policymaking (e.g., Ansell and Bartenberger 2016; Lee and Ma 2020; Pearce and Raman 2014).

Various definitions are used for delineating policy experiments. We adopt a definition of experiments as *time-limited tests of new policy solutions that provide information for further policy decisions* (Bravo-Biosca 2020, p. 195; McFadgen and Huitema 2018; Nair and Howlett 2016, p. 69). This definition is intentionally broad to accommodate different experimental approaches and satisfies the two core criteria put forward by McFadgen and Huitema (2018): to call something an experiment, there should be an intervention theory with explicit assumptions, which are tested, and the tested solution should be novel. Importantly, experiments have a clear timeframe and an explicit *ex ante* strategy for

assessing the effects of the intervention (Ibid.; Bravo-Biosca 2020, p. 195). Our focus is on *field experiments* initiated and interpreted by governmental policy actors and not on laboratory experiments conducted by researchers. We concentrate on strategic large-scale policy experiments, which span several years and involve political decision making.

Despite high expectations, existing studies have often found that large-scale policy experiments face various impediments. Nair and Howlett (2016, p. 72) argue the obstacles have a lot to do with “the politics of policy experiments”—various political considerations featuring throughout the experimental process and posing “continual challenges to effective experimentation.” From the “political learning” perspective, postulated by Corduneanu-Huci, Dorsch, and Maarek (2021, p. 4), electoral competition should encourage politicians to undertake more experiments since the knowledge gained from such experiments may offer politicians electoral advantages by signaling voters their “intentions to implement policies based on rigorous evidence, address criticism, and establish objectivity in politically contentious issues.” The reported experience with policy experiments, however, indicates a much more complex picture: choices of policy action and interpretation of evidence have been strongly influenced by what is “politically preferred, conducive or acceptable” (Nair and Howlett 2016, p. 72). Despite extensive scholarly discussions on policy experimentation, however, there is surprisingly little systematic analysis and theoretical conceptualization of the *political dimensions* of public policy experiments.

A core characteristic of all experiments is that they have “timeframes set from the start to assess results and make decisions” (Bravo-Biosca 2020, p. 197). However, some studies have recognized that there is a potential “temporal dis-joint between establishing evidence and demands for political action” (Pearce and Raman 2014, p. 393). As noted by Stoker (2010, p. 53), “experiments are a tool with a linear rhythm in a non-linear policy process and may as a result lose the battle for relevance by failing to produce results in a timely way.” The timeframes inherent to large-scale experiments (spanning several years) can be expected to interact with other temporalities in the politico-administrative system. The interaction of these temporalities may shape the experimental design, process, and results in unanticipated ways.

Hence, in this article, we zoom in on a specific challenge that the political setting poses for experimental policymaking: the potential clashes between political and experimental *timeframes*. Although the challenges related to timeframes have been tangentially mentioned by several studies discussing public policy experimentation, so far, they have not been investigated in a *systematic* way—either theoretically or empirically. In our article, we seek to address this important gap in existing research. The key research question of the article is: How do the timeframes inherent to politics influence experimental policymaking? In particular, we are interested in the *challenges* the political timeframes pose for large-scale policy experiments.

Our analytical strategy for tackling these questions is as follows. In the theoretical part of the article, we outline the key clashes between experimental and political temporalities that can be encountered in experimental policymaking. We do so by synthesizing ideas from the theoretical discussions on experimental policymaking, public policy, electoral politics, and mediatization of politics.¹ In the empirical part, we probe the plausibility of the theoretical expectations and examine how these clashes are expressed in the perceptions of public officials about experimental policymaking in two different country contexts: Estonia and Finland. As sources of data, we use 66 interviews conducted with public officials in Estonia and Finland in 2022–2023.

The novel theoretical contribution of our article is to put forth a framework that discusses the impacts of the various timeframes inherent to politics (electoral cycles and problem cycles) on experimental policymaking in a systematic and holistic way. Our empirical contribution is to test the plausibility of the theoretical expectations and to provide an empirical understanding of how the political timeframes influence experimental policymaking in different empirical contexts.

THEORETICAL DISCUSSION

The Promise and Nature of Public Policy Experiments

The growing pressures on governments to be “smarter,” more “innovative,” and “agile” have spurred a call for an increasingly experimental stance or even an “experimental turn” in

public policy making (e.g., Ansell and Bartenberger 2016; Ettelt, Mays and Allen 2015; Lee and Ma 2020; McGann, Blomkamp and Lewis 2018; Rangoni and Zeitlin 2021; Raudla et al. 2023). The benefits of using experimentalist approaches are argued to be manifold. Testing the usefulness of novel ideas and solutions in a real-world setting before applying them on a larger scale is expected to increase the quality of policies by providing knowledge that is otherwise not available (Checkland et al. 2023; Ettelt, Mays, and Allen 2015; Farrelly 2008; Millo and Lezaun 2006). Furthermore, experimentation is viewed as a way to adjust to change in an increasingly uncertain, complex, and fast-changing social, economic, and environmental context, and to improve the future-readiness of the planned policies (Ansell and Bartenberger 2016; Bravo-Biosca 2020; Lee and Ma 2020; Millo and Lezaun 2006; Nair and Howlett 2016). Large-scale policy experiments have been undertaken in various policy fields, including education, employment, welfare, health, environmental sustainability, and fiscal policies. For example, policymakers have experimented with universal basic income, housing allowances, income maintenance, welfare-to-work, negative income tax, and water management (Ettelt, Mays, and Allen 2015; Kangas et al. 2021; Nair and Howlett 2016; Oakley 1998).

A wide range of experimental approaches are available for governments to fulfill these aims. By and large, they can be divided into three ideal types—randomized controlled trials (RCTs), non-randomized policy pilots, and design experiments (Raudla et al. 2023). RCTs offer experimenters the opportunity to draw valid causal conclusions about the effects of a project, program, or policy by randomly dividing the target population into two or more groups and treating them differently (Bravo-Biosca 2020; Pearce and Raman 2014). RCTs are often presented as the “gold standard” of experiments (e.g., Pearce and Raman 2014). Non-randomized policy pilots test a new policy approach on a small subset of population or jurisdictions and allow the introduction of a policy in a phase-wise manner (Farrelly 2008; Nair and Howlett 2016). In design experiments, a policy solution is iteratively refined on the basis of feedback gathered from the affected individuals, until acceptable results emerge (Ansell and Bartenberger 2016; Stoker and John 2009). In this article, we focus on large-scale experiments, which span several years and necessitate the involvement of politicians (e.g., for legislative mandate, funding, and public legitimization).

The Political Setting of Experiments

Huitema et al. (2018, p. 148) argue that in the policy sciences, experiments have been predominantly conceptualized as a *research method*. According to the “research logic” of public policy experiments, the experimentation would proceed in the following steps: identifying the policy problem, exploring potential ideas and solutions, selecting idea(s) for testing, choosing the appropriate experimental design, testing whether and how the solutions work, evaluating the evidence, deciding on the further policy steps (discontinue, scale-up, or new experiment), and disseminating the knowledge gained (e.g., Bravo-Biosca 2020; Cobb et al. 2003). As such, public policy experiments hold a promise of a rational approach to policy making (Checkland et al. 2023), “removed from the messy world of politics” (Rogers-Dillon 2004, p. 24).

¹The mediatization of politics has been defined as “a long-term process through which the importance of the media and their spill-over effects on political processes, institutions, organizations and actors have increased” (Strömback and Esser 2014, p. 6).

However, since policymaking is an inherently political process, the reality of policy experimentation is much more complex than the “rational” ideal implies (e.g., Checkland et al. 2023; Rogers-Dillon 2004). Experiments can be exposed to political impacts throughout the entire process, and politics may undercut the aforementioned linear sequence of steps (e.g., Bédécarrats, Guérin, and Roubaud 2019; McGann, Blomkamp, and Lewis 2018). Indeed, the existing literature acknowledges that public policy experiments are not neutral evidence-creating research activities, and their interpretation is “an inescapably political process” (Huitema et al. 2018, p. 148). The political setting can influence “who gets to formulate the ideas, who is involved in producing the evidence on their efficacy, which kinds of information should be collected, and which rules of evidence are used” (Ibid., p. 145). Thus, political motivations are likely to affect the choice and set-up of experiments and the interpretation of results. In the following, we zoom in on a key challenge that the political setting poses for large-scale public policy experiments: the clashes between political and experimental timeframes.

How Political and Experimental Timeframes Clash

According to Schedler and Santiso (1998, p. 5), “[t]ime in its manifold manifestations represents a pervasive factor of political life.” Studies on political time have distinguished between various temporal features (such as electoral terms, time budgets, and time horizons) and argued that all these aspects can profoundly affect policymaking (e.g., Goetz 2014; Goetz and Meyer-Sahling 2009; Howlett and Goetz 2014; Linz 1998; Schedler and Santiso 1998). Although in the existing literature on experimental policymaking, the potential clashes between political and experimental timeframes are mentioned, it has been done in a cursory fashion. In none of the existing studies have the tensions between experimental and political timeframes been examined in a systematic way—theoretically or empirically. Thus, to take the first step towards a more systematic understanding of these tensions, we developed the theoretical discussion in the following way. We juxtaposed the theoretical insights from various literatures on public policy, electoral politics, and mediatization of politics that discuss the nature of political timeframes with existing theoretical discussions on policy experimentation and derived the implications for experimental policymaking. We argue the temporalities of politics and experimentation can clash with each other in various ways. More specifically, the key sources of these clashes are disparities between the electoral and experimental timeframes and differences between the timeframes of political problem cycles and experiments.

Electoral Cycles Versus Policy Experiments

The *modus operandi* of electoral politics is that in a democratic setting, politicians strive to win competitive elections, and their decisions are influenced by their perceptions of which policies appeal to the electorate and maximize votes from their constituents (e.g., Bernecker, Boyer, and Gathmann 2021; Sørensen et al. 2020). In a democratic setting, “the most fundamental temporal unit is the electoral term” (Goetz and Meyer-Sahling 2009, p. 185). The electoral term provides politicians with the time budgets they have for getting things done and marks the time horizons they adopt—which in turn can influence the timing, starting, and ending of policies (Goetz 2014; Goetz and Meyer-Sahling 2009; Howlett and Goetz 2014; Linz 1998; Schedler and Santiso 1998). The

impact of these temporal features on policy experiments can be viewed through various lenses. On the one hand, there are mechanisms through which the timeframes of electoral cycles can *facilitate* the use of policy experiments.

First, politicians may use experiments to extend their policy influence *beyond one electoral cycle*: to cast a longer shadow than their current term in office would otherwise allow and to tie the hands of subsequent governments in their policy choices (Callander and Hummer 2014; Corduneanu-Huci, Dorsch, and Maarek 2021). When politicians know that they may not be in office after the next elections, they may initiate policy experiments during their time in office in the hope that the evidence of positive results provided by trial would compel the future government to go ahead with their preferred policy direction. Thus, experiments initiated in one electoral cycle can serve as a mechanism for transmitting information to the next electoral cycle (to the electorate and to the next incumbents), for securing buy-in and ensuring the survival of the preferred policy (Callander and Hummel 2014; Corduneanu-Huci, Dorsch, and Maarek 2021). Used in that way, experiments can in fact lengthen the political time horizons, which may otherwise be confined to just one electoral cycle.

Second, politicians may launch policy experiments in the run-up to elections to avoid “larger pain” and to minimize electoral losses. As Nair and Howlett (2016) suggest, if addressing a particular problem entails painful and unpopular decisions, politicians may use an experiment as a “substitute” for large-scale policy action. Pilots can serve “as an excuse for policymakers to delay large-scale policy reforms beyond their term in office” (Nair and Howlett 2016, p. 71). In that way, the elected officials can demonstrate that they are “dealing” with a problem but at the same time avoid retribution from the electorate for politically unpalatable actions.

On the other hand, there are several ways how the electoral cycle can be expected to pose challenges for experimental policymaking because of the mismatches between experimental and electoral temporalities, especially when it comes to larger-scale policy experiments. The clashes between electoral and experimental timeframes can influence *whether* the experiments are initiated in the first place, how they are *designed*, and the extent to which policymakers *learn* from them.

First, given that electoral terms limit their time budgets and shorten their time horizons (Goetz and Meyer-Sahling 2009), politicians may be disinclined to launch large-scale experiments (spanning several years) in the first place (Bernecker, Boyer, and Gathmann 2021; Majumdar and Mukand 2004). If an experiment is initiated before elections but the results only materialize after, the political calculus may question the electoral benefit of such an undertaking (Bueno 2023; Majumdar and Mukand 2004; Mink and De Haan 2006). Prior to elections, politicians would be motivated to pinpoint concrete policy achievements and decisions that have already been adopted, highlight their visible benefits to the voters, and claim the credit (Bueno 2023; Harrington 1993; Rogoff 1990). If, instead, politicians have to point to an *ongoing* policy experiment with vague and uncertain future benefits (Corduneanu-Huci, Dorsch, and Maarek 2021), they may consider it to be an overly weak signal of their achievements in office, potentially undermining their chances in the electoral competition. Thus, the perceived short-term political benefits derived from faster policy decisions (by fitting them into the time budget remaining in the electoral

term) may outweigh the longer-term benefits of the information an experiment can offer. Such opportunistic uses of the time budgets shaped by the electoral cycle have been observed in other domains of political action and discussed extensively in the literature on electoral budget cycles (e.g., [Bueno 2023](#); [Katsimi and Sarantides 2012](#); [Mink and De Haan 2006](#)).

Second, even if politicians do decide to launch policy experiments, the considerations of the electoral term, which limits their time budgets ([Goetz and Meyer-Sahling 2009](#)), may motivate politicians to push the experiments to be done faster than warranted by scientific design ([Corduneanu-Huci, Dorsch and Maarek 2021](#); [Stoker and Evans 2016](#); [Strydom et al. 2010](#)). Thus, the elected officials may demand shorter experiments to ensure that the results can be shown within their time budget: before the next elections ([Nair and Howlett 2016](#); [Stoker 2010](#)). Although large-scale strategic RCTs lasting several years hold the promise of delivering the most rigorous causal conclusions about the effects of a tested policy (e.g., [Cotterill and Richardson 2010](#)), politicians may object to longer timeframes needed for the intervention to take effect and demand shorter timeframes for the experiment. Due to the limited duration, however, the experiments may not be able to capture the longer-term impacts of the tested policy solution ([Millo and Lezaun 2006](#)).

Third, even if politicians agree to launch experiments that cross the electoral cycle (i.e., are designed to end after the subsequent elections), the proximity of upcoming elections may motivate politicians to draw conclusions from the ongoing experiment too hastily ([Checkland et al. 2023](#); [Martin and Sanderson 1999](#); [Rogers-Dillon 2004](#)). [Stoker \(2010, p. 53\)](#) argues even “if the right moment is seized to do experimental work, there can be issues about the impatience of policymakers in waiting for results.” If politicians support the policy solution the experiment is testing but fear that they would not be in office after the next elections, they may wish to cement certain policy decisions during their time in office. As a result, they may be inclined to scale up the tested policy immaturely, before the experiment has an opportunity to provide solid evidence. This, in turn, would undermine learning from the experiment and important policy decisions may be made before the results of the experiment come in ([Nair and Howlett 2016](#); [Stoker 2010](#)).

Fourth, electoral cycles may induce politicians to ignore the results of the experiments ([Corduneanu-Huci, Dorsch, and Maarek 2021](#); [Majumdar and Mukand 2004](#)). By the time the results of an experiment are available, a new government may be in office and, consequently, political priorities may have changed ([Bravo-Biosca 2020](#); p. 205; [Nair and Howlett 2016](#); p. 70; [Oakley 1998](#); [Pearce and Raman 2014](#), p. 394). Thus, experiments may become regarded “as time capsules from a previous era” ([Huitema et al. 2018](#), p. 148) and the new government in office after elections may be inclined to ignore the experimental evidence.

Political Problem Cycles Versus Policy Experiments

Alongside the considerations of the electoral cycle, politicians’ decision making is strongly influenced by emergent problems in the public sphere and the collective attention to these problems (e.g., [Jones 2017](#)). The essence of what we label as a “problem cycle” is the following: when there is a socially perceived problem and politicians are expected to “fix” it—sooner, rather than later. The timeframes of the “problem

cycles” are likely to affect politicians’ inclination to launch and learn from experiments.

If delays in solving societal issues are perceived as problematic, the time horizons of policymaking can become even shorter than the timeframes posed by electoral cycles. If politicians perceive a strong time pressure in addressing a societal problem, gathering evidence via experimenting may seem as a “luxury,” as pointed out by the literature on evidence-based policymaking (e.g., [Cairney 2016](#); [Stoker and Evans 2016](#); [Strydom et al. 2010](#)). Some problems may be perceived to be so acute that they do not allow time for conducting experiments ([Clarke and Craft 2019](#); [Pearce and Raman 2014](#)). Instead, driven by ideology, politicians may prefer to trust their gut feeling about the potential impacts of different policies—and hence would not feel the need to demand more rigorous evidence via experiments ([Beesley, Hawkins, and Moffitt 2022](#); [Bravo-Biosca 2020](#); [Cairney 2016](#)). Experimenting strikes the kind of “chord of skepticism and indecision” that politicians seek to avoid ([Peters 1998](#), p. 126), especially in a situation of collective attention to a problem that has been defined as urgent ([Jones 2017](#)). Even if an experiment is launched to test different solutions to an imminent and salient problem, then similarly to the dynamics in electoral cycles, politicians may want to hasten the evaluation of the data provided by the experiment to get answers more quickly ([Nair and Howlett 2016](#); [Trein and Vagionakis 2022](#)).

The clashes between the experimental and political problem-solving timeframes are likely to be amplified by two factors: (1) media attention to societal problems and (2) crises. Media attention is likely to increase policymakers’ perception of urgency in solving salient societal problems ([Stoker and Evans 2016](#); [Torfing and Ansell 2017](#)). The increasing role of media in shaping political decisions has been captured by the term “mediatization of politics.” Since the media plays a strong role in influencing public opinion, politicians are strongly motivated to take it into consideration in their decisions ([Strömbäck and Esser 2014](#)). The growing mediatization of politics means that the media attention amplifies the societal gaze under which political actors move and it forces political actors to take decisions more quickly ([Blumler 2014](#); [Mazzoleni and Schulz 1999](#); [Strömbäck 2008](#); [Strömbäck and Esser 2014](#); [Torfing and Ansell 2017](#)). Due to the perceived power and influence of the (news) media, political actors may subject the pace of their decisions to the media-cycle. As [Blumler \(2014, p. 35\)](#) puts it, the rhythm of news production embraces “the new” and “all involved in its making are drenched in the fluid immediacy of events and their coverage.” Consequently, “politicians and their advisors often seem impelled to keep up with and respond to the news on its terms and in its time” (p. 35). As a result of the scandal-focused media, while at the same time suffering from information-overload and shortage of knowledge (e.g., [Jones 2017](#)), politicians may be tempted to dive into solutions too quickly ([Torfing and Ansell 2017](#), p. 38), which leaves no time for discussing alternative options and testing them before scaling up.

The shortening of political time horizons resulting from mediatization would be further amplified if the policy problem is defined as a “crisis”: where the core values, institutions, or functions of the society are perceived to be under threat ([Boin and t’Hart 2022](#)). A situation of a (perceived) crisis is likely to give rise to a sense of “policy urgency” among

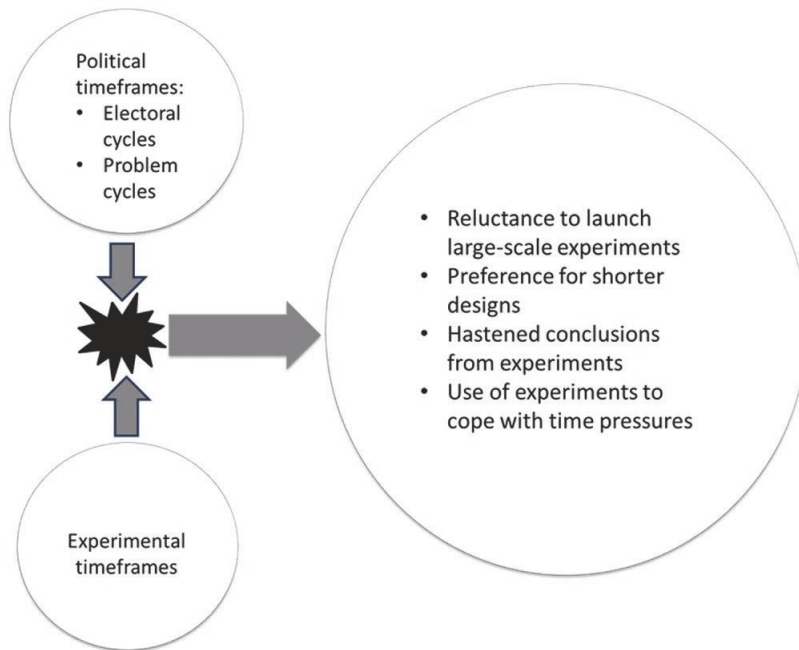


Figure 1. Impacts of clashes between political and experimental timeframes

politicians (Hulme and Hulme 2012; Lesch and Millar 2022). In such a situation, politicians are likely to forgo experimental policymaking, since such evidence-collection is likely to take more time than politicians have in their time budget (Hulme and Hulme 2012).

In sum, we expect the clashes between political and experimental timeframes to lead to the following impacts (see also fig. 1). First, both electoral and problem cycles are likely to hinder the launch of large-scale policy experiments. Second, even if large-scale policy experiments do get launched, electoral cycles can lead politicians to prefer shorter designs and draw conclusions before the completion of the experiments. Finally, politicians may use policy experiments to cope with pressures from electoral and problem cycles. Next, we test these conjectures empirically.

METHODS

To probe the plausibility of the theoretical expectations outlined the previous section, we draw on interviews carried out in Estonia and Finland from Fall 2022 to Summer 2023. The semi-structured interviews (32 in Estonia and 34 in Finland) were conducted according to the same interview protocol and engaged central government public officials from the Government Office/Prime Minister's Office, fiscal and financial policy institutions, and other public institutions. When selecting interviewees, we were guided by the following considerations. First, we contacted officials who are or have been in charge of coordinating experimental policymaking in the Prime Minister's Office in Finland and the Government Office in Estonia. Second, we wanted to interview officials from different hierarchical positions. Our set of interviewees included: 6 top-level

officials from Estonia and 4 from Finland; 13 middle-level officials in Estonia and 12 in Finland; 13 expert-level officials in Estonia and 18 in Finland. Third, we wanted to ensure that our interviews cover the perspectives of officials working in ministries and agencies. Our set of interviewees thus included 32 ministry-level officials (16 in each) and 16 agency-level officials (7 in Finland and 9 in Estonia).² Finally, we used snowballing to identify further interviewees who had had experiences with policy experiments (see Appendix I for more details).

Despite being geographically close, the two countries represent different cases in terms of their historical-social background and experience with policy experimentation. Finland is regarded as a leading country of policy experimentation, embedding them in “anticipatory governance,” while Estonia is an aspiring novice, having only taken its first steps towards a more systematic public policy experimentation. The interviews explored the perceptions of the Estonian and Finnish public officials regarding the benefits and pitfalls of policy experiments as well as their own experience with experimenting (see Supplementary Appendix II for the interview protocol). The average length of an interview was one hour.

All the interviews were recorded and transcribed. In coding the interviews with MAXQDA, we used a combination of deductive and inductive approaches. The coding exercise started with the initial coding scheme based on the preliminary analytical framework drawing on the international academic

²Given the overall focus of the broader research project within which the interviews were conducted and to ensure in-depth comparability between the cases, the interviewees included 11 Ministry of Finance officials in Finland and 15 in Estonia; 7 officials from the Tax and Customs Board in Estonia and 4 officials from the Finnish Tax Administration.

debate on policy experimentation. In the process, the initial coding scheme was complemented with the additional codes emerging from the analysis of the interview transcripts. All the statements of the interviewees concerning the role and perceptions of politicians and political institutions towards policy experimentation as well as all the statements regarding temporal aspects of experimenting were coded with respective codes (see [Supplementary Appendix II](#) for more details).

The research design allowed us to gain rich information about the perceptions and experiences of public officials regarding the different temporalities involved in policymaking and experimentation. To maintain the anonymity of the interviewees, they are identified by a short code in the analysis (e.g., Est1, Fin1).

EMPIRICAL ANALYSIS

A Short Overview of the Case Contexts

Estonia and Finland—neighboring countries located at the opposing shores of the Baltic Sea—are both small parliamentary democracies with parliaments *Eduskunta* (FIN) and *Riigikogu* (EST) elected by proportional representation. The countries have strong multi-party systems that, in combination with the proportional representation, lead to coalition governments where common interests and aims must be sought by political parties.

The development of the experimental culture in Finland dates back several decades as a central theme in innovation policy and the activities of the Finnish innovation fund SITRA but was strongly re-emphasized during the government period of Prime Minister (PM) Juha Sipilä in 2015–2019. During that period, policy experimentation was institutionalized as a high political priority through the program “Experimental Finland” (2016–2019) ([Leino and Akerman 2022](#)). A framework of public sector experimentation was developed and funding for experiments was allocated. The program designed by the Experimental Finland Team in the PM Office foresaw several types of experiments including strategic experiments (policy trials) and pilot pools/partnerships (regionally relevant or sector-specific experiments) ([Leino and Akerman 2022](#), p. 45). Alongside hundreds of experiments and policy pilots conducted across the country both at the central government and municipal level, six strategic experiments were initiated, including the world-famous universal basic income (UBI) experiment ([Kangas et al. 2021](#)). The subsequent government of PM Sanna Marin launched various large-scale policy experiments as well, including an RCT testing the extension of preschool education to 5 year olds, an RCT testing the effects of a recruitment subsidy for sole entrepreneurs, and piloting the delegation of employment services to municipalities, among others.

In Estonia, the emergence of policy experimentation as an element of public sector innovation policy has been much more recent and characterized by a bottom-up approach. Experimentation has been promoted by public sector innovation programs financed from the European Union structural funds and so-called “design sprints” led by the Public Sector Innovation Team at the Government Office. In June 2023, a methodological guide for experimenting in the public sector was published. However, the policy experiments carried out have been mostly small-scale design experiments (e.g., on improving the explanatory note of the state budget), policy pilots (e.g., on performance budgeting), or RCTs (e.g.,

concerning recycling of packaging) not demanding political attention or intervention.

Electoral Cycle Versus Experimental Cycles

Our interviews indicate that in both Finland and Estonia, the electoral cycles have influenced experimental policymaking in important ways. The clashes between electoral and experimental timeframes have influenced decisions on *whether* and *when* to initiate experiments, the temporal features of their *design*, and *learning* from experiments.

Whether, When, and How Long to Experiment?

Even though the governments in Finland have managed to launch large-scale experiments spanning several years, many interviewees did consider the electoral cycle to be a major obstacle to policy experiments. It was noted that since governments are in office only for the term of four years it may *discourage* politicians from launching longer-lasting experiments since they feel they do not have enough time in their time budget to wait for the results. As an interviewee explained, “politicians know that they have only four years in office and if they want to get votes in the next elections, they have to signal to the voters that they have done something beneficial. That creates a problem with these experiments because it would be ideal to have them running for longer time-periods. But the politicians don’t want to, because the effects would be coming after the elections, and they may not be in the next government” (Interview Fin20).

Estonian public organizations have undertaken several smaller-scale experiments that have remained under the political radar—for those, the political timeframes have not presented significant challenges. The interviewees acknowledged that for large-scale policy experiments (the Finnish UBI experiment was often referred to as an example), politicians would need to be involved to initiate the trial, provide the legislative mandate, and secure funding (Interviews Est7, Est11, Est12, Est15, and Est18). Politicians’ focus on the electoral cycle, however, was viewed as a major hurdle in undertaking large-scale policy experiments. Furthermore, some of the interviewees pointed out that due to the frequent turnover of governments in Estonia (with each coalition lasting 1–2 years), the time horizons of politicians are even shorter than the electoral cycle of four years, with one respondent stating “the political cycle in Estonia is about a year—so you cannot actually assume that you have 4 years to carry out any project” (Interview Est9). That, in turn, has hindered the initiation of any longer-term experiments: “politicians are afraid that by the time the experiment is completed, they might not be in the office anymore, so they want to implement the proposed solution right away” (Interview Est18).

The electoral timeframes have implications also for the *timing* of new policy experiments. The Finnish experience with large-scale RCTs demonstrates that if politicians do want to launch them, they strongly prefer to do it at the *beginning* of the governmental term, to ensure that the experiments get completed within their time budget. An interviewee summarized the tendency as follows: “it’s very difficult for politicians to accept that they have launched a certain experiment but not get the outcome during the same electoral period. This is one reason why experiments are often launched at the beginning of the governmental term.” (Interview Fin12)

The Finnish interviews indicate that the Government Program is a key instrument for outlining which experiments the government plans to undertake but the composition of the Program is influenced by political timeframes. A Government Program is a 4-year action plan that a new coalition government agrees on at the beginning of the governmental term. If the experiments are decided during the negotiations over the Government Program and written into it, then they cannot be neglected later (Interviews Fin3, Fin12, Fin15, Fin16, Fin17, Fin22, Fin23, Fin24, and Fin25). The time budget for compiling the Government Program, however, is usually quite short (from a couple of weeks to a couple of months) and that means that only limited time is available for considering what kinds of strategic experiments could be mentioned in the Program.

When politicians in Finland have decided to launch large-scale experiments spanning several years, the clashes between the political and experimental timeframes have influenced the *design* of the experiments. While researchers and civil servants would have preferred longer timeframes for preparing the experiments and their actual duration, the political timeframes were much shorter due to the electoral cycle (Interviews Fin7, Fin8, Fin10, Fin11, Fin14, Fin15, Fin16, Fin20, Fin28, and Fin32). As observed by one of the interviewees, in the case of the UBI experiment, there was strong pressure from politicians to launch the experiment quickly: “the politicians wanted to have the experiment up and running in one month. But there were a lot of things that needed to be done before, so that was very unrealistic.” (Interview Fin6) In the words of another interviewee: “the toughest part was the timeframe. The universal basic income experiment had to be conducted quite quickly because the politicians wanted to complete it before the next elections. It is difficult for them to understand how long it takes to prepare and implement a good experiment.” (Interview Fin8) This provides evidence for the theoretical expectation that politicians’ considerations of the electoral cycle can lead them to prefer shorter timeframes for policy experiments.

However, our interviews also indicate that there can be *political* reasons for why the launch of an RCT can take a long time. In the Finnish context, RCTs that treat people differently need a legislative basis. Passing the necessary legislation can take time and considerably delay the start of the experiment (Interviews Fin7, Fin14, and Fin21). Furthermore, in some instances, electoral considerations can lengthen (rather than shorten) the duration of the experiment. In the case of the pre-primary education trial, the politicians demanded the addition of one more cohort of pupils to the experiment, which extended its length by one year.³ Although that meant that the trial could not be concluded anymore within the Government period, the interviewees suggested that the request to include an additional cohort was related to the political calculation: “they just thought that it would look nice for the people who are voting for them, the electorates.” (Interview Fin13). Thus, contrary to our expectation that electoral cycles would shorten the timeframes of policy experiments, the Finnish case provides examples of situations where political considerations actually lengthen the experimental timeframes. In sum, our cases indicate that electoral

cycles play a significant role in whether and when politicians prefer to launch policy experiments and which experimental timeframes they prefer. Next, we analyze how electoral cycles affect the learning from experiments.

Learning from Experiments

We conjectured that, in addition to decisions on how long the experiment should last, the electoral cycle may influence *how quickly* the politicians draw lessons from an on-going experiment or whether they are willing to wait for them at all. As the Finnish interviews indicate, this has indeed happened in the case of a large-scale policy pilot that was intended to test whether delegating employment services from the central government to the municipalities would improve employment outcomes. The pilot was launched in early 2021 and was meant to last for 4 years (until the end of 2024). However, before the 2023 spring elections—2 years before the experimental evidence was supposed to come in—the Finnish government decided to scale up the policy solution being tested and delegate employment services to all municipalities, starting from 2025 (Interviews Fin9, Fin12, Fin13, and Fin15). As one of the interviewees explained, “the pilot wasn’t given enough time to show any results before the politicians took the decision for this large-scale structural change. The first results only came in after the government had already decided to scale this policy up. The preliminary results showed that there was no significant difference between the pilot municipalities and the synthetic control groups, but by then the policy decision was already done.” (Interview Fin9) This shows how pressures of the electoral cycle led politicians to become impatient waiting for the results of the policy experiment and decide to expand the reform before evidence about its impacts was available.

As the interviewees explained, the government wanted to use the opportunity when in office to get something done in the policy domain it considered ideologically and politically important. Since the coalition politicians could not be sure they would be in the next government, they wanted to leave a mark on the employment policy area (Interviews Fin9, Fin12, and Fin15). Similarly, in the case of the pre-primary education trial, the approaching general elections put the issue of pre-primary education on the political agenda and led to a political suggestion of scaling up the solution to all the children before any results from the trial had come in (Interview Fin16).

We suggested that the electoral cycles may lead to the disregarding of experimental evidence when a new government comes to office and has different policy priorities from the previous one. We witnessed some of these dynamics in the case of the UBI experiment in Finland, where the results of the experiment only came in after the term of the government (that had initiated it) had ended. Although the experiment did show some promising results regarding improving the well-being indicators of participants, the new government that came into office after elections had other policy priorities and did not pursue any further steps with universal basic income (Interviews Fin6, Fin20, Fin23, and Fin27). One of the interviewees explained that there is a higher chance for the results of the experiment to “endure” beyond the term of the government who initiated it and to influence the new government in office when the new coalition includes at least one party from the previous coalition (Interview Fin20). It was also suggested that if the issue being experimented with is considered important by all parties, the subsequent coalition

³The RCT sought to assess the effects of offering pre-primary education to 5 year olds on children’s development and learning (Ministry of Education and Culture 2021).

governments are more likely to consider its results (Interviews Fin9 and Fin14).

Another factor influencing whether the legacy of an experiment endures from one government to the other is whether the parliamentary opposition parties have been included in the discussions on the experiment and support it (Interviews Fin14 and Fin21). That way, the opposition parties are less likely to discard the experiment when they take office. Thus, involving opposition parties in decisions regarding an experiment can lengthen politicians' time horizons beyond the electoral cycle. Broad-based discussions and the building of consensus concerning an experiment can hence provide opportunities for longer experimental timeframes, which in turn improves the validity of the evidence experiments offer. In sum, our cases show that electoral cycles play a significant role in whether experiments are launched, how long they last, and how politicians draw conclusions from them. Next, we turn to the impacts of the problem cycles on policy experimentation.

Problem Cycle Versus Experimental Cycle

We conjectured that the short problem-cycles politicians follow can hamper the use of large-scale experiments in experimental policymaking, and the sense of policy urgency is likely to be amplified by mediatization and crises. The interviews from both Finland and Estonia corroborate these expectations.

Although the Finnish government has—to some extent—been able to overcome the short-termism pressures imposed by the problem-cycle and launched large-scale policy experiments, the interviewees did mention that time pressures have also undermined experimentation. As one of the interviewees summarized it: “we are currently living in social media-driven political reality where politicians are so stuck to minute-based communication that it seriously harms visionary politics of which experimental policymaking could be part of” (Interview Fin29). It was also observed that the perception of a crisis creates pressures to offer immediate solutions, which, in turn, undermines experimentation. As one of the interviews put it, “during the covid crisis, nobody in their right mind could suggest experimenting with the solutions before scaling them up. We had to act immediately” (Interview Fin34). Thus, we can see that even in a country where politicians favor policy experimentation, the time pressures of mediatization and crises can hamper their willingness to experiment.

Our interviews suggest that policy experiments in a specific policy area may also be influenced by problem pressures in *neighboring* policy fields. In the case of the policy pilot that delegated employment services to the municipalities, the context was changed by a major reform of social and health services whereby the responsibility and budget for these services were moved from the municipal to the regional level, with one interviewee stating “at that stage, the politicians thought that we had to compensate for this change somehow to the municipalities and decided to give employment services from the state to the municipalities” (Interview Fin12). This consideration contributed to the decision to scale up the employment services reform before the policy pilot could deliver any results (Interviews Fin12 and Fin13).

On the other hand, the Finnish interviews also demonstrate how politicians use pilots and experiments to “buy time” in solving problems and to mitigate time pressures created by

mediatized problem cycles. Several interviewees argued that since launching pilots requires less time (and also less money and effort) than a full-scale policy change, politicians often prefer it as a first step in addressing the problem (Interviews Fin2, Fin4, Fin8, Fin16, and Fin20), with one interviewee stating “launching pilots allows the politicians to go on TV and make an announcement about that” (Interview Fin2). It also emerged from the Finnish interviews that, at times, politicians use experiments to reach a compromise in a situation where reaching a “permanent” policy solution may be too difficult (e.g., Interviews Fin4, Fin8, Fin16, and Fin20), with one interviewee stating “if the coalition partners in the government cannot agree on a measure, then one solution is to make it temporary” (Interview Fin20). For example, reaching the agreement on offering tax deductions for household services (that constitute green investments) was facilitated by the fact that these were decided to be temporary and regarded as experiments (Interviews Fin4 and Fin12). Thus, our interviews suggest that initiating pilots is one way for politicians to postpone decision making. As one of the Finnish officials put it, “if politicians are not able to decide upon some policy, it's easy to say: ‘Let's experiment with it’” (Interview Fin8).

The limitations imposed by problem cycles on large-scale policy experiments were perceived to be significant in the Estonian context. As the Estonian interviews indicate, delays in solving societal issues are often perceived as problematic, which, in turn, constrains the use of large-scale policy experiments (e.g., Interviews Est1, Est15, Est17, and Est27). In the words of the interviewees: “politicians feel that they have to put out the fire immediately. They live one day at a time. This makes it challenging to introduce policy experiments. ... They want to put the seed into the ground today and take out the carrot tomorrow” (Interview Est17). Another argued “we have to decide on the solution and then start running. Even then we may not be fast enough. ... If we started to experiment before choosing direction, we would lose even more time” (Interview Est1). The Estonian interviews also confirm that problem cycles faced by politicians can be further shortened by media cycles and perceived crises, which amplify the time pressure in solving problems. As one of the interviewees explained, “when something happens, for example, the electricity price goes through the roof, the minister has to be on TV in 15 minutes and promise solutions. And then they go there, blurt out some solution that may not be reasonable actually and then we somehow have to make it work.” (Interview Est4) This illustrates well how problem cycles—especially when amplified by mediatization and crises—impose pressures on politicians to come up with quick policy solutions, leaving no time to test them experimentally before scaling up.

In sum, both cases demonstrate how clashes between problem cycles and experimental timeframes can pose challenges for launching large-scale policy experiments. While in Finland, politicians have found ways to overcome the time pressures created by problem cycles and launch a number of large-scale experiments, in Estonia, the constrained time budgets created by problem cycles have been a major hurdle for experimental policymaking.

CONCLUDING DISCUSSION

Part of the appeal of policy experiments is that they hold the promise of “rational and depoliticized policy making” but, in

reality, experiments take place in a “messy world of politics” (Checkland et al. 2023, p. 464). Although existing studies on experimental policymaking have acknowledged the importance of the political setting in which policy experiments take place (e.g., Huitema et al. 2018; McGann et al 2018; Rogers-Dillon 2004), we lack systematic knowledge on how various political dimensions affect experimental policymaking and interact with the preconditions of creating reliable experimental evidence.

In this article, we sought to address a specific gap in the existing understanding of the politics of experimentation: how political timeframes influence experimental policymaking. As the growing literature on political timeframes has suggested, temporal features like electoral terms, time horizons, and time budgets are likely to influence policymaking (Goetz 2014; Goetz and Meyer-Sahling 2009; Howlett and Goetz 2014; Linz 1998; Schedler and Santiso 1998). In our study, we sought to shed light on the challenges that various political temporalities—the electoral cycles and problem cycles—pose for large-scale policy experiments. Drawing on theoretical discussions on experimental policymaking, public policy, electoral politics, and mediatization of politics, we synthesized expectations about how electoral and problem cycles may influence the timing, design, and learning from policy experiments. We then probed the plausibility of the theoretical conjectures using interview data from Estonia and Finland. Table 1 summarizes our findings.

First, we conjectured in the theoretical discussion that since electoral timeframes limit the time budgets and shorten the time horizons of politicians (Goetz 2014; Goetz and Meyer-Sahling 2009; Howlett and Goetz 2014; Linz 1998; Schedler and Santiso 1998), electoral cycles are likely to discourage politicians from undertaking large-scale policy experiments in the first place. Our interviews show that the electoral cycle has indeed constituted a major hurdle to conducting large-scale policy experiments in Estonia. In Finland, however, politicians have launched several large-scale policy experiments during the past decade despite the potential obstacles from the electoral cycle. This indicates that the electoral cycle does not always hinder large-scale policy experiments, and it would be fruitful to investigate further under which conditions this happens.

Second, drawing on studies on political time (Goetz 2014; Goetz and Meyer-Sahling 2009) and experimental

policymaking (Nair and Howlett 2016; Stoker 2010), we suggested that even if politicians do decide to launch large-scale experiments, they may prefer shorter designs than warranted by scientific considerations. The Finnish experience with large-scale policy experiments—whereby politicians have pressured the implementers of the experiments to design shorter experiments—offers some evidence of such a tendency. At the same time, our interviews pointed to an example where politicians actually preferred to extend the duration of the experiment since it was electorally expedient.

Third, we expected that the electoral cycle may lead politicians to draw hasty conclusions or ignore the experiment’s results altogether (e.g., Checkland et al. 2023; Rogers-Dillon 2004; Stoker 2010). The experience with several large-scale policy experiments in Finland provides evidence of such a propensity. Fourth, we conjectured that problem cycles are likely to shorten politicians’ time horizons further as there is pressure to solve problems quickly (e.g., Clarke and Craft; Pearce and Raman 2014), making them reluctant to undertake policy experiments and to prefer immediate policy action instead. We expected the impact of such problem cycles to be amplified by media cycles (e.g., Blumler 2014; Strömbäck 2008; Strömbäck and Esser 2014) and the perceptions of crisis (Hulme and Hulme 2012; Lesch and Millar 2022). Our interviews indicate that the compressed timeframes imposed by the problem cycles and amplified by media attention and crises have indeed acted as a major constraint on launching large-scale experiments in Estonia. In Finland, however, even though these pressures are perceived to be present, politicians have launched numerous large-scale experiments.

Fifth, our theoretical discussion pointed to how politicians may be inclined to use large-scale experiments to cope with the political timeframes: either to tie the hands of the next government (Callander and Hummer 2014; Corduneanu-Huci, Dorsch and Maarek 2021) or to avoid taking painful decisions (Nair and Howlett 2016). While we did not find evidence of the former, the Finnish interviews did indeed demonstrate the use of experiments as a way of postponing or avoiding larger decisions in the face of time pressures imposed by both electoral and problem cycles. Furthermore, as the Finnish experience indicates, the temporary nature

Table 1. Summary of empirical findings.

	Finland	Estonia
Conjecture 1: Electoral cycles prevent the launch of large-scale experiments.	Although the electoral cycle is seen as a potential obstacle, several large-scale experiments have been launched	Confirmed
Conjecture 2: Electoral cycles shorten the duration of large-scale experiments.	Evidence of pressures towards shorter design, but also instances of lengthening the duration	No large-scale experiments undertaken
Conjecture 3: Electoral cycles hasten learning from experiments and can lead to ignoring experimental evidence	Confirmed	No large-scale experiments undertaken
Conjecture 4: Problem cycles prevent the launch of large-scale experiments.	Not confirmed	Confirmed
Conjecture 5: Politicians use large-scale experiments to cope with time pressures from electoral and problem cycles.	Confirmed	Not confirmed
Conjecture 6: Politicians use large-scale experiments to tie the hands of next governments.	Not confirmed	Not confirmed

of experiments may make it possible for the coalition partners to reach a joint decision at all, during their government term. Also, in situations where due to a mediatized environment, politicians are expected to offer “quick” solutions, the politicians can seek to “win time” by saying that they are launching a pilot as a response to the problem. We did not, however, witness such uses of experiments in Estonia.

In sum, even though our interviews did not fully corroborate all the conjectures, our theoretical framework offered useful lenses for uncovering important dynamics in experimental policymaking and could be used as a starting point in future theorizing and empirical studies. Furthermore, theorizing could focus on the conditions in which our expectations are likely to hold. In addition to providing evidence of the relevance of the electoral and problem cycles, our interviews also revealed *additional* political timeframes that can play a significant role in experimental policymaking. First, the Estonian case pointed to the potential importance of timeframes imposed by *government turnovers* in the middle of the electoral cycles. As the average duration of cabinets in Estonia is rather short (1–2 years), this appears to amplify the effects that the electoral cycle has on experimental policymaking. The shortened time horizons, due to frequent turnover of governments, are likely to act as a further deterrent to launching longer-lasting strategic policy experiments. Thus, when we are looking for reasons why the Finnish government has been able to launch large-scale strategic policy experiments spanning several years while Estonia has not, then alongside the awareness and knowledge about policy experiments (which may be lagging behind in Estonia), the swift turnover of governments may be acting as an additional obstacle to undertaking such long-lasting experiments. The more stable time horizons available to Finnish politicians (the expectation to stay in the office for the whole 4-year period) can be viewed as more conducive to large-scale experiments than the shorter time horizons Estonian politicians face in the context of frequent change of governments. In Finland, governments are better able to commit to strategic experiments owing to their longer time horizons.

Second, our cases point to the importance of the Government Program as an instrument for managing the constrained time resource in the context of coalition governments. In both countries, the Government Program is the key document for subsequent policy actions and serves as an important document for politicians in committing to certain experiments. As such, it structures both the choices of politicians as well as other stakeholders—through the period of time dedicated to the negotiations of the Government Program, the need to have the key policy goals formulated *before* the negotiations, and the *timing* of preparations for launching the experiments right after the adoption of the Program.

Third, as the Finnish case revealed, another additional timeframe that can be relevant for experimental policymaking is that of passing necessary legislation for the experiment. Large-scale RCTs which foresee differential treatment of individuals need a legislative basis. The passing of the necessary law(s), however, can considerably lengthen the preparation phase of the policy experiment. At the same time, parliamentary proceedings also build wider consensus around the experiments and through such legitimization increase their chance of survival beyond the ongoing electoral cycle.

In sum, our study shows that to understand experimental policymaking in democratic settings, it is crucial to pay attention to the potential clashes between political and experimental timeframes. In addition to the limitations posed by the electoral and problem cycles, experimental policymaking can be influenced by timeframes imposed by the frequency of government turnover, the limited time available for compiling coalition agreements, and the procedural requirements for passing legislation underpinning the experiments. Thus, our study shows that there appears to be a deep-rooted tension between the timeframes followed by politicians and the timeframes required by policy experiments. Given that in a democratic setting, politicians’ temporalities cannot be subjected to the demands of policy experiments, this tension may, in fact, be *unresolvable*. This, in turn, has implications for the expectations we can have about experimental policymaking.

In addition to rendering the expectations more realistic, more scholarship is needed to uncover the factors that alleviate the tensions between political and experimental timeframes. For example, our cases suggest that conducting experiments in policy areas that are considered important by all parties, involving opposition parties in the discussion and design of experiments, and stipulating experiments in laws may lengthen the political time horizons. However, more research is needed on how different types of experimental designs, processes for preparing and conducting experiments, and the range of stakeholders involved in experimental policymaking influence the compatibility of political and experimental timeframes. Furthermore, it would be insightful to investigate whether the tensions between timeframes vary across policy areas and are influenced by the salience and complexity of different policy solutions being tested. If a policy issue is highly salient to a powerful interest group, the interactions between the political and experimental timeframes are likely to be different from when the tested policy has low salience and is not on the radar of strong interest groups.⁴ For example, a strong interest group of beneficiaries may pressure politicians to undertake a shorter experiment in order to benefit from the scaled-up policy sooner. Conversely, experiments with low salience and diffused impacts may allow policymakers to consider longer experimental designs.

In our study, we have focused on how the timeframes of elected officials influence large-scale experiments. As existing research on various temporalities in policymaking has shown, however, different actors in the political system may have different time limits, time horizons, and time budgets (Goetz and Meyer-Sahling 2009), and these are likely to have implications for experimental policymaking as well. For example, unelected civil servants may have longer time horizons (Goetz 2014; Goetz and Meyer-Sahling 2009) and could hence have incentives to launch longer-lasting experiments, avoid premature interpretation of experimental evidence, or minimize the involvement of politicians. Future studies could analyze how the different timeframes of elected and unelected officials (and their interactions) influence experimental policymaking.

An important limitation of our study is that we probed the plausibility of our theoretical expectations in two parliamentary countries that have proportional electoral systems resulting in multi-party coalition governments. In future research, it

⁴We would like to thank the anonymous reviewer for drawing our attention to this issue.

would be fruitful to investigate how accurately our theoretical propositions hold in countries that are presidential, have majoritarian electoral systems, and/or have one-party governments.

In sum, our article confirms that politics can profoundly affect policy experiments. In order to better understand the politics of experimental policymaking, it is crucial to study how political and experimental timeframes clash and how these clashes influence whether, when, and how politicians experiment. We demonstrate that electoral cycles and problem cycles play an important role in politicians' motivations regarding policy experiments. There are, of course, additional aspects of the political setting that can influence politicians' preferences and decisions regarding policy experiments (e.g., ideological preferences, budgetary constraints, and blame avoidance). In order to advance our understanding of experimental policymaking it is important to address them in future research.

Supplementary material

Supplementary material is available at the *Journal of Public Administration Research and Theory* online (www.jpart.oxfordjournals.org).

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Conflict of interest

The authors declare that there is no conflict of interest.

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Appendix I

Reference(s)	Institution	Interview time(s)
Estonian interviewees		
Est1–Est15	Ministry of Finance	16.06.2022–06.01.2023
Est16	Ministry of Economic Affairs and Communications	29.11.2022
Est17–Est20	Government Office	10.10.2022–01.12.2022
Est21–Est22	Bank of Estonia	15.12.2022–05.03.2023
Est23–Est29	Estonian Tax and Customs Board	05.07.2022–02.02.2023
Est30–Est31	Financial Supervision and Resolution Authority	28.10.2022–09.11.2022
Est32	Enterprise and Innovation Foundation	07.12.2022
Finnish interviewees		
Fin1–Fin11	Ministry of Finance	15.02.2023–24.04.2023
Fin12–Fin15	Ministry of Economic Affairs and Employment	21.03.2023–05.07.2023
Fin16	Ministry of Education and Culture	15.03.2023
Fin17–Fin18	Prime Minister’s Office	14.03.2023–08.05.2023
Fin19	Bank of Finland	09.03.2023
Fin20–Fin21	National Audit Office	20.02.2023–07.03.2023
Fin22–Fin25	Finnish Tax Administration	20.03.2023–05.04.2023
Fin26	Finnish Financial Supervisory Authority	20.02.2023
Fin27–Fin28	KELA	28.03.2023–08.03.2023
Fin29–Fin32	SITRA	24.02.2023–12.06.2023
Fin33	Motiva	17.03.2023
Fin34	Demos Helsinki	31.03.2023

Publication IV

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To Experiment or not to Experiment in Tax Policy?

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Abstract

Despite the increasing use of experiments in policy-making the suitability of field experiments in the public sector context is still under debate. In this article, we focus on experimenting in the field of tax policy and ask: what are the promises and pitfalls of using experimental approaches in tax policy? While the existing discussions on tax policy experimentation focus on randomized controlled trials from a legal perspective, we adopt a broader view and provide a more comprehensive discussion by synthesizing insights from the fields of political science, public policy, public administration, and governance. Our analysis encompasses randomized controlled trials, non-randomized policy pilots and design experiments. We summarize the existing knowledge on using field experiments in policy-making and discuss the implications of the knowledge for experimenting in tax policy. We seek to offer a more holistic and critical take on whether we should promote the use of experimental approaches in this domain.

Keywords: policy experiments, tax policy, randomized controlled trials, policy pilots, design experiments

1. Introduction

Converging trajectories in various disciplines point to the increasing importance of using experimental approaches in policy-making (e.g. Ansell and Bartenberger 2016; John 2014; Ettelt et al. 2015a; Lee and Ma 2020; McFadgen and Huitema 2017; McGann et al. 2018). This has been aided by parallel developments in academia and practice. First, the term “experimentalist governance” has been used to describe developments in the European Union’s approach to policy-making in various policy sectors (Rangoni and Zeitlin 2021). Second, the rise of the so-called “randomistas”, who advocate the use of randomized controlled trials (RCTs) in development (as evidenced by Banerjee, Duflo and Kremer getting the Nobel prize in economics in 2019), has strongly influenced debates on development economics, with spillovers to other areas as well (e.g. Kvangraven 2020; Leao and Eyal 2019; Stein et al. 2021). Third, experimentalism has been embraced by behavioral economics and behavioral public policy (e.g. Jones and Whitehead 2018; Strassheim 2020). Fourth, the calls to integrate design thinking – which is also experimentalist in its logic – into policy-making have recently been made by a number of public policy scholars (e.g. Stoker and John 2009; McGann et al. 2018). In response to the pressures to be “smarter” and more “innovative”, many governments have created nudge-type government units and public sector innovation labs that employ various

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kinds of experimental methods (e.g. John 2014; McGann et al. 2018; Tönurist et al. 2017).

At the same time, the world is becoming increasingly uncertain and complex, warranting experimentation as a way to cope (Rangoni and Zeitlin 2021; Voß and Simons 2018). For example, the need to deal with climate change has precipitated an avalanche of sustainability experiments (e.g. Ansell and Bartenberger 2016; McFadgen and Huitema 2017, 2018; McFadgen 2019). Fast technological developments (especially in ICT) and their pervasive impacts on economic and social spheres have triggered extensive discussions on experimental legislation and regulation (e.g. Philipsen et al. 2021; Ranchordas 2013).

The suitability of experimenting in the public sector context is still under debate, especially with regard to specific policy fields. In this article, we focus on experimenting in the field of tax policy. More specifically, our research question is: What are the promises and pitfalls of using experimental approaches in tax policy? The focus has been inspired by various considerations. Tax policy entails the use of taxes for a number of purposes: generating revenue for the government, shaping the behavior of individuals, redistributing income, and stabilizing the economic cycle (e.g. Kay 1990). Given that *consistency* and *horizontal equity*¹ are considered to be the core values in this policy area, using experimental approaches – which by nature entail disruption and potentially differential treatment of citizens – is likely to be more controversial in tax policy than in many other policy fields. At the same time, it is a policy sector where the complex and rapidly evolving context (e.g. changing technology, globalization, challenges presented by climate change) gives rise to considerable new uncertainties. Experiments could be viewed as generating useful knowledge about the novel challenges and the best ways to address them (Rangoni and Zeitlin 2021). Given the importance of taxes in generating revenues for the state, getting tax reforms "right" has very high stakes (Werner and Riedl 2019).

Recently, rather bold proposals for making more extensive use of field experiments in tax policy have been put forward by Abramowicz (2019). While Abramowicz (2019) approached the issue from the legal perspective and focused specifically on the promises of *randomized* experiments, we adopt a broader view. We provide a comprehensive discussion about the suitability of policy experiments in the field of tax policy by synthesizing insights from the fields of political science, public policy, public administration, and governance. With regard to the different *types* of experiments, our analysis encompasses both randomized controlled trials and non-randomized policy pilots as well as design experiments. We summarize the existing knowledge on using experimental approaches and discuss the implications of the knowledge for experimenting in the field of tax policy. With that, we hope to offer a more holistic (and also a more critical) take on whether we should promote the use of experimental approaches in this domain.

It is worth emphasizing that in this article we focus on tax *policy* rather than tax *administration*. The use of field experiments to improve tax compliance (e.g. by using deterrence messages, referring to the tax behavior of others, increasing the moral costs of non-compliance in tax offices' communication with taxpayers) has been extensively discussed in the existing studies (for useful overviews, see Hallsworth 2014; Mascagni 2018; Pomeranz and Vila-Belda 2019). Furthermore, our focus is not on whether *research* in public administration, public policy and political science should make (more) use of experimental methods (as discussed e.g. in Druckman et al. 2006; Stoker 2010). Instead, we are interested in whether *policy-makers*, in

¹ Consistency refers to taxing equivalent transactions in a similar way. Horizontal equity means that taxpayers who are in a similar position should face a similar tax burden (e.g. Elkins 2006; Musgrave 1990).

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devising and improving policy measures in the tax policy domain, should make more extensive use of experimental approaches, as the current *Zeitgeist* seems to be prescribing. Also, our focus is on field experiments and not on laboratory experiments.²

The article is structured as follows. Section 2 explains what we mean by the term “policy experiment”. Sections 3 and 4 give an overview of the potential benefits and pitfalls of making more extensive use of experimental approaches in tax policy, respectively. While sections 3 and 4 focus on issues that are relevant for all experimental approaches (irrespective of the specific design choices), section 5 analyzes the specific promises and challenges presented by different types of designs. Section 6 concludes.

2. Definition of policy experiment

Policy experiment is a protean concept (Karvonen and van Heur 2014), and in the existing literature, various definitions have been offered (for overviews of these debates, see, e.g., Ansell and Bartenberger 2016; Bauknecht et al. 2020). In some disciplines (e.g. economics), the term “experiment” typically has a rather narrow meaning and refers to a randomized controlled trial (RCT) (Ansell and Bartenberger 2016; Burtless 1995; Werner and Riedl 2019). On the other extreme, any policy reform – like the reduction in the top marginal rates of the income tax in the US in the 1980s – has been labelled as an “experiment” (Burtless 1995; Druckman et al. 2006; Heldeweg 2015; Nair and Howlett 2016).

In this article, we opt for the middle ground. The definition of policy experiment we employ is as follows: it is a policy relevant test undertaken by government organization(s) to learn about the impacts of a new policy solution, which can be used as evidence for further policy decisions (Bravo-Biosca 2020, 195; Heldeweg 2015, 183; McFadgen and Huitema 2017, 1768; Nair and Howlett 2016, 69; Millo and Lezaun 2006, 179). In an experiment, a new policy solution is “tried out or tested in a restricted environment in terms of time, space, scope and/or actors”, but it is “intended to provide a proof of principle that subsequently could have the potential of wider societal relevance” (Heldeweg 2015, 183). Experiments are “temporary and reversible interventions without permanent policy consequences” (McFadgen and Huitema 2017, 1767).

We regard a policy experiment as “a process that generates learning through an explicit intention to test new ideas” (McFadgen and Huitema 2017, 1765). As Bravo-Biosca (2020, 195) explains, an experiment is “intentionally set up to learn”, has “a clearly structured learning strategy”, and generates “new information, evidence, or data”. Therefore, if a government just tries out something new, it does not amount to a policy experiment unless the systems and processes required to learn from it are also established. This includes a timeframe for checking results and deciding whether to continue the experiment, adjust it, discontinue or scale up (Bravo-Biosca 2020). In other words, we follow the understanding whereby policy experimentation does not entail “freewheeling trial and error or spontaneous policy diffusion” but is “purposeful and coordinated activity geared to producing novel policy options that are injected into official policymaking”, with the goal to scale them up, if successful (Heilmann 2008, 3).

² Useful overviews of laboratory experiments that could be insightful for tax policy have been provided by Werner and Riedl (2019) and Alm and Malézieux (2021).

3. The promises and benefits of using experimental approaches

The advocates of the experimental turn posit that experimental approaches can improve the substantive quality of policies as well as the policy-making process. First, from the perspective of *policy content*, the key aspects that speak for experimentation are the complexity of the system policy-makers seek to influence and uncertainty about the impacts of an intervention (Ansell and Bartenberger 2016; Bauknecht et al. 2020; Bravo-Biosca 2020; Hughes et al. 2020; Lee and Ma 2020; Lee et al. 2009; Millo and Lezaun 2006; Nair and Howlett 2016; Voß and Simons 2018). Experimental approaches are considered especially useful for understanding complex systems where actors, institutions and policy continuously evolve and interact in various ways (Bravo-Biosca 2020) or are influenced by novel and disruptive technological developments (Bauknecht et al. 2020; Philipsen et al. 2021; Ranchordas 2013, 2015a, 2015b; Van Gestel and Van Dijck 2011).

Therefore, the key promise of policy experiments, regardless of the specific design, is to provide policy-makers with information that would otherwise not be available (Abramowicz 2008; Ettelt et al. 2015b; Millo and Lezaun 2006; Philipsen et al. 2021). Experiments allow policy-makers to test the effectiveness of a policy on a smaller scale, but in a real world setting, before it is rolled out on a larger scale (Bailey et al. 2017; Checkland et al. 2021; Farrelly 2008; Hughes et al. 2020; Lee et al. 2009; Philipsen et al. 2021; Ranchordas 2013). In addition to allowing the exploration of whether intended impacts materialize, experiments can offer information about unintended and adverse effects (Haynes et al. 2012; Hughes et al. 2020; Lee and Ma 2020; Nair and Howlett 2016; Philipsen et al. 2021; Ranchordas 2013), reduce informational asymmetries with regard to policy's acceptability for stakeholders (Nair and Howlett 2016; Philipsen et al. 2021), and alleviate uncertainty about how the target group behaves in response to different measures (Burtless 1995; Nair and Howlett 2016; Ranchordas 2013). Similarly, experiments can offer information regarding the impacts of different policy design options and help policy-makers choose between them (Bravo-Biosca 2020; Haynes et al. 2012; Hughes et al. 2020; Lee and Ma 2020; Nair and Howlett 2016). In the context of disruptive technological developments, experiments help to diminish the pacing and information gaps between technological innovations and legislation (Ranchordas 2013, 2015c).

These promises of experimenting reflect the information needs also in the field of tax policy. For example, if policy-makers were considering the use of tax credits for promoting the adoption of more environmentally sustainable investments and business practices by companies, an experiment could offer information about the degree of take-up of such incentives. Since taxpayers' perceptions of tax incentives can be distorted (Werner and Riedl 2019), it can be difficult to make linear predictions about their effects. Experiments can offer useful insights into how such incentives are actually perceived. With regard to choosing the best tax policy design, an experiment may allow policy-makers to compare the effects of tax credits, tax deductions and tax exemptions, and opt for the solution that is likely to have the largest impact on the adoption of environmentally sustainable practices. In assessing the effects of tax credits on the behavior of businesses, policy experimenters can examine whether the size of the tax credit makes a difference. Experiments could also be used for assessing which aspects of the policy are having the largest effect (Haynes et al. 2012). For example, if the government employs, in parallel, tax credits but also subsidies for promoting environmentally

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sustainable investments, it may be interested in which instrument is responsible for driving the policy outcomes. In an era of disruptive technological developments, experiments can be useful for testing how to best tax digital nomads, digital transactions, digital data, carbon, or ecological footprints (Akdogan 2021; Shome 2021). In such instances, experiments also allow governments to test their own ability to impose taxes on novel phenomena (Millo and Lezaun 2006).

Second, from the perspective of *policy process*, experimentation can improve the quality of deliberations over policy. In uncertain situations, policy experimentation can help to build consensus and create space for political bargains by focusing policy-makers' attention on policy consequences and outcomes (Abramowicz 2008; McFadgen 2019; Millo and Lezaun 2006; Nair and Howlett 2016; Lee and Ma 2020; Ranchordas 2013, 2015a, 2015c). This can be particularly beneficial in tax policy, where the partisan debates tend to be polarized and more influenced by policy hunches (or even dogmas) and less by information about the actual impacts of different solutions (Abramowicz 2019). By presenting a possible future, experimenters can mitigate conflict in policy reforms that may otherwise be politically unpalatable (Bailey et al. 2017; Nair and Howlett 2016; Ranchordas 2013, 2015a, 2015c). Consensus on a policy, in turn, can potentially facilitate higher levels of compliance and, through that, increase policy effectiveness.

Furthermore, experimentation can be viewed as helping to lower the overall costs of policy (Abramowicz et al. 2010; Adkins and Ylöstalo 2018; Checkland et al. 2021; Farrelly 2008; Haynes et al. 2012; Hughes et al. 2020; Kvangraven 2020; Lee et al. 2009). Even though the running of experiments can entail data collection costs, such investments can pay off via allowing policy-makers to "weed out" programs that are not effective or avoid the costs of failure (Abramowicz et al. 2010; Bravo-Biosca 2020; Farrelly 2008; Haynes et al. 2012; Oakley 1998; Lee and Ma 2020; Lee et al. 2009). Experiments can also help to decide, in the context of limited resources, which policy options from a range of alternatives deliver the highest value and should be chosen over the others (Haynes et al. 2012). Given that changes in tax policy can entail considerable costs for the state budget (especially when they entail tax incentives), the financial considerations in opting for experiments can be particularly pertinent in the field.

4. The challenges and constraints of using experimental approaches

The more critical perspectives on using experiments in public policy point out several challenges and constraints. These derive from two sources – the problems inherent to experimental approaches and the political setting of public policies. Tax policy experiments are likely to be challenged by both.

There are challenges that are common to all types of policy experimentation, regardless of their specific design – whether they "slice" through space, time, scope or types of participants. For instance, an important challenge for all experiments is that due to their small scale, scope or limited duration they would not be able to capture some of the effects which could materialize when the same policy is offered at a large scale or over a longer period of time or in a different context (Bauknecht et al. 2020; Burtless 1995; Millo and Lezaun 2006; Werner and Riedl 2019). As Millo and Lezaun (2006, 181) put it, one can always point to "particular features of the world that the experiment failed to replicate". For example, in an experiment

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that tests the impacts of tax credits for investments to lower the carbon footprint, if only a small fraction of businesses is enrolled, it may not be able to capture the kinds of peer-effects and isomorphic pressures that may emerge if the scheme applied to all businesses. Thus, in tax policy experiments, one should remain aware of the dangers of making "sweeping macro-level generalizations" by drawing on micro-level evidence (Stein et al. 2021, 64). Attribution of causality can be particularly challenging when "complex systems are involved in a difficult task" (Nair and Howlett 2016, 71). Thus, tax policy experiments would face challenges in assessing third-party effects (i.e. effects that go beyond the taxpayers themselves) and especially macroeconomic consequences of tax changes (Abramowicz 2019).

Furthermore, a key challenge for all experiments, including those in tax policy, is the Hawthorne effect, which occurs when individuals or businesses behave differently because they know that they are in an experiment (e.g. Levitt and List 2011). Also, if the participants know that the treatment is of limited duration, their reactions may be different from how they would react if the same policy was of enduring character (Burtless 1995). For example, taxpayers subject to an experiment may try to lower their tax payments by shifting their income and deductions from years in which they are subject to the experiment to years when the generally applicable tax rules apply to them or the other way around (Abramowicz 2019; Abramowicz et al. 2010). In such cases, a possible solution could be to have a longer time period for the experiment (spanning several years) (Abramowicz et al. 2010), which would limit the ability of individuals or companies to shift their income or expenses. However, the longer the experiment, the more serious the problem of attrition (Burtless 1995), which challenges the assessment of impacts. In addition to the Hawthorne effect, the results of an experiment may be influenced by spillovers to areas or individuals who were not supposed to be affected by the experiment. For example, if tax incentives for individuals or companies are offered in one jurisdiction (e.g. local government) and not in others, taxpayers may relocate to the experimental jurisdiction, which makes it difficult to compare the experimental jurisdiction with the non-experimental ones (Abramowicz 2008).

Next to the constraints related to the general nature of experiments, the *political setting* of public policies in a democratic context poses an additional range of challenges. The prevailing logics of political decision-making, policy and electoral cycles, electoral considerations, and value conflicts can render experimental approaches difficult for policy-makers to undertake (Bauknecht et al. 2020; Bravo-Biosca 2020; Burtless 1995; Voß and Simons 2018). The political setting entails four types of causes that contradict experimental logic and, consequently, may inhibit undertaking the experiments or shape their implementation.

The first challenge is related to the nature of politics per se. Politicians may reject policy experimentation as a general strategy if they regard it as a route for depoliticizing or de-democratizing policy decisions (Pearce and Raman 2014; Voß and Simons 2018; Strassheim 2020). Extensive literature about the obstacles to evidence-based policy-making has suggested that politicians often follow other logics than systematic evidence in adopting policy decisions. In a democratic system, competing societal values and preferences are translated into policy solutions (Kvangraven 2020). Thus, politicians may attribute higher importance to voter preferences, party agendas, and ideological considerations rather than to the kind of evidence that experiments promise to deliver. This is especially relevant for tax policy. Tax issues often constitute salient agenda points in electoral competition (Klitgaard

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et al. 2015) and can define the core identity of some parties (Carmines et al. 2012; Ballard-Rosa et al. 2017; Osterloh and Debus 2012). As a result, tax policy issues may be regarded very ideologically and viewed as the core space in which ideological trade-offs (e.g. more state vs less state, equity vs freedom etc.) are struck (Carmines et al. 2012). This makes it particularly challenging to use experimental approaches in this domain. Driven by ideology, politicians may trust their gut feeling about the potential impacts of different tax policies – e.g. higher rates are "good" or "bad" and exemptions are "good" or "bad" depending on the ideological spectrum they are on – and hence do not feel the need to demand more rigorous evidence via experiments (Bravo-Biosca 2020). Politicians are likely to object to any tax experiments that they perceive to hurt their re-election chances (Bauknecht et al. 2020; Nair and Howlett 2016). Conversely, a tax policy option may be "so in tune with prevailing political values that subjecting it to tests is regarded by politicians as unnecessary or even unwelcome" (Pearce and Raman 2014, 393).

The second issue pertains to the need to avoid uncertainty. Beyond any ideological considerations, politicians may be concerned about how experimental decision-making as a policy-making style looks to the electorate. Experimentation may be problematic for politicians, since undertaking an experiment entails admitting uncertainty and lack of existing knowledge about the effects of policy interventions (Bauknecht et al. 2020; Farrelly 2008). Thus, if politicians were to opt for experimental tax policy at all, they may prefer to treat experiments as "demonstrations of effectiveness" or "justifications for decisions already taken" rather than answering open questions (Ettelt et al. 2015a, 294, 302; see also Zurbriggen and Lago 2019). These concerns may be reinforced by the culture of public sector organizations, which tend to be risk-averse and prefer stability, predictability and order, and exhibit limited tolerance of failure (Lewis et al. 2020; McGann et al. 2018; Zurbriggen and Lago 2019). The need to avoid uncertainty is likely to be particularly pronounced in case of a core state function like taxation. Instead of admitting uncertainty, elected representatives may prefer to be perceived as "decisive, energetic, and positive" (Farrelly 2008, 11) and emphasize "profound knowledge" about future developments (Bauknecht et al. 2020, 57). Experimenting strikes the kind of "chord of skepticism and indecision" that politicians seek to avoid (Peters 1998, 126) – even if the policy change in question entails using tax policy instruments in new technological spheres (e.g. taxing digital transactions) or changing societal context (e.g. digital nomads or platform work), all facing considerable uncertainties. Although the higher the uncertainty, the more learning opportunities experiments can offer, politicians may regard an open outcome as entailing a higher likelihood of failure – and this may be something they are motivated to avoid (Ettelt et al. 2015b; McFadgen and Huitema 2018).

The third issue concerns constrained timeframes. Some policy decisions may require immediate decisions, and hence policy-makers may not have the time needed for experimenting (Clarke and Craft 2019). For example, when tax policy is used for macroeconomic stabilization (i.e. cutting rates during recession and increasing them during a boom), timing is of pivotal importance and swift decisions crucial if undesirable lagged effects on the economic cycle are to be avoided. Furthermore, politicians may perceive that they are likely to be electorally rewarded for being swift rather than slow. As Stoker (2010, 53) explains, the demands of the experiment may clash with the policy cycles or political dynamics: "Experiments are a tool with a linear rhythm in a non-linear policy process and may as a result lose the battle for relevance by failing to produce results in a timely way." There might be political pressure

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to go fully ahead with the policy owing to its perceived benefits rather than waiting for the results of the experiment (Stoker 2010) or hasten the evaluation of the pilot, especially if the policy deals with pressing social problems (Nair and Howlett 2016). Especially in the case of longer-lasting experiments spanning several years (like the social experiments in the US in the 1960s and 1970s), the political agendas may change, rendering the findings less relevant for policymakers (Burtless 1995; Oakley 1998).

Fourth, there may be lacking capacities. Experimental policy-making requires various types of analytical and collaborative capabilities from the policy-makers, which may be lacking (Bedard and Ouimet 2012; Bravo-Biosca 2020; Stoker 2010). Lacking collaborative capabilities can become a crucial hurdle to policy experiments that involve a large number of different organizations and the engagement of public officials at several levels of government (Stoker 2010, 51; Cotterill and Richardson 2010, 157). While some simpler tax policy experiments may be relatively straightforward and just involve the finance ministry and tax office, others (e.g. on using tax incentives for fostering innovation or environmental sustainability) can involve a considerably larger number of bodies. Furthermore, objections to experiments may emerge from the broader public, and considerable communicative efforts may be needed to explain the social benefits of an experiment to gain public acceptance (Bauknecht et al. 2020) – especially in domains like tax policy where the public is likely to have deep-rooted expectations of horizontal equity.

5. Promises and pitfalls of specific experimental designs

Policy experiments can take different forms. In this section, we will focus on the following designs: randomized controlled trials, non-randomized policy pilots, and design experiments. These are the main “ideal types” of experiments that have been discussed in the experimental policy-making literature. They follow different logics and hence entail different benefits and challenges from the perspective of tax policy. While sections 3 and 4 outlined the benefits and challenges that are common to *all* experimental approaches in tax policy, in this section, we zoom in on the promises and pitfalls of these three specific designs.

5.1. Randomized controlled trials

Randomized controlled trials (RCT) hold the promise of allowing the experimenters to draw valid *causal conclusions* about the effects of a project, program or policy (Bravo-Biosca 2020; Burtless 1995; Cook 2002; Dalziel 2018; Ettelt and Mays 2015; Haynes et al. 2012; Pearce and Raman 2014). The random division of subjects into experimental and control groups can be expected to eliminate systematic differences between them and create equivalent groups, which are then subjected to different treatments (in the simplest design, intervention for the experimental group and nothing for the control group) (Burtless 1995; Cook 2002; Ettelt and Mays 2015; Farrelly 2008; Pearce and Raman 2012). In such a design, any observed differences between the groups are attributed to the “treatment” (i.e. the tested policy, program or project), assuming that the experimental group and control group operate in the same policy, social and economic environment (Bell and Peck 2016; Cook 2002). An RCT is expected to create a credible counterfactual (in the form of a control group), and this should enable

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policy actors to assess the average treatment effect of the intervention (Bedard and Ouimet 2012; Bravo-Biosca 2020; Burtless 1995; Farrelly 2008; Haynes et al. 2012).

An RCT is widely regarded as "a gold standard method for measuring whether or not a particular intervention works better than doing something else or doing nothing" (Cotterill and Richardson 2010, 156). Given the uncertainties involved in many tax policy measures, RCTs could, in principle, offer opportunities to shed light on these questions in a systematic way.³ An RCT could be used to assess the additional value (Bravo-Biosca 2020) generated by tax incentives, for example. It could offer the opportunity to test the assumptions or intuitions policy-makers have about a new tax deduction or exemption in terms of their behavioral effects or a new tax on previously untaxed objects or activities. As Haynes et al. (2012) emphasize, the untested intuitions of policy-makers may be wrong, even with policies that should be "guaranteed" to work.

Despite being regarded as the "gold standard" for causal inference (Bravo-Biosca 2020; Strassheim 2020; Webber and Prouse 2018), we should be aware of the dangers inherent in such "methodological triumphalism" (Barrett and Carter 2010, 516) and also pay attention to the key challenges of RCTs. RCTs suffer from major shortcomings – in light of which one could claim that, despite the glitter of recent Nobel prizes, it is "of baser metal than gold" (Barrett and Carter 2010, 516). Indeed, these may be the reasons behind the fact that although "tax law is a promising field in which the government might run randomized experiments", existing experiments only entail tax compliance and welfare (i.e. negative income tax experiments) rather than tax policy more broadly (Abramowicz 2019, 68). In the following, we will discuss the challenges of RCTs.

The RCT design works well under three assumptions: 1) the intervention has to be clearly delineated; 2) the expected outcomes of the intervention have to be measurable and identified in advance of the experiment, and 3) the causal mechanisms examined should be relatively simple (Bedecarrats et al. 2019; Jones and Whitehead 2018). Although such a setup allows for valid statistical conclusions about the average treatment effect (Dalziel 2018; de Leao and Eyal 2019; Kvangraven 2020), it also imposes considerable limitations on what kinds of policies we can test with such a design (Bedecarrats et al. 2019). All of these aspects may pose challenges for using RCTs in tax policy experimentation.

First, RCTs rely on a definition of policy as an "intervention" while actual conceptions of policy are usually more diffuse (Ettelt and Mays 2015, 380). Some aspects of tax policy – e.g. marginal tax rates – can be easily operationalized and quantified for the purposes of an RCT. For example, policy makers may test with an RCT whether lower tax rates for hiring disadvantaged workers have the intended effect. However, many other tax policy domains may be more diffuse. Tax policies, like most other policies, are often constituted by configurations of interacting activity setting, events, and technologies rather than by discrete interventions (Anderson 1975; Ettelt and Mays 2015). As Anderson (1975, 17-18) explains, even in a relatively straightforward negative income tax experiment⁴, the "policy treatment" would be characterized by a host of variables such as rules for family size, what counts as a household, household benefits from other sources, accounting periods, and how windfall income is treated. All these are likely to affect the costs of the policy and its efficiency.

³ Indeed, some of the "classic" RCTs during the era of social experiments (1960-1980) in the US used the tax system as a policy instrument – most famously the experiments on negative income taxes (Burtless 1995; Oakley 1998).

⁴ Negative income tax means that the government sends money back to taxpayers whose income falls below a certain threshold (Moffitt 2003).

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Second, RCTs are suitable when policy outcomes are easily measured but challenging when they are fuzzy (Bedecarrats et al. 2019; Bravo-Biosca 2020; de Leao and Eyal 2019). Thus, in the case of broad-aim tax policies, which entail wider societal impacts, general equilibrium effects or changes in economy-wide aggregates, the use of RCT would be difficult (Bedecarrats et al. 2019; Burtless 1995; Deaton 2010; Strassheim 2020). As Burtless (1995, 77) explains, a negative income tax experiment, for example, would be able to capture the effects on labor supply, but without knowing how the employers would alter the wages, it would be impossible to "forecast the full general equilibrium effect".

Furthermore, RCTs work well for assessing *average* effects but are challenging when the policy outcomes are skewed – e.g. when most projects fail and extreme successes are rare, as could be the case in tax-incentivized investment projects (Bravo-Biosca 2020; Bedecarrats et al. 2019; Deaton 2010). For instance, the take-up of tax credits for environmentally sustainable investments may be influenced by exceptional managerial capabilities (a characteristic that is difficult to measure), and this can introduce inaccuracies when estimating the average effect (Dalziel 2018). Similar objections are likely to be present in other tax policy measures that entail high variability in the target group. There might be considerable heterogeneity in how different groups respond to the tax policy treatment (Werner and Riedl 2019) and hence the average effect may conceal the fact that some groups are responding strongly and others are not. Furthermore, while some of the questions in tax policy may zoom in on *average* treatment effects, most of the issues policy-makers might be interested in concern *conditional* effects (e.g. the effects of tax incentives on the most innovative companies or the effects of tax credits on the poorest families). Policy-makers may also be interested in the *distribution* of positive and negative effects in different societal groups or types of firms, rather than just the aggregate average effect (Barrett and Carter 2010; Bedecarrats et al. 2019; Deaton 2010).

Third, "randomized experiments are best when a causal question is simple, sharply focused and easily justified" (Cook 2002, 179). If the policy intervention is targeted at a complicated phenomenon with a complex ecosystem (including unobserved interactions and linkages) it may be difficult to predict the impacts (Bravo-Biosca 2020; Bedecarrats et al. 2019). This is likely to be the case in experimenting with new forms of taxes on digital transactions or carbon footprints, for example. Also, those aspects of tax policy that seek to affect overall macroeconomic outcomes (e.g. stimulating the economy via lowering tax rates) depend on collective actions and interactions – and this clearly undermines the case of using RCTs for studying them.

RCTs are also challenging when the causal processes through which policies affect outcomes take a *long time* (Bravo-Biosca 2020). For reasons of cost and attrition, RCTs tend to be short in duration, which means that in reality only mid-point measurements rather than final indicators can be captured as outcomes (Bedecarrats et al. 2019; Farrelly 2008). Furthermore, the longer the time span of the experiment, the higher the likelihood that other factors besides the intervention start influencing the outcome(s) (de Leao and Eyal 2019; Farrelly 2008). For example, the effects of tax credits for investing in environmentally sustainable technologies may take a long time to materialize, and short-term evaluation may present an inaccurate picture of the eventual effects.

In addition to the aforementioned challenges, the design feature of using *randomization* can pose considerable obstacles to tax policy experiments. In the field of tax policy, randomization

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may be difficult to justify ethically, politically, and legally.

Ethically, it may be difficult to argue why a policy measure should be denied to some potential recipients who would benefit from it (Bravo-Biosca 2020; Burtless 1995; Jones and Whitehead 2018; Pearce and Raman 2014). For example, if some companies have the opportunity to make use of tax credits for environmentally sustainable investments and others do not, this may be seen as unfair. Furthermore, randomization inherent in RCTs is especially likely to give rise to ethical objections when the experiment involves target groups that are vulnerable (Cotterill and Richardson 2010; Cook 2002). This may make it challenging, for example, to use an RCT to test the effects of giving tax incentives to employers for hiring disadvantaged workers.⁵

Politically, randomization may be difficult to justify to the wider public (Nair and Howlett 2016; Strassheim 2020). Policymakers may be concerned about whether it is fair for some people to receive help or benefits and others not if the experiment uses public resources (Nair and Howlett 2016; Strassheim 2020). It may be even more difficult for politicians to impose additional tax burdens on some individuals and businesses but not on others. For example, if the government wanted to try out a car tax on a smaller scale (e.g. applying it to randomly selected car owners) before implementing it on a large scale, in order to examine how it influences people's consumption choices, it may be next to impossible to justify it politically. Similarly, trying out the effects of a carbon tax (e.g. on the investment capacity of firms) in certain parts of the country before extending it to the whole country may run into similar difficulties. If randomization is difficult to justify, policy-makers are likely to fear negative public backlash to the trials (Bravo-Biosca 2020; Strassheim 2020) – and in the domain of tax policy, with clearly measurable costs and benefits, voters might be perceived to be particularly sensitive with regard to being treated unfairly.

Legally, challenges may arise from treating people differently when they should be treated equally (Adkins and Ylöstalo 2018; Burtless 1995; de Leao and Eyal 2019), especially if the intervention concerns rights or obligations of citizens (Abramowicz et al. 2010; Burtless 1995). In tax law, as Abramowicz (2019, 69) argues, the main hurdle to RCTs is the "core value of horizontal equity", which leads to "concerns that experiments necessarily produce unequal treatment of similarly situated individuals." However, Abramowicz (2019) argues that there might still be ample room for tax policy experiments where randomization could be legally justified with the fact that the experiment is revenue neutral. Revenue neutrality means that the "treatment group in such an experiment on average pays taxes as high as the control group" (70). In particular, such revenue-neutral designs would be suitable for assessing which combinations of tax deductions and tax rates would be most efficient (from the point of view of allocative efficiency). For example, if the current tax system entails specific deductions but higher (marginal) rates, policy-makers may want to test, with an RCT, whether taxpayers could in fact be better off with abolished (or reduced) deductions but lower rates. For instance, a government could undertake an experiment on abolishing entertainment deductions for businesses: businesses participating in the experiment would give up these deductions but face lower overall tax rates. Conversely, if the current system offers no deductions but lower marginal tax rates, policy-makers may want to experiment with offering deductions, combined

⁵ A solution proposed to make randomization more palatable to the public is in framing the experiment as "a lottery". For example, in an RCT that has the potential to yield valuable insights in the effects of different marginal tax rates on incentives to work or for entrepreneurship, it may be very difficult to justify to the public why some households are subjected to higher tax rates than others. Abramowicz et al. (2010, 999) suggest a solution according to which the government announces that it "is sponsoring a lottery, the winners of which receive a reduction in their tax rates".

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with higher tax rates. Abramowicz (2019) suggests that in addition to small changes to tax systems (e.g. the effects of adding or removing deductions), revenue neutral randomized experiments could be used to test also more significant changes – for example replacing corporate income taxes with government equity in corporations' stock.

5.2. Non-randomized policy pilots

Given the numerous challenges involved in RCTs, they may often not be feasible options for experimental tax policy. In that light, non-randomized policy pilots may offer an alternative route. A policy pilot seeks to test out a new policy approach in a confined setting, and/or on a small subset of the population or jurisdictions, and allows the introduction of a policy in a phase-wise manner (Bailey et al. 2017; Farrelly 2008; Ko and Shin 2017; Nair and Howlett 2016). Unlike RCTs, they do *not* entail randomization, although they may include comparisons with a control group (Philipsen et al. 2021). In order to be viewed as experiments, however, pilots should entail the establishment of concrete systems or processes to learn from them (e.g. Ko and Shin 2017; Lee et al. 2009; Philipsen et al. 2021).

Pilots enable policymakers to assess and adjust a solution before rolling it out nationally (Ko and Shin 2017; Nair and Howlett 2016). For example, a government may be interested in whether tax exemptions applied to cooperation agreements between universities and companies (e.g. creation of industrial professorships) or reducing the payroll tax of high-level researchers working at companies could facilitate the commercialization of basic research. Such exemptions may be first tested with some universities and companies before applying them to all. Special tax regimes for inbound workers could first be offered in some regions of the country to test whether this could be a useful instrument for regional development. In the EU context, tax policy pilots can also take the form of testing different tax solutions in the member states.⁶

Furthermore, owing to their small scale, pilots can foster policy innovations and aid the development of new policy designs (Nair and Howlett 2016). Policy pilots can also facilitate learning how to overcome implementation barriers and improve processes (Ettelt et al. 2015b; Ko and Shin 2017), which might be crucial in the case of taxing novel phenomena. In addition, pilots can catalyze the adoption of policy innovation through *demonstrating* how a new policy can be implemented successfully (Checkland et al. 2021; Ettelt et al. 2015b; Hughes et al. 2020).

Compared to RCTs, which require clearly defined input-output-mechanisms, non-randomized tax policy pilots may be more flexible in their setup and allow a more holistic assessment of a new measure. Also, RCTs tend to take longer time and hence policy-makers may prefer to undertake simpler policy pilots in order to get the information faster (and in line with the electoral cycles) (Ko and Shin 2017), which may be an important advantage in tax policy. There are, however, a number of challenges faced by non-randomized policy pilots.

First, in contrast to RCTs, the causal claims would be significantly weaker since we do not know "how the targeted population would have fared in the absence of treatment" (Farrelly 2008,

⁶ For example, Directive 1999/85/EC foresaw the possibility for member states to apply a reduced VAT rate on labor-intensive services to create jobs. The evaluation of the experiment by the Commission in 2003 revealed that the reduced tax rates were not translated into lower consumer prices and no clear impact on employment rates could be identified. Thus, it was concluded that "such measures were usually not very effective and the cost to the budget was high in relation to any impact the measures might have on the economy" (Van Gestel and Van Dijk 2011, 545).

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8). Effects can be difficult to assess because "there may be alternative explanations for any observed changes" (Abramowicz 2008, 34). This means that in a politically contested policy domain like taxation, the findings of non-randomized pilots can be more easily attacked by political actors who are not pleased by the results of the pilot. Since there is no randomized control, policy makers cannot be confident whether in a policy pilot tax revenues have fallen because of the piloted measure or due to exogenous reasons, such as economic recession (Abramowicz 2019).

Second, replicating the success of a policy pilot may be challenged by differences in context (van der Heijden 2018; Farrelly 2008). The findings of policy pilots are likely to be influenced by various interdependent social, political, and economic factors, and this limits external validity. The groups, organizations or regions analyzed in a pilot may be systematically different from the rest of the population (Bailey et al. 2017). Furthermore, participants in the pilot may be motivated to ensure success and have incentives that may not be shared by the broader population (van der Heijden 2018). Van der Heijden (2018, 1385) refers to a frontrunner paradox, as experiments often "look for actors who want to be actively involved in solving a problem, who do not mind deviating from routines, and who are willing to take risks." These attitudes may not be characteristic to a broader population or a larger set of organizations, making scaling up challenging. For example, regions involved in a pilot testing a new tax regime for inbound workers may be particularly motivated to use that measure for promoting economic development and engage in extensive communicative efforts in spreading knowledge about that option.

Third, due to the limited geographical scope of policy pilots, spillovers to or from other regions may constitute an important challenge, especially in tax policy, where the incentives to move across jurisdictional boundaries are likely to be significant. As economic activity can move across jurisdictions, firms may shift its activities from a more highly taxed pilot location to one with a lower tax or the other way around (Abramowicz 2019), posing considerable challenges in making accurate assessments of the actual effects of the pilot.

Fourth, similarly to RCTs, an important question tax policy pilots have to wrestle with is the question of meaningful duration. If the designated time period is too short, we may not be able to capture the full impacts of the tested policy. Ranchordas (2015a, 912) suggests that this can be pertinent in experimental tax legislation that seeks to stimulate investment in renewable energy and advance clean-energy innovation. Since it takes a long time to develop a wind farm, for example, uncertainty with regard to the renewal of such tax credits can undermine long-term investment.

Finally, analogously to RCTs, tax policy pilots may give rise to ethical, legal and political challenges (Bauknecht 2019; Van Gestel and Van Dijck 2011). For example, offering a special tax regime in some geographical jurisdictions or to some organizations may be seen as violating the principles of horizontal equity, equal treatment and legal certainty (Huitema et al. 2018; Philipsen et al. 2021). However, it may be more feasible to use objectively defined and politically justifiable criteria for picking the subjects in a tax experiment in a non-randomized rather than a randomized way. For example, offering preferential tax regimes first to the least developed geographic regions or offering tax exemptions to the most promising cooperation networks of universities and businesses may be more palatable to politicians and the electorate than randomization.

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5.3. Design experiments

In a design experiment, "a solution concept (an idea, design, program, project, and so on) to a particular problem is created, and iteratively refined based on continuous feedback from stakeholders immersed in the experiment" (Zurbriggen and Lago 2019, 440). Design experiments draw on design thinking that emphasizes the importance of systems thinking, user centricism, regular iteration, and creativity (Clarke and Craft 2019, 6). Such an experiment adopts a "probe and learn" strategy, in order to understand the intervention (Ansell and Bartenberger 2016, 68) and to "re-specify and re-calibrate" the solution until it works (Stoker and John 2009, 358). Thus, the experiment would progress through iterative cycles of design, real-world testing and redesign based on lessons from earlier iterations (Stoker and John 2009, 256; van der Heijden and Hong 2021, 1119). Design experiments are less concerned with exploring causality than with manipulating an intervention in order to reach an acceptable outcome (Stoker and John 2009). Unlike in RCTs where policy experimenters can remain detached from the context, design experiments entail immersion in "thickly experiential policy contexts" (Lewis et al. 2020, 116).

A key feature of design experiments is taking into account the experiences of the persons affected by the issue. Design experiments assume that in order to address societal (especially wicked) problems, expertise from both professionals and members of the public are needed as their perceptions of the problems may diverge (Einfeld and Blomkamp 2021; Lewis et al. 2020). Hence, diversifying the sources of knowledge through the experiment can help policy-makers better understand and predict people's needs, perceptions and behaviors in real-life contexts (Clarke and Craft 2019; Einfeld and Blomkamp 2021; Lewis et al. 2020). In addition to refining policy solutions, stakeholders or end-users may also be involved in defining the policy goals and generating ideas for solutions (Clarke and Craft 2019; Einfeld and Blomkamp 2021; Lewis et al. 2020).

Design experiments share similarities with explorative pilots that are controlled only to a limited extent (Ansell and Bartenberger 2016). What makes the design experiments different is their explicitly *iterative* character. Thus, design experiments may provide dynamic and timely ways to change course during the experimentation process, therefore making them suitable for developing solutions for uncertain environments and complex problems. In tax policy, however, it is difficult to conceive of subjecting the stakeholders to varying tax rates, deductions, or exemptions in an iterative way. Given the importance of stable tax horizons in the investment and other decisions of individuals and businesses, such continuous changes and tweaks in the tax regime would be challenging.

Nevertheless, design experiments and the possibilities for iterative adjustments could be of value for developing novel tax policy solutions. For example, before introducing new taxes to quickly changing domains, the flexibility of the approach and insights from the stakeholders (Einfeld and Blomkamp 2021; Stoker and John 2009) may be crucial for the policymakers in assessing the feasibility of such taxes. As design experiments often seek to create prototypes and collect feedback on the potential responses to these policy measures (Clarke and Craft 2019; Einfeld and Blomkamp 2021), they could provide valuable insights about how the potential taxpayers, if they were subjected to such models, would react and adjust their behavior (Stoker and John 2009).

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While RCTs require policy-makers to identify clear expectations about measurable impacts in order to commence the experiment, design experiments tend to have a "fuzzy front end", which allows for the "exploration of open-ended questions" (Clarke and Craft 2019, 9). That can be valuable in utilizing stakeholders' knowledge for making use of the tax system in solving new societal problems. By offering opportunities to test new approaches in an iterative way, design experiments offer a safe space for trying out novel solutions, reducing the fear of failure and hence promote innovation in policy design (Clarke and Craft 2019; Stoker and John 2009). Furthermore, by emphasizing the lived experiences of those affected by a policy design, such experiments can cater to the need to adapt the policy to different target populations as opposed to settling on a one-size-fits all approach (Clarke and Craft 2019, 7). Design experiments could be utilized in testing how potential tax payers would perceive information about new tax incentives before these changes are rolled out. The way tax incentives are presented can play a crucial role in how they are perceived by the taxpayers, and this, in turn can affect their potential tax behavior in the future (Werner and Riedl 2019). Complex tax regimes in particular can lead to weaker behavioral adjustments than expected by policy makers (e.g. Abeler and Jäger 2015). Design experiments can hence serve to assess the perceived complexity of a tax regime and help to mitigate potential distortions in the perception of the tax policy change.

In sum, design experiments could be valuable in understanding the reactions and opinions of policy target groups or developing new technological solutions that presume high inclusion of stakeholders in order to reach desired outcomes of tax policy. Nevertheless, design experiments also do face some crucial challenges in tax policy experimentation.

First, as continuous feedback and quick path adjustment is crucial during design experiments, they are not suitable in situations where effects of the action take a long time to appear or when there is a lack of control in different phases of experiment.

Second, design experiments tend to be applicable to small-scale policy issues rather than large-scale ones: they tend to be employed for "discrete service redesign projects" and in "exploratory work of scoping problems", rather than for the development of broader policy proposals or systemic reforms (Lewis et al. 2020, 113–114). It would be difficult to use them for assessing macroeconomic outcomes as the scope and intensity of design experiments (entailing immersion of experimenters and stakeholders) necessarily means a limited number of data points and the need to stay at the micro level.

Third, while the notions of "user centrism" inherent in design experiments may work well in the private sector context (where design thinking originates from), they may clash with the notions of rights and obligations of citizens, which prevail in tax policy. The stakeholders whose feedback is collected during the experiment may view taxes from their own narrow material point of view (with the goal to minimize their own tax burden), which may clash with broader policy goals. As Clarke and Craft (2019, 14) emphasize, user centrism may not be an easily applicable principle for contentious policy design choices, which include a broad range of users with conflicting needs and expectations, and thus require trade-offs between different values. The act of weighing these needs in tax policy is inherently political, subjective, normative, and ultimately falls to the accountable elected officials.

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Conclusion

In light of the growing importance of experimental approaches in public policy, we proposed a binary question in the title of this article: to experiment or not to experiment in the field of tax policy? As the discussion above shows, the answer to that question is much more nuanced than a simple "yes" or "no". Although Abramowicz (2019) in his thought-provoking study advocated an extensive use of randomized experimentation in tax policy, our claims are considerably more cautious. Using experiments in tax policy does have a range of promises but also a wide spectrum of pitfalls.

On the one hand, experimental approaches have the potential to increase both the substantive quality of tax policy and the policy-making process. Experimental tax policy can potentially help policy makers alleviate some of the uncertainties and information asymmetries with regard to the actual impacts of new tax policy measures, avoid adverse effects, build consensus, and foster attention to consequences rather than ideological hunches in tax policy debates. On the other hand, however, tax policy experiments may give rise to ethical, legal and political challenges. Most of all, experimenting may be seen to violate the principles of horizontal equity, equal treatment and legal certainty. Tax policy is a field characterized by contentious policy choices, which engage a broad range of stakeholders with conflicting perceptions and needs. The act of balancing these perceptions is inherently complex, political and demands trade-offs between different value considerations. Altogether, the application of experimental approaches in the field of tax policy can be characterized by two core challenges that experimenters need to acknowledge and address. We label them a political challenge and a methodological challenge.

First, experimenting in tax policy may clash starkly – perhaps even more so than in many other policy fields – with the political nature of democratic decision-making. Most importantly, tax policy questions are likely to be profoundly influenced by the ideological leanings of policy makers and even define the core identity of some parties, which makes it challenging to test tax policy questions in a genuinely open way. Also, given that experimenting in tax policy would often entail materially benefitting or burdening (in a very clearly measurable way) some groups of taxpayers at the expense of others, such experiments may be more vulnerable than experiments in many other domains to legal challenges. Despite the main promise of experimental approaches to provide new knowledge in complex environments where various actors, institutions and technologies interact, the low tolerance of the tax policy field towards uncertainty and unpredictability may render the experimental approaches politically, ethically or legally unfeasible.

Second, methodologically, different experimental designs entail different strengths and promises, and there is no universal recipe to follow. The experimenters need to decide whether to prioritize causal explanations facilitated by RCTs or exploratory and collaborative aims fostered by other designs. While RCTs enable stronger causal conclusions, non-randomized pilots allow the testing of more holistic policy solutions, and design experiments offer more open-ended approaches and a stronger focus on stakeholder experience. Randomization inherent in RCTs might be a particularly challenging "political sell" in the field of tax policy, since it concerns the core rights and obligations of citizens. Both RCTs and policy pilots could face the accusations of violating horizontal equity – a key principle in tax policy. The user-centrism inherent in design experiments may clash with the notions of taxes as obligations.

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Although we discussed the various designs as distinct options, the lines between them can in reality be somewhat blurred, and they could be used in a sequential manner (Bravo-Biosca 2020; Pomeranz and Vila-Belda 2019). For example, a design experiment could first help take a fresh look at some tax policy goals, followed by a simple non-randomized policy pilot that tests variants of a solution offered in an exploratory way, and an RCT could then zoom in on specific causal questions. Our recommendation is that policy-makers should remain open to a diversity of possible designs of experiments in tax policy. In particular, they should be aware of the dangers of conceiving of experimentation very narrowly, only in terms of RCTs – which seems to be the default given the tendency of the evidence-based policy-making movement to regard RCTs as the "gold standard" (Adkins and Ylöstalo 2018; Barrett and Carter 2010; Bedecarrats et al. 2019; Dalziel 2018; de Leao and Eyal 2019; Pearce and Raman 2014; Strassheim 2020).

In sum, there are considerable constraints for the scope of tax policy experimentation. Thus, while in some disciplines and perhaps even policy-fields experimentation could be the prominent *Zeitgeist*, in tax policy it is likely to remain on the margins. We conclude that in the field of tax policy, experimentation could be feasible in carefully crafted revenue neutral experiments, in phase-wise introductions of larger programs where limited resources can offer a justifiable reasoning for benefitting some taxpayers before others, and fostering stakeholder discussions in very new tax policy domains.

Acknowledgments

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3.

Navigating the Digital Horizon: Challenges and Opportunities for Social Security Systems in an Era of Data Transformation¹²

Johanna Vallistu

Introduction

Envisioning the global landscape in the year 2035 and considering the adaptation of social security systems to evolving circumstances poses an intriguing prospect. The emergence of digital technology has undoubtedly been a disruptive phenomenon in the later part of the 20th century, with the full extent of its impact remaining to be fully known. Digitalization is a key megatrend with far-reaching ramifications for society and economy, as well as the future of social security and welfare states (High-Level Group 2023). The trend to digitalization and data-centricity has allowed for more effectively designed services and enhanced identification of fraudulent conduct. Additionally, the advent of the digital revolution has enabled social security systems to improve the customization of benefit offerings, optimize the allocation of resources through data-driven decision-making, and establish efficient communication channels with beneficiaries. This has resulted in increased accessibility and responsiveness to the changing needs of society.

Throughout this process, the social security administrations themselves have had to change to make better use of data and digitalization, for example by investing in advanced analytics and artificial intelligence to predict future trends in benefit claims, streamline administrative processes, and improve decision-making. This transformation has also required upskilling the workforce to ensure workers can effectively navigate the digital landscape and protect sensitive data.

Viewed through this lens, it is conceivable that the future holds significant potential for social security systems to harness the advantages offered by a spectrum of technologies, including real-time services, extensive data exchange, government portals, sensor deployment, automated processes, and artificial intelligence. If nations were to embrace these technologies to their utmost capabilities, future citizens would likely encounter service provisions that are genuinely centred around human needs, characterized by agility and remarkable efficiency. Nevertheless, it is crucial to acknowledge that technological progress does not occur in isolation; rather, it is intricately intertwined with ongoing societal developments (Mazmanian et al. 2014;

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Jasanoff and Kim 2015; Orlikowski 1992; Johnson and Acemoglu 2023). Therefore, understanding the intricate and ever-changing interaction between technology and society is essential, and it might be difficult, if not impossible, to exercise complete control over the long-lasting institutional consequences that these advancements may produce (Bailey and Barley 2020).

Building on this argument, our discussions concerning the future should adopt a more holistic approach, avoiding the compartmentalization of digitalization as a separate facet of analysis. These advancements are intricately intertwined, necessitating a deeper exploration of the welfare state and its transformation influenced by digitalization (van Gerven 2022). In light of numerous societal and economic upheavals, such as the emergence of platform-based employment and the job displacements witnessed during the COVID-19 pandemic, European welfare states are grappling with profound concerns regarding their future roles (Eichhorst et al. 2022). As we confront vast technological and societal transformations, humanity is compelled to contemplate not only the adjustments required to integrate the current system into digital realms but also the potential for more profound and transformative changes that may reshape our societies and redefine the relationships between the state and its citizens.

Discussions about how technology, digitalization and data will further shape the social security systems and administrations are thus not easy as we do not have a crystal ball to tell us the future, and the ongoing changes are marked by turbulence. Nevertheless, insights from the field of future studies offer a valuable approach. This comprises identifying and mapping significant uncertainties, developing different alternative scenarios, and selecting pivotal themes that require immediate proactive preparedness. Dufva and Dufva (2019) point to the need to broaden our views of the future regarding digitalization. For example, a common understanding is that digitalization will continue to be more prevalent. Futures' thinking helps us to disentangle these assumptions, and avoid preparing for outdated or "used" futures (Inayatullah 2008). Acknowledging these pathways and what they may hold is the first crucial step in moving forward and preparing for alternative futures, e.g. by anticipating (Kimbell and Vesnic-Alujevic 2020).

For instance, as the global landscape in 2035 becomes more interconnected and globally integrated, social security systems will likely require adjustments to tackle emerging issues like international employment and the coordination of benefits on an international scale. This adaptation will ensure that individuals can access their entitlements regardless of their work location or place of residence. Conversely, an alternative scenario of technological progress anticipates challenges in digitalization arising from a lack of essential skills, a shift in societal values prioritizing privacy and

face-to-face interactions over digital convenience, growing environmental concerns leading to reduced electronic consumption, and potential regulatory measures aimed at curbing unchecked digital expansion. Currently, both of these potential pathways, along with numerous less extreme ones lying in between, are feasible and plausible.

The purpose of this contribution is to spark a debate regarding visible as well as probable future advances in digitalization and social security systems. The contribution's main focus is on data as the primary ingredient in digitalization, which creates crucial uncertainties for the future of social security. The implications of these for social security systems and administrations are examined. Finally, a discussion on more radical developments for digital social security and welfare states is offered.

Exploring datafication in social security systems: Uncovering key uncertainties for future development

The pervasive integration of technology within social security systems and administrative frameworks has paved the way for innovative conceptualizations of the digital dimension within the context of the welfare state. Firstly, it gives rise to the notion of the “digital welfare state”, denoting a transformation towards social policies that are influenced by data, as articulated by Van Zoonen (2020). Alternatively, it invokes the concept of a “datafied society”, as proposed by Hintz et al. (2018). Furthermore, the concept of the “datafied welfare state”, as examined in critical data studies, refers to the application of data analytics by governmental bodies to classify, assess, and predict outcomes on both an individual and societal scale. This perspective aligns with the concept of a “data imaginary”, explaining the social orderings of contemporary economy and governance based on data analysis (Beer 2019). This section delves into the practical manifestations of digitalization and datafication within social security systems, shedding light on benefits as well as critique towards digital and data-centric social security systems. Consequently, critical uncertainties arise in the context of future developments.

Data-centricity as an enabler of fluid social security systems and services

The ability to leverage technology for the purpose of coordinating social security administration activities and providing more personalized and efficient public services has evolved in tandem with the broader trajectory of technological progress. Rule (1974) initially identified the early stages of digitalization, highlighting the use of databases and individual surveillance as notable examples. For an extended period, the concept of digitalization has primarily been associated with improving efficiency, as characterized by Lee-Archer (2023) in what is termed the “digitization approach”. This approach involves the conversion of paper-based forms into digital formats and the automation of existing processes. However, recognition of the greater potential of

digital technology has existed for some time. As Schoukens and Pieters already noted in 2007, there has been an understanding that the entire social security administration, if not the programmes themselves, should be reformed and adapted to fully harness the possibilities offered by information technology.

The process of digitalization is closely interconnected with the utilization and management of data. The application of digital technology results in the generation of a constant flow of data points, which collect over time to create increasingly extensive data profiles. The utilization of these data profiles allows for the categorization of individuals and the monitoring of their spending patterns, movement, daily routines, and income trends over time. In just over ten years, the annual production of data worldwide has experienced a significant increase, growing from a few zetabytes to exceeding 100 zetabytes by the year 2023. For social security organizations this development has allowed to “record through digital data, a living history of people’s experiences of social risks” (Lee-Archer 2023, 4) and to start building more human-centric digital social security systems. This results in more adapted, tailored and personalized services and interventions. Initially, the focus of digitalization was on automating pre-existing processes and techniques. This focus has now evolved to encompass the design of these processes in a novel manner, with an emphasis on increased use of the digital and data resource. It is also recognised that the advent of developing technologies, specifically artificial intelligence (AI), has the potential to change what we mean by human centricity (Lee-Archer, 2023) as they allow for redesigning social security systems to a new level of personalization.

The developments of digital social security revolve around the ideology of a personal state whereby (big) data could help in tailoring the services and benefits in a way that benefits the recipients in the most useful way, accounting for their personal needs and conditions. Proactive services based on life events are an example of how data can be used to create human-centric services. Instead of providing services through multiple separate interactions with the state, a life-span approach helps in predicting when one has a need for a new service or benefit. A set of actions on the part of the state can be triggered by a primary event. For example, the birth of a child registered by a hospital in Estonia starts a chain of services for the parent without the parent needing to apply for anything. Thus, historically separate services, such as naming the child, applying for parental leave and requesting parental benefits can be done in one go (Sirendi and Taveter 2016). Instead of placing the burden of proof on a person, the state can use its existing data to verify the need for support and pay the benefits automatically. The prerequisites of these types of solutions are the implementation of the ‘once-only’ principle as well as creating ‘one-stop-shop’ portals and the interoperability of data

– e.g. meeting the OECD digital government framework principles (see Peña-López 2020).

In addition to more personal services, governments can use digitalization to come up with entirely novel approaches to social security. In a world where digitalization also majorly affects work organization and the worker status, governments have a chance to “design new disruptive digital systems” as Campbell and Hanschitz put it (2018, 2). For instance, enhanced data-exchange capabilities enable governments to consider the income of non-traditional workers from various sources, paving the way for a shift from employment-based social security to account-based and portable social security systems (Vallistu 2023). Freudenberg (2019) highlights that in the case of non-traditional and platform workers, digitalization can enable governments to monitor digital financial transactions and track income data, ultimately reducing administrative burdens for both self-employed individuals and platform workers, as well as for social security administrations. Casey and Castro (2015) also emphasize that digital record-keeping, such as online tax account systems, can lead to improved tax compliance and a reduction in informal economic activities. Another aspect of datafication involves the implementation of automated decision-making (ADM) practices. ADM has the potential to enhance the agility and efficiency of governmental social security agencies, streamlining bureaucratic processes and reshaping employee roles. This approach often incorporates cutting-edge technologies like artificial intelligence and biometric data recognition systems.

A step further from just providing services and taxes is to pre-emptively shape the behaviour of citizens to keep them from malicious or harmful activities, more costly for the state in the long term, or just encourage favourable behaviour. For example, during the COVID-19 crisis, governments made use of digital connectivity, large datasets, and machine learning advancements to respond to a public health crisis (Whitelaw et al. 2020). All across the world, governments launched contact-tracing applications, text messages encouraging to keep distance, and set up digital testing and vaccine appointment systems. Similarly, social security systems adjusted to targeted assistance, used remote monitoring of vulnerable populations, and digital identity verifications to avoid physical contacts during the COVID-19 crisis. Social security systems can harness data and digital solutions in influencing the behaviour of citizens to prevent unemployment, encourage more responsibility in pension savings, or use gaming to induce healthier behaviour. For example, the personal activity account (*compte personnel d'activité*, CPA) in France combines information about qualifications and skills of citizens to provide them with tailored upskilling opportunities and to prevent unemployment.

***Uncovering challenges in the transition to digital social security:
An analytical examination***

While datafication provides significant opportunities for social security systems, it is critical to pay close attention to the emerging issues that accompany this transformative process. This section undertakes a critical analysis of digital social security, clarifying the challenges that undermine the aspirations of technological efficiency and personalization and which are discussed already now. It includes examining the human-centric perspective within the domain of digital social security and addressing the significant prerequisites that must be fulfilled for its actualization. This inquiry also reveals pivotal uncertainties that are essential for grasping the overarching trajectories of long-term development in the realms of digitalization and social security.

As Lee-Archer (2023, 4) defines it, the human-centric approach of digital social security revolves around the “capability of digital technologies to connect users to the relevant part of operations or services, in real-time, from anywhere, in the most direct possible way, at a low cost, and provided there are alternative communication channels when someone is not able to use them.” Current developments, however, do not confirm that governments would be easily able to ensure these conditions.

One of the key uncertainties when thinking about the future of digital social security, is the uptake of digital solutions by regular citizens. To this day, the digital divide has been attributed to generational differences and the novelty of digital technologies. As the digital solutions mature, however, it is becoming increasingly obvious that there will always be some people for whom the digital solution will still not be a primary option. According to the findings of Welby and Hui Yan Tan (2022), there exists a discrepancy between the anticipated degree of adoption of digital services by citizens and the actual uptake. Additionally, the research conducted by Boston Consulting Group (2021) in 36 countries revealed that a mere 12% of individuals report that digital government services adequately fulfil their requirements. The adequacy of service design may be lacking, or the government may encounter challenges in developing a strategy that is both appealing and comprehensive for its inhabitants. Consequently, the adoption of digital services is becoming more closely linked to the improvement of service quality through the utilization of agility, design thinking, and innovative strategies for service creation, co-design, and prototyping (Mergel 2022). From a governmental standpoint, this entails considering all possible situations of individuals and placing a greater emphasis on case management when developing future social services as well as taking the service design perspective. Finally, governments must take a critical view towards digital channels as primary means of communication, acknowledging the need to provide alternatives.

The second key ambiguity revolves around whether the current technological and legal structures will facilitate the smooth integration of various data sources and the real-time exchange of data. The ongoing lack of coordination and standardization in current digitalization initiatives continues to necessitate reliance on outdated methods, hindering advancements toward a more human-centred approach (Lukersmith et al. 2016; Lee-Archer 2023).

From the user's perspective, the adoption of the 'one-stop-shop' strategy or the 'digital platform approach' is imperative, as it places decision-making authority in the hands of individuals. Simultaneously, the state must prioritize the establishment of interoperability across varied data sources and facilitate the seamless flow of data in real time. According to Yukhno (2022), big data can only be used as a governance instrument once the government has established a unified state digital ecosystem. Nonetheless, the existing landscape is marked by fragmented service delivery, recurring data gathering, and insufficient data interoperability.

In addition to technological capacity, the social security administrations themselves must change to adjust to the transformation towards data-centricity. In order to maintain public value during the process of digital transformation, it is necessary to implement changes that extend beyond organizational processes. These changes encompass revisions in work practices and a use of discretion by public authorities (Lindgren and Veenstra 2018). Although citizens are expected to autonomously navigate digital systems, they frequently require assistance from government officials. This transition has altered interactions between public sector officials and citizens by decreasing the importance of specialized knowledge and emphasizing interpersonal skills when assisting with digital systems (Pors 2015). Thus, consideration of capabilities within social security administrations is crucial, as government technological capacities have evolved with the integration of technology, reshaping roles and even creating new ones (Lember et al. 2018; Giritli Nygren et al. 2013; Pollitt 2011).

An underlying concern lies in the infrastructure and possibilities for data management and sharing. While the European Union (EU) is formulating plans to empower individuals with more control over their data, allowing them to determine with whom and for what purposes their data is shared, considerable work remains to bridge the gap between these aspirations and their effective implementation (Bräutigam et al. 2022). This includes initiatives like the EU Data Act and the Artificial Intelligence Act, which aim to address data-related issues and promote greater control and transparency for individuals in their data interactions, yet substantial legal and technological groundwork is still required to fully realize these objectives.

This leads to the question on the balance of privacy and control. While data-centricity can lead to better-monitored social security systems and less fraud, handling bigger volumes of data puts an increasing burden on the state to ensure privacy and accountability while avoiding data leaks. This is especially true in the case of social security systems, which deal with highly sensitive data and where mistakes can have life-changing effects. With the addition of more efficient yet technically complex automated decision-making procedures, ensuring transparency while maintaining privacy is becoming an increasingly difficult task. However, a growing number of people are sceptical of the current systems of social protection and assistance's reliance on digital data and technologies. Sceptics argue that these technologies are being used to automate, anticipate, identify, monitor, detect, target, and penalize individuals (Alston 2019). Furthermore, it is proposed that, in conjunction with Zuboff's idea of surveillance capitalism (2019), digital public services have the potential to be constructed in a way that imposes new forms of control and limits on citizen activity and movement (Lindgren et al. 2019, 433). Or, as Dencik (2022, 161) puts it:

[...] the epistemological and ontological pillars of the datafied welfare state advance an agenda of responsabilisation that counter values of universal access, social solidarity, and human flourishing, whilst the operations of capital out of which datafication has developed position the datafied welfare state as a tenant of private cloud and service providers that threatens to undermine democratic governance and displace public infrastructure.

The key uncertainty here is trust in technology by both social security bureaucracies and society in general, which can limit technological adoption rapidly. The issue of trust and trustworthiness in digital social security systems raises serious questions about the long-term validity and public acceptance of the expanding use of data-centric solutions. A significant level of public trust in the digital approach is required for the successful implementation of a data-centric social security system, which can be achieved by establishing "human accountability in decision making" (Lee-Archer 2023) and imposing appropriate constraints on the delegation of authority to artificial intelligence and automated procedures.

The ultimate challenge revolves around automated decision-making and algorithmic governance. The topic of automated decision-making has posed significant difficulties due to its tendency to reinforce social biases and discriminatory behaviours. This is primarily because choices made by automated systems are based on pre-existing data, as acknowledged by the European Commission in 2023. The persistent ambiguity surrounding automated decisions in social security systems is inherently linked to the dependability of artificial intelligence. On the one hand, the utilization of artificial

intelligence to enable automated decision-making has significant promise in customizing data-driven social security solutions. However, it also has substantial risks. An illustrative example of the perils associated with artificial-intelligence-driven governance is the cautionary tale of the Dutch child care scandal (Hadwick and Lan 2021). This incident underscored the human rights implications and prompted heightened scrutiny. It led to the Council of Europe and individual nations crafting human rights checklists to mitigate the potential pitfalls of artificial intelligence in governance.

Exploring radical visions: Wild card futures for social security and the welfare state

While the shift towards digitalization and data-centricity in social security has brought to light the uncertainties mentioned earlier, the future of social security in 2035 should also consider the potential for more radical developments that could shape its trajectory. These are the “what if...?” scenarios essential in futures studies, offering plausible, albeit often less probable, future scenarios that inform our current strategic approaches. These wild card futures broaden and redefine our understanding of the subject matter.

The growing frequency of informal and self-employment arrangements is one important trend that influences how these alternate trajectories are realized. The adoption of innovative models for peer-to-peer services, including work on digital platforms, has led to the reclassification of workers as independent contractors (Schor 2015; Kalleberg and Vallas 2018). This shift has diminished the significance of traditional standard employment relationships (SER) and raised concerns about the social protection available to platform workers (Codagnone and Martens 2016). The growing instability in the labour market threatens the credibility of longstanding institutions such as trade unions, occupational communities and educational organizations (Standing 2011) and has prompted consensus among scholars and experts on the need to reorient social security policies (Degryse 2016). Despite theoretical access to social protection for platform workers and the self-employed, practical barriers stemming from eligibility and accessibility requirements persist, as highlighted by Stuart et al. (2017). The European Union’s Bismarckian social protection systems, which link social security access to conventional employment relationships, are under pressure to adapt due to this and other factors, including unfavourable demographic trends in Member States (Petropoulos et al. 2019). It could be asserted that the process of digitalization has indirectly introduced more difficulties than direct opportunities for social security systems.

Simultaneously, digitalization continues to transform service delivery, diminishing the significance of physical locations and pushing citizen-state interactions into virtual

domains. These changes have greatly reduced the traditional constraints tied to the geographical proximity of service recipients. Coupled with the global shift in work dynamics, such as the rise of digital nomadism, the anticipation of receiving services across borders is on the rise. Consequently, the digitalization trend is blurring the lines between the consumption of public sector services and other services, resulting in novel forms of citizen demands (Mattfolk and Emfeldt 2019, 243). A substantial number of individuals globally choosing virtual work, acting as entrepreneurs or self-employed persons, will have distinct social security needs compared to the current 'ordinary' citizen. In a data-driven and globalized world, various digital citizenships may emerge, catering to these novel expectations.

Two prominent current developments that could lead to relevant yet more radical futures for social security systems and the digitalization of social security are thus detailed below.

First, the development whereby the state is not able to take control of the underlying structural changes caused by technological development. In this “wild” future, major technology companies are leveraging their influence and adaptability to enter the realm of state-provided social security, either as supplementary or alternative solutions to current methods—Amazon Health’s provision of virtual clinics and pharmacies serves as an example. The expansion of this trend could potentially sideline or outpace the state in developing innovative social security solutions. Magalhães and Couldry (2020) warn about the risks associated with data colonialism, highlighting that a data-driven welfare system could solidify Big Tech corporations’ position as indispensable institutions for both the state and society’s fundamental operations. In a world where social security offered by multinational corporations is becoming more available to atypical workers or even normal employees, the function of incumbent social security administrations and systems is being called into question. Will there be a class of global citizens that are stateless, and will they marginalize the present state-led structures?

A different potential trajectory for the future entails proactively managing technology-related risks from the outset, departing from the viewpoint that regards technology as the main determinant shaping the future of social security. Recognizing the growing disparities arising from non-standard employment and the increasing challenge of distinguishing between various forms of job security, social security systems will shift their focus toward the fundamental principles of services and strive to promote greater equality of opportunities. In this context, technological advancements do not take the central role in shaping the nature of social security; rather, they serve as tools for establishing a more equitable and inclusive social security system. The ways standard employment is tied to social security would be reviewed in this trajectory and

a more universalist approach adopted. Joyce et al. (2019) argue that policy interventions should address issues with insecure work more broadly rather than focusing on certain atypical types of work, such as platform workers. The recent example of the COVID-19 crisis showed that in addition to long-term structural changes, the universalist approach to social security would serve to ensure against future shocks (Razavi et al. 2022). Interesting alternative pathways have been proposed through time which widen the meaning of work and eligibility to social protection – for example, Beck’s (2000) proposition of rewarding citizens with “civic money” for socially valued activities, thus valuing both paid work as well as civil labour. Similarly, Supiot (with Meadows, 2001) proposed decoupling social protection from the worker status. Relatedly, discussions on the universal basic income fall into this category, even if the roots come from two different ideologies: the neoliberal approach (Van Parijs) or the neoclassical approach (Friedman) (see overview in Balliester and Elsheikhi 2018). The future scenario of a universal social protection tells a story of a stronger state as well as widening the policy action taken to shield its citizens from the harm of digitalization (Razavi et al. 2022). In improving the state capacity, the technology plays a certain role but is not necessarily central or the “panacea” (Grosh et al. 2022, 349).

Finally, a middle path can be observed in light of the more radical futures of giving up power in favour of greater digital social security or guiding the core questions away from digitalization. New approaches to insurance and protection resulting from the convergence of unconventional work arrangements and digitalization do not have to be negative. An obvious example is the formation of cooperatives built exclusively for freelancers, which provide insurance coverage in the event of an accident (Palier 2019). As a result, the digitalized economy, which produces new job opportunities and social vulnerabilities, has the potential to foster the establishment of novel modalities of mutualization and protection. The question is, how will social security institutions position themselves in these new digitally enabled societies?

Concluding remarks

In conclusion, the pervasive influence of digitalization has left no aspect of society untouched, including social security systems. The adoption of digital and data-centric approaches has initiated a transformative journey toward a more human-centric model of social security. This shift has enabled governments to proactively provide services and benefits, leveraging data interoperability as they transition into this new paradigm.

However, to effectively govern the long-term changes in social security, we must anticipate both immediate challenges and more radical future scenarios. Dufva and Dufva (2019) emphasize that our perception and experience of digital realms shape

the possibilities we envision for the future. While it is tempting to view data-centricity solely as a technological question, this narrow perspective limits our understanding of the true potential as well as pitfalls of digitalization.

It is essential to recognize that neither technology nor social security exists in isolation. Our world is a complex web of interconnected facets and evolving trends, with digitalization, the economy, and society influencing one another. Therefore, while addressing the immediate challenges and opportunities posed by digitalization and data-centricity is important, it is equally crucial to adopt a holistic perspective that acknowledges the extensive interdependencies among digitalization, the economy, and society.

To chart the future of digital social security, administrations must engage in ongoing imaginative and visionary exercises. This involves identifying preferred futures and recognizing the inherent constraints and limitations of digitalization that we must consider today. By embracing this holistic approach, we can navigate the intricate landscape of digital social security and work toward a more inclusive, responsive, and equitable future.

Curriculum vitae

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