A Contribution to a Socially-Minded Practice of Economics

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Abstract

The financial crisis in 2008 drew worldwide attention to the shortcomings of the economics profession, which up to that point had been dominated by the neoclassical tradition. In this critical commentary, I discuss my contribution towards a socially-minded practice of economics by reflecting on my 25 years' experience working as an economist who elected not to be constrained by the narrow neoclassical definition of economics. The discussion is framed using the six doctoral descriptors which enabled me to demonstrate how I meet the DPhil requirements.

To structure and discuss my contribution to the field, I present my work using a general framework I developed to describe "a Socially-Minded Practice of Economics". By applying this framework, I was able to articulate my contribution through the presentation of seven research projects covering the broad spectrum of data, research and pedagogy. The portfolio includes six articles and the Wage and Employment Dynamics (WED) project repository. The portfolio of outputs demonstrates my diverse research interests and versatility; support for pluralism and multidisciplinary approaches; and showcases my proficiency in employing a variety of methods. The choice of methods is influenced by practical relevance and grounded in a post-positivist epistemological perspective. The overarching theme that unites my portfolio of work is the prioritisation of social objectives.

Reflecting on my experience, I suggest that as well as developing the technical skills needed by a modern-day economist, to have the greatest impact the socially-minded economist should consider investing time and effort into developing their links with the policy community, embrace interdisciplinarity, and be willing and able to engage and communicate with wider stakeholder groups.

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Contents

Glossary of Terms

ADR UK:	Administrative Data Research UK
ASHE:	Annual Survey of Hours and Earnings
CABI:	Centre for Agriculture and Biosciences International
Co-I:	Co-Investigator
DPhil:	Doctor of Philosophy
DRAGoN:	Data Research, Access and Governance Network
ESCoE:	Economic Statistics Centre of Excellence
ESRC:	Economic and Social research Council
FSF:	Five Safes Framework
HE:	Higher Education
LMIC:	Lower- and Middle-Income Counties
NSI:	National Statistical Institution
OLS:	Ordinary Lease Squares
OMP:	One-Minute Paper
O*NET:	Occupational Information Network
ONS:	Office for National Statistics
PI:	Principal Investigator
PM:	Project Manager
SSHIiE:	Supporting Soil Health Interventions in Ethiopia
TRE:	Trusted Research Environment
UWE:	University of the West of England
WED:	Wage and Employment Dynamics

1. Background

1.1 Context

The body of work presented in this critical commentary is the culmination of an economics career spanning 25 years. It provides an insight into my rejection to be constrained solely by neoclassical economics and embracing pluralism.

I first became aware of economics as a social science at the age of 13 when I completed a study based on the UK's budget. However, when I formally studied economics at A-level, in the first week I was introduced to a *scientific* discipline which had supply and demand, individual rational agents, and the utopian state of the perfect market at its core. I was sceptical even then, and am still yet to be convinced of any single market that is *perfectly competitive*, nor am I convinced that I have met a one person with the knowledge, time, inclination and consistency to act *rationally and with pure self-interest* at all times. Yet at the heart of teaching mainstream economics, is neoclassical economics with its premise that on average we all do.

The neoclassical view can be summarised as assuming that individuals are rational, self-interested utility maximisers who make optimal decisions based on the information available to them; markets tend toward equilibrium and when functioning properly, lead to optimal allocation of resources; economic growth is essential with Gross Domestic Product (GDP) as the key measure of progress; and economics is an objective, positive science.

The shortcomings of this approach should have been clear to me when in E*conomics 101* I was introduced to the idea that the "central economic problem is scarcity" (Sloman, 1991, p.1) - Sloman is a core text in teaching introductory economics. I believe such a lens is not a helpful starting point as it frames the idea that more is good. This reinforces the fixation economics has on GDP, with growth as the primary measure of progress (Raworth, 2017), while largely ignoring the concepts of justice, equity, distribution and environmental limits. This limitation of economics and its teaching was further compounded, when I was informed that if I were to become a professional economist, my role would be limited to that of a communicator of *facts*

(value-free, scientific evidence) as "economists can only contribute in a positive way to questions of policy… [and] cannot make normative[1] judgements" (Sloman, 1991, p.29).

This position has been damaging to the profession; it places economics as a [natural] science, rather than a social science. It also takes from economists responsibility for decisions made by them; failures are laid firmly at the feet of policy makers, ignoring the fact that the economic and statistical community create the evidence base, deciding what to measure, how to measure it, and the methodological approaches used to process that information.

This cloak of invisibility, however, was ripped away with the onset of the financial crisis. This led to the Queen unusually entering the political debate in 2008, challenging professors on a visit to the London School of Economics as to why the economics profession failed to foresee challenges.

The global financial meltdown was also at the heart of the growth of a student-led movement, Rethinking Economics, which highlighted that it was not only the world economy that was in crisis: so was economics teaching. The students advocated for a more pluralistic approach to teaching and learning in economics.

Given the gravity of the shock to the profession, the financial crisis was an opportunity for economics to reposition and reclaim its position as a social science. However, any such change was rebuffed by the dominant neoclassical ideology, whose economists took this failing as an opportunity to update their mathematical models to *account* for previous shortcomings. The reward for initial failings was a further opportunity for neoclassical economists to update and publish in the most highly rated academic journals; in contrast, heterodox economists, who suggested the financial crisis was due to the prevailing orthodoxy, remained largely marginalised, publishing outside their core field and in interdisciplinary journals, whether they wanted to or not.

Politically neo-liberal ideology, which can be seen as an extremist subset, but which draws on the principle and assumptions of neoclassical economists, was reinforced in the UK with the introduction of *austerity*. At a time when post-Keynesian economists were espousing the value of a government intervention to drive sustainable and inclusive growth, financed by record low

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[1] Normative economics deals with 'what should be', which reflects individual and collective values and opinions. As such, it incorporates subjective views about fairness, justice, and the wellbeing of society.

government borrowing rates, the UK Conservative government took the opportunity to reduce the size of the state, increasing levels of inequality, under the façade of balancing the books.

These failings led to a downgrade in the esteem in which economics were held by the public. Potentially, this contributed to the UK public ignoring the almost universal advice provided by the profession of the negative economic impact of voting to leave the European Union.

While neoclassical economics forms the core theoretical foundations of mainstream economics, mainstream economics as it exists today includes a broader set of ideas and methods. These include Keynesian, behavioural and institutional perspectives, open to interdisciplinary influences, with greater emphasis on data-driven, micro-founded and more pluralist methodologies. These mainstream ideas, however, are still influenced by neoclassical ideas. For example, it can be argued that Keynes is neoclassical but allows for short-run rigidities, while psychologists may struggle to recognise much of the 'behavioural' analysis.

Despite the efforts of the profession to introduce more flexible models into the mainstream, neoclassical economics remains at the core of the profession. Given the challenges of the past 15 years, its continued dominance at the core of economics is disappointing. It does, however, act as a rallying call for the profession to continue along this journey of development, embracing different ideologies and traditions, and moving away from this perception as a (natural) science.

1.2 My Personal Journey

My desire to become an economist was driven by the belief that the profession had much to offer in terms of improving human welfare and wellbeing. My personal journey to become a professional economist began at the South West Regional Development Agency, whose focus was on supporting inclusive and sustainable growth. This role allowed me to explore and develop my practice as a *socially-minded* economist, whose primary interest was in social welfare, equality, and with a growing interest in sustainability. It gave me experience of applying economic theory to address real-world challenges, while providing firsthand insight into how data and analysis is used to create an evidence base, supporting strategy and policy used to drive economic and social change.

I then moved to the Office for National Statistics (ONS), managing the Macroeconomic Statistics Coherence Branch (e.g. Robjohns and Whittard, 2008); the Balance of Payments Branch (e.g. Whittard and Khan, 2010); and finally, the Economic Wellbeing Branch (e.g. Whittard and Foster, 2012). The diversity of roles exposed me to a range of theories, research methodologies, and all

were underpinned with developing a deep knowledge of data and statistical frameworks. My role leading the Economic Wellbeing Branch, however, was transformational. It became apparent to me that real progress would only be made, if statistical authorities began measuring factors which were important for human welfare to flourish and move away from the traditional GDP-centric focus.

My role at ONS was to support the delivery of a programme to address "Classical GDP Issues" (p.11), as recommended by the Commission on the Measurement of Economic Performance and Social Progress Report (Stiglitz, et al., 2009). Its recommendations included broadening the scope of economic indicators to better reflect current wellbeing and future sustainability, while emphasising welfare, social inclusion, quality of life and environmental health.

Joining a team which was trying to measure novel concepts awakened my awareness of power dynamics involved in data collection. I began to reflect on the fact that what gets measured, who collects it, and how it is framed are deeply political and ideological choices - D'ignazio and Lauren (2023) write extensively about this in their book on data feminism.

During this time, I took a pragmatic approach and given the alignment of this new role with my values, I focussed all my efforts into improving measurement of data that could support an evidence base focussed on improving societal outcome and improve human welfare. It did, however, plant a seed in relation to power dynamics and data. I began to question whether official data collection and structures reinforce neoliberal attitudes by prioritising markets, competition, and growth over equity, sustainability, and alternative economic models (Beer, 2016). I parked these issues for many years but return to consider them in the concluding chapter and discussion on future research.

This professional experience, however, did prompt me to undertake a broader exploration of the contributions of notable economists driven by social considerations, including Sen's work on capabilities (1990), Stiglitz's analysis of market failure (1996), Thaler's research on behavioural economics (2008), Layard's studies on wellbeing (2010), Raworth's concept of doughnut economics (2017), and Coyle's focus on measurement (2017).

I joined the University of the West of England (UWE) in 2012 to pursue my interest in research, prioritising projects which either directly or indirectly prioritised social and environmental outcomes. My research interests are diverse, albeit many have been focussed on measurement and working with large-scale administrative datasets, principally looking at distributional issues in relation to labour market. I am a member of the Sustainable Economies Research Group as

well as being a founding member of the Data Research, Access and Governance Network (DRAGoN) Research Group. DRAGoN is a multidisciplinary research group which supports my interest in understanding and improving data sources.

Given the diversity of economic roles I have undertaken, I am well placed to reflect on my experience and, informed by the academic literature, to explore my contribution to the socially-minded practice of economics. This critical commentary, therefore sits within the field of economics, but takes a multidisciplinary approach.

In the next section, I describe the seven outputs submitted for consideration as part of the DPhil requirements, describing my personal contribution when delivered as part of a team. In Section 3 I introduce a general framework - *A Socially-Minded Practice of Economics.* This is a framework I developed while completing the critical commentary as it helped me to structure and present my body of work and contribution to the field. This is then followed in Section 4 by a critical reflection of the seven outputs presented. In section 5, I discuss my ontological and epistemological position, how this has influenced the methodological approaches I have applied, and how this has helped me to demonstrate how I meet the six doctoral descriptors. Section 6 includes a discussion of the impact of my individual research outputs. Section 7 takes a holistic perspective; it synthesises the findings from the entire portfolio to create a coherent understanding of my overall contribution to the socially-minded practice of economics. Finally, conclusions are drawn before future directions for my research are discussed.

2. Portfolio of Outputs Submitted for Consideration as Part of the DPhil Requirements

UWE's six doctoral descriptors are follows:

1. have conducted enquiry leading to the creation and interpretation of new knowledge through original research or other advanced scholarship, shown by satisfying scholarly review by accomplished and recognised scholars in the field;

2. can demonstrate a critical understanding of the current state of knowledge in that field of theory and/or practice;

3. show the ability to conceptualise, design and implement a project for the generation of new knowledge at the forefront of the discipline or field of practice including the capacity to adjust the project design in the light of emergent issues and understandings;

4. can demonstrate a critical understanding of the methodology of enquiry;

5. have developed independent judgement of issues and ideas in the field of research and / or practice and are able to communicate and justify that judgement to appropriate audiences;

6. can critically reflect on their work and evaluate its strengths and weaknesses including understanding validation procedures.

Table 1 is used to provide evidence of how I meet the doctoral descriptors. Initially the table documents the seven outputs presented in the portfolio of outputs. I then list my specific role in delivering each output, before mapping the outputs against the six UWE doctoral descriptors. In the final column, I estimate my contribution to overall delivery of each research project.

Table 1: Type and relevance of the publications

Output	Role	UWE Doctoral Descriptors	Estimated contribution to output overall
Output 1 (O1 - WED): Wage and Employment Dynamics (WED) Project Repository https://www.wagedynamics.com/	• WED Project Manager • Co-investigator (Co-I)- Phase 1 • Principal Investigator (PI) - Phase 2 and 3 • Quality assured data • Quantitative analysis • Created stakeholder groups • Communication and engagement lead • Designed and delivered WED training • Led the work location research stream • Contributed to journal articles, working papers and policy briefs.	1, 2, 3, 4, 5 & 6	- 15% of all delivery -100% of project managem ent
Output 2 (O2 – ASHE survey): Whittard, D., Ritchie, F., Phan, V., Bryson, A., Forth, J., Stokes, L. and Singleton, C., 2023. The perils of pre-filling: lessons from the UK's Annual Survey of Hours and Earning microdata. *Statistical Journal of the IAOS*, pp.1-17. Available from: https://content.iospress.com/article s/statistical-journal-of-the-iaos/sji230013	• Conceptualised and designed the project • Led the literature review • Processed and analysed the data • Drafted the full paper • Disseminated the findings	1, 2, 3, 4, 5 & 6	60%
Output 3 (O3 – CABI project): Whittard, D., Ritchie, F., Musker, R. and Rose, M., 2022. Measuring the value of data governance in agricultural investments: A case study. *Experimental Agriculture*, *58*, p.e8.	• Conceptualised and designed the project • Led the literature review • Developed the qualitative methodology • Managed the qualitative workstream • Planned and led the quantitative workstream • Completed the economic evaluation	1, 2, 3, 4, 5 & 6	70%

doi:10.1017/S0014479721000314. Available at: https://www.cambridge.org/core/journals/experimental-agriculture/article/measuring-the-value-of-data-governance-in-agricultural-investments-a-case-study/5BE1BF645DED21B3010332B763EBDE73	• Lead author on two published journal outputs • Second author on third academic paper – Data & Policy • Disseminated the findings		
Output 4 (O4 - student working): Whittard, D., Drew, H. and Ritchie, F., 2022. Not just arms and legs: employer perspectives on student workers. *Journal of Education and Work*, *35*(6-7), pp.751-765. DOI: 10.1080/13639080.2022.2126972	• Led the literature review • Led the qualitative analysis • Drafted the paper • Disseminated the findings	1, 2, 4, 5 & 6	60%
Output 5 (O5 - green jobs): Whittard, D., Bradley, P., Phan, V. and Ritchie, F., 2025. Working Towards an Environmentally Sustainable and Equitable Future? New Evidence on Green Jobs from Linked Administrative Data in the UK. *Journal of Cleaner Production*, p.145025. Available from: https://www.sciencedirect.com/science/article/pii/S0959652625003750?casa_token=J6VW3aAcBC4AAAAA:AEA6QUG94Uxzly07NmNNWNVn7A6hCfkr8GAJtrh7qBU6G2CoWMyrFYCdLCLsMysqeQSZCG4	• Secured an 18 month ESRC Fellowship • Conceptualised and designed the project • Created government and academic steering group • Led the literature review • Processed and analysed the data • Drafted the paper • Disseminated the results	1, 2, 3, 4, 5 & 6	85%
Output 6 (O6 – OMP reflections): Whittard, D., 2015. Reflections on the one-minute paper. *International Review of Economics Education*, *20*,	• Conceptualised and designed the project • Designed the qualitative workstream • Kept a reflective log • Ran the focus group	1, 2, 3, 4, 5 & 6	100%

pp.1-12. ISSN 1477-3880, Available from: https://doi.org/10.1016/j.iree.2015.06.002.	• Created conceptual framework to analyse data • Sole authored the paper • Disseminated the findings		
Output 7 (O7 – OMP model): Whittard, D., Green, E., Shareef, M.S. and Ismail, I., 2022. The multidimensional model of the one-minute paper: advancing theory through theoretical elaboration. *International Review of Economics Education,* 41, p.100248. Available from https://doi.org/10.1016/j.iree.2022.100248	• Conceptualised and designed the project • Designed the qualitative data workstream • Led the project • Managed an international research team • Led the literature review • Drafted the paper • Redesigned the project following peer review • Led the delivery of the revised project • Drafted the revised paper	1, 2, 3, 4, 5 & 6	75%

It is worthy of note that the work presented in this critical commentary is just a partial snapshot of my contribution to scholarship and the economics profession which has lasted over 25 years. During this time, I have published over 50 research outputs (UWE repository) and received over 130 citations (google scholar). I have published eight articles in high-quality peer-review journals and have an additional seven papers currently under review.

3. Presentation of Portfolio of Outputs Submitted for the DPhil: A Socially-Minded Practice of Economics

This critical commentary begins by considering the historical context which the socially-minded practice of economics was built upon, before discussing both the practice of economics and the characteristics of a *socially-minded* economist. I then introduce a general framework I developed called the *Socially-Minded Practice of Economics*. This framework was one which emerged during the process of writing the critical commentary, which enabled me to coherently present and discuss my body of work. By applying this broad framework, I was better able to articulate my contribution to the field through the presentation of seven research projects, all of which individually meet a research gap. The seven outputs include six research articles and the WED project repository.

3.1 Development of the General Framework: A Socially-Minded Practice of Economics

Debates around the profession and practice of economics have been around since its birth in the late 18th Century. Laurent (2020) argues that in the middle of the 19th century issues such as distribution and justice were at the heart of the founding fathers' work, which for good reason was called "political economy" (p22).

The socially-minded practice of economics has its roots in the classical and early political economy perspective of the 18th and 19th century. For example, Adam Smith in his 1759 seminal work "The Theory of Moral Sentiments" was acutely aware of the importance of wider forms of motivation, emphasising sympathy and moral considerations in economic behaviour (2010). Utilitarians such the British philosopher and economists J.S. Mill were similarly concerned with issues of social justice (Riley, 2005), albeit these approaches were ultimately sidelined as economists separated production and distribution to focus on efficiency.

The socially-minded framework further borrows from the institutional and historical economics of the late 19th and early 20th century, which criticised the mechanistic nature of neoclassical economics, emphasising social institutions, power and culture in shaping economic behaviour (Veblen, 1898). This approach to economics was further developed, most famously by John Maynard Keynes in his rejection of classical equilibrium models in favour of a more context-driven, socially conscious approach (1937). Indeed, Post-Keynesian economists have advocated

for an economics concerned with inequality, social justice and real-world dynamics (Robinson and Dow, 2021).

In the mid to late 20th century alternative approaches and renewed theories of justice emerged. For example, Atkinson (1970) revisited the empirical measurement of inequality, restoring the analysis of distributional issues to a central place in economics (Jenkins, 2017). Sen (e.g. 1979, 1990), developed the '*Capability Approach'*, a framework for assessing wellbeing, development, and social justice.

In the 21st Century scholars further questioned and demonstrated that the fundamental assumptions of neoclassical modelling were either wrong or meaningless. For example, Kahnerman (2011), Thaler and Sunstein's (2008) developed the field of behavioural economics which challenged the rational agent model by introducing psychological and social dimensions. Complexity economics move away from equilibrium economics, seeing the economy as an evolving system (Beinhocker, 2006). Feminist scholars such as Nancy Folbre (2009) and ecological economists such as Herman Daly (2014) expanded the field to account for issues such as care work, environmental sustainability and broader societal well-being. Jones (2023) explored issues in relation to sustainable economic development which value local over global and wellbeing over economic growth. New Economic Thinking models (e.g. Raworth, 2017; Mazzucato, 2018) promoted an economics which is explicitly ethical and socially-minded.

Laurent, however, claims that the principles of social justice were marginalised and ultimately nearly forgotten over the past century as the practice of economics broke with "philosophy, ethics and justice" (p.21). Laurent (2020) argues that, since the early twentieth century, mainstream neoclassical economics dominated and positioned itself as a detached and rational science, disconnected from issues of inequality and justice. Its development as a science was supported by positivist approaches based on gradual improvements in data availability and quantitative modelling, supporting a doctrine mainly thinking only in terms of efficiency (Wight, 2009). Mearman (2020) argues that the practice of economics is dominated by a utilitarian logic where actions are considered morally right if they maximise overall happiness or utility. Such an approach is dominated by short-termism, leaving little room for concerns with distribution, inequality and intergenerational justice. Laurent (2020) argue that this detachment from justice was not just restricted to a neoclassical doctrine, but was further exacerbated by Keynesian economics, its strongest opponent, with its emphasis on short-term policy, largely forgetting about the long-run.

In the UK the Institute for Apprenticeships and Technical Education (IfATE) define the practice of the economist as one which includes "produc[ing] rigorous, relevant and impactful economic analysis to drive decision making at all levels" (IfATE, 2024). They highlight that although economists work in wide-ranging industries and sectors, they generally share a common practice of identifying an issue for investigation, analysing data, interpretating results with reference to economic theory, and communicating their findings. The standard has been critiqued as it is dominated with reference to neoclassical theory and positivist economics. There is only limited reference to pluralism, interdisciplinarity, ethics and integratory, and no reference to normative economics, social justice, qualitative method or issues of sustainability.

The Subject Benchmark Statements are published by the Quality Assurance Agency for Higher Education. They provide an overview of what graduates in a specific subject are reasonably expected to know, do, and understand. The benchmark statement does consider how the discipline contributes to broader social objectives, particularly in relation to "equality, diversity and inclusion… [and] education for sustainable" (p1). However, in a review of the 2015 subject benchmark statement and its implications for the practice of teaching economics, Mearman et al., (2018a) concluded that it was limited in terms in pluralism, while ignoring issues in relation to ethics, power, politics and key educational goals.

The most recent Subject Benchmark Statement for Economics was published in March 2023 (QAA, 2023), which goes some way to become more aligned with the socially-minded model of economics. The advisory group was made up of a broader group of economists, which gave greater emphasis to cross-cutting themes (e.g. equality, diversity, and inclusion; accessibility; sustainability; and enterprise), while highlighting "pluralist approaches to teaching and learning… institutions, power structures… social and environmental context… poverty and inequality… social well-being… sustainability… and normative competency" (p. 3-13). Within the revised framework, there is a clear statement that "Economics is a social science" and demonstrates commitment to multidisciplinary approaches, stressing its links to many other subject areas. These developments are not without their critics, however, while recognising the potential benefits of the cross-cutting themes, they point to the risks such as opportunity costs, dumbing down and political bias (Armstrong, 2024).

The challenge of the profession to adequately address some of the key issues was reported by Bowles and Carlin (2020) in their study of over four thousand students from 12 countries and 25

universities. They reported remarkably consistent concerns (e.g. unemployment; globalization), but inequality and sustainability were the dominant issues.

In line with Laurent (2020), I believe that a socially-minded practice of economics requires scientific plurality "which does not exclude any insightful stream of knowledge on ideological grounds" (p11). The economics practitioner requires a combination of analytical, quantitative, and qualitative skills, along with a deep understanding of economic theories and real-world applications. It requires critical thinking, problem-solving, synthesis of information, contextual and policy awareness, communication skills, ethical judgement and social responsibility. I believe that by developing these capabilities, and incorporating a normative approach, economists can better tackle complex economic problems, contribute to decision-making processes, and craft informed policies to improve societal wellbeing.

It is clear that the socially-minded practice of economics stands in fundamental tension with neoclassical economics, although it may incorporate some of its tools. It rejects many of its core assumptions challenging its individualistic framework, while embracing ideas that economics is shaped by social norms, institutions, power and ethics. It rejects the assumption that markets naturally tend toward equilibrium, believing that markets are imperfect, and outcomes often depend on history, power and inequalities. It incorporates behaviour insights, highlights altruism, cooperation and social embeddedness. It rejects GDP as a complete measure of progress and stresses greater focus on well-being, sustainability and equity. Finally, it fundamentally rejects the idea of value free economics to embrace a normative approach.

As such, the socially-minded economist can be viewed as an individual who is driven by a "value-directed approach" (Wallis et al., 2004, p254) who aims to "enhance human welfare … with special emphasis on achieving social justice for people who are economically deprived" (Hill, 1990, p.158). In this context, I define a socially-minded economist as an individual:

> *that prioritises social welfare and who aims to support the integration of social goals, such as equity, inclusion, and sustainability into economic theory, policy and practice.*

Although this approach is a departure from mainstream, neoclassical economics, which Laurent (2020) argues is disconnected from issues of inequality and justice, much has been written by economists about socially-minded or "prosocial" behaviour, with models of motivation being extensively explored (e.g. Fehr and Schmidt, 2006; Besley and Ghatak, 2018).

In order to conceptualise a socially-minded practice of economics, I developed a general framework (see Figure 1) influenced by Galbraith's (2012) discussion on the profession, following the failings highlighted by the financial crisis. Galbraith argues that economists should focus on contributing to "a considerable, rich, promising body of economics, theory and evidence, entirely suited to the study of the real economy and its enormous problems" (Ibid, p.95). It also builds on Keynes' notion of the master economist, as he describes it in his tribute to Marshall (1924).

> "The master-economist must possess a rare combination of gifts .... He must be mathematician, historian, statesman, philosopher—in some degree. He must understand symbols and speak in words. He must contemplate the particular, in terms of the general, and touch abstract and concrete in the same flight of thought. He must study the present in the light of the past for the purposes of the future. No part of man's nature or his institutions must be entirely outside his regard. He must be purposeful and disinterested in a simultaneous mood; as aloof and incorruptible as an artist, yet sometimes as near to earth as a politician." (p.322)

Although similar to Keynes in regards its emphasis on interdisciplinary breadth, balancing abstraction and practicality and concern for human nature, it contrasts in a number of ways. Whie Keynes' vision of the master-economist embodies intellectual breadth and pragmatism, it maintains an air of detachment. In contrast, the socially-minded practice of economics embraces a more normative, engaged and justice oriented approach, one that prioritises marginalised voices and integrates ethical responsibility into economic reasoning. In addition, The *General Framework of the Socially-Minded Practice of Economics* is fully inclusive and not restricted by gender. Keynes continual reference to "he" when he discusses the master-economist may reflect the time when he was writing, but clearly signals the structural inequalities of a profession dominated by men, which remains to this day. Keynes' vision of the master-economist aligns with traditional masculine roles emphasising positions of authority, abstraction and detached reality. A socially-minded practice of economics challenges this framing in favour of a more inclusive and collaborative model. If Keynes had envisioned the master-economist as gender-inclusive he may have emphasised different qualities including empathy, collaboration and ethical responsibility, all of which are embedded within the model.

My *General Framework of the Socially-Minded Practice of Economics*, presented in Figure 1, has an overarching aim to *contribute to the evidence base* that influences *theory, policy and practice,* and which ultimately *prioritises social objectives and outcomes.*
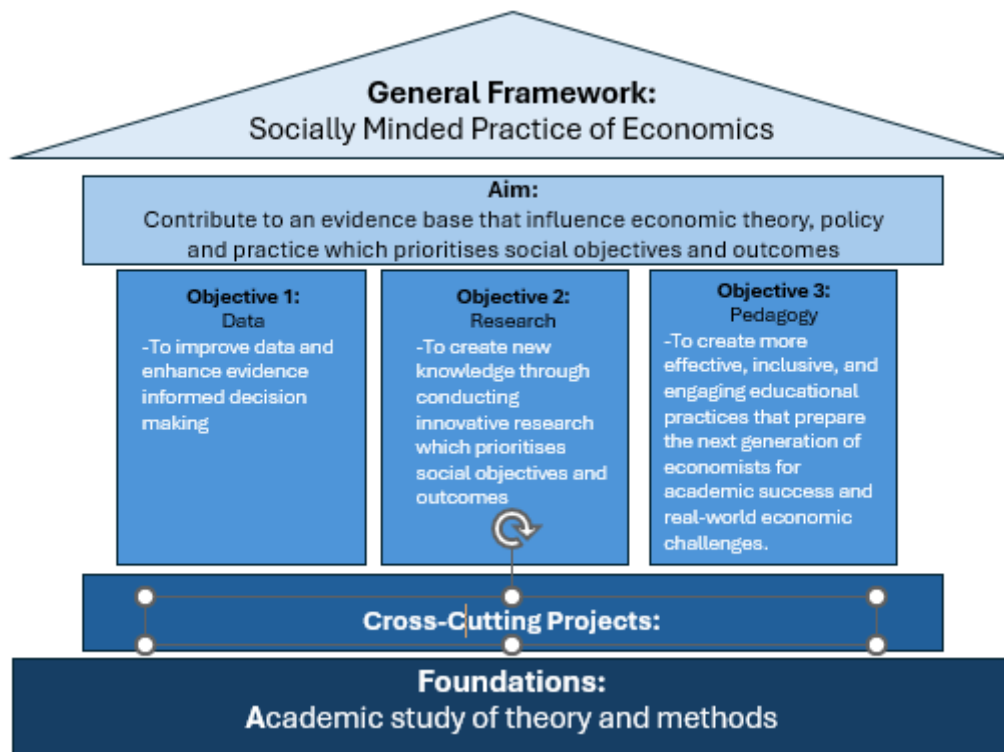
Figure 1: Author's Framework: Socially-Minded Practice of Economics

The link between social objectives and social outcomes is important for the effective design and implementation of policies aimed at improving societal wellbeing. In this commentary I define **social objectives** as the goals that a society aims to achieve through its economic policies and actions - in my conceptualisation, I am particularly interested in employment; inequality; social inclusion; poverty reduction; sustainable development; education; and wellbeing.

Social outcomes are defined as the results or impacts of economic policies and actions on society. For example, these can be measured using indicators such as changes in employment rates; income distribution; people living below the poverty line; carbon emissions; literacy and graduation rates; and quality of life indicators.

This aim is supported by three core pillars - *data, research, and pedagogy*. In the framework, I identify a single objective for each of the three pillars. Underpinning the three pillars are cross-cutting projects all supported by the foundations of academic study.

In Figure 2, I demonstrate my contribution to the socially-minded practice of economics. I list six outputs I produced which contribute to meeting the objectives of each of the three pillars, and one cross-cutting project.

Author's Contribution

Objective 1: Data	Objective 2: Research	Objective 3: Pedagogy
Publications: -The perils of pre-filling (Output 2)	**Publications:** -Not just arms and legs (Output 4)	**Publications:** -Reflections on the one-minute paper (Output 6)
-Measuring data governance in agricultural investments (Output 3)	-Working towards an environmentally sustainable and equitable future? (Output 5)	-The multi-dimensional model of the one-minute paper (Output 7)

Cross-Cutting Projects:
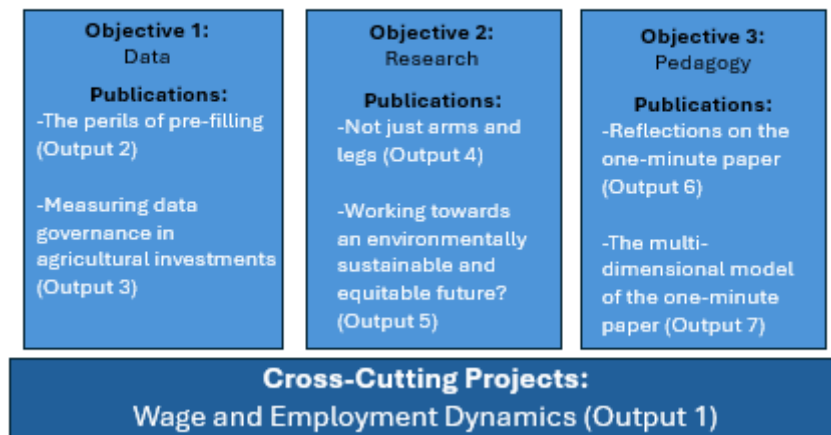Wage and Employment Dynamics (Output 1)

Figure 2: Author's Contribution to a Socially-Minded Practice of Economics

In this critical commentary, I discuss two research outputs for each of the three pillars, and the WED project (Output 1 (O1)) as an example of a cross-cutting project. The WED project included creating research-ready *data*sets, by linking government data sources together; completing pathfinder *research*; and impacts on *pedagogy* through provision of education and training to use these newly created datasets (see WED training webpage).

The following sub-section discusses the context underpinning the importance of each of the three pillars - *Data, Research and Pedagogy*. Each of these three sub-sections are concluded with a brief introduction to each of the papers presented as evidence of contributing to meeting the objective.

3.2 The Three Pillars in Detail

3.2.1 Data

Since the turn of the century, one of the most important developments in the economics profession relates to the increased availability of large-scale microdata[2] sets, which are being made available via a growing number of trusted research environments (TREs). Developments in this area have been supported by changes in the international official statistics community, with

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[2] Microdata refers to data at the individual level, offering detailed information about specific entities such as individuals, households, or businesses. It is typically gathered through surveys, censuses, or administrative records. Each entry in a microdata set represents a single entity and includes detailed characteristics about it.

National Statistical Institutions (NSIs) reassessing risk and becoming increasingly amenable to making microdata readily available to researchers (Ritchie, 2021). Pina-Sanchez *et al.* (2019), for example, suggested that linking datasets together is probably the foremost current issue facing NSIs, albeit progress is uneven across countries (OECD 2019).

In order to allow researchers to access sensitive data, various governance structures have been implemented, with the Five Safes Framework (FSF) being adopted in many countries around the world (Jang et al., 2023). The framework was initially developed at the ONS in 2003 as a way to describe the Virtual Microdata Laboratory, a 'safe centre' for confidential research data (Desai et al., 2016). The fives safes framework includes:

- Safe data: data is treated to protect any confidentiality concerns.
- Safe projects: research projects are approved by data owners for the public good.
- Safe people: researchers are trained and authorised to use data safely.
- Safe settings: a SecureLab environment prevents unauthorised use.
- Safe outputs: screened and approved outputs that are non-disclosive
  (UKDS, 2024)

While being widely adopted, the Fives Safes Framework but has come in for some criticism for being disconnected from legal protections as it lacks specificity (Culname, 2020), although as Green and Ritchie (2023) point out, this is one of the key principles that have made it widely applicable.

As well as issues with data governance, the growth in research using microdata has made statisticians and economists revisit ideas around data quality and data collection. Ritchie (2016) emphasises the role that microdata users can play, acting as "data detectives", providing NSIs with free labour that can help to uncover weakness and improve quality of the microdata used to produce National Statistics.

In terms of the quality of data used to support the evidence base, Holmberg (2004) and Jackle (2008) point to the specific issue of NSIs regularly pre-filling survey forms – a common practice used to pre-populate surveys with information to reduce the response burden. They highlight the unintended consequence of increasing measurement error and reducing data quality which can disproportionately affect microdata analysis. Motivated by this potential issue, Output 2 (O2 – ASHE survey) presented in this critical commentary explores the effect of pre-filling forms on spatial analysis and hence regional inequality, reporting that the efficiency of collection can come directly into conflict with data quality.

Being able to exploit large-scale microdata sets is one skill a socially-minded economist may wish to develop, while they may also need the skills to generate their own data: for example, when attempting to understand new and emerging developments within an economy when there are no established data sources. Output 3 (O3 - CABI project) presented in this critical commentary provides insights into the generation of primary data under such circumstances. It reports on a novel application of the Five Safes risk management framework to structure economic evaluation of data governance in Low- and Middle-Income Countries (LMICs) (Ritchie and Whittard, 2024).

In summary, the research presented under the data pillar demonstrates the contribution a socially-minded economist can make to processing and using large-scale secondary datasets by bringing an understanding of context and developing the skills to critically evaluate such data, rather than taking it as given. It also explores how an economist can collect primary data and utilise it to inform research in emerging areas. Although different in approach, both O2 (ASHE survey) and O3 (CABI project) are connected as they demonstrate the dual role an economist can play, in terms of developing and applying *data* to further knowledge in relation to *theory, policy and practice*.

3.2.2 Research

Raworth (2017) argued that, given the failings of economics to predict let alone prevent the financial crisis and adequately address several of the most important challenges of the 21st century (e.g. inequality, climate change), the economics profession needed to change. In recent years, there has been evidence of this with developments to what is measured (e.g. ONS introducing their Measuring National Wellbeing program - Everett, 2015), how things are measured (e.g. greater use of linked administrative datasets - Harron et al., 2017), a broadening of the field and its adoption by policy (e.g. UK government behavioural insights team established in 2010 in the Cabinet Office - James, 2015), and the growth and benefits of interdisciplinary studies (Dolfsma and Kesting, 2009).

The Millenium Development Goals and Sustainable Development Goals are examples of where the world has adopted a set of principles with social, economic and environmental objectives in order to move the world to a more sustainable and socially equitable trajectory (Sachs, 2012). For some, such goals have been transformative, but for others there has been concern about their effectiveness linked to how these goals are operationalised (Hák et al., 2016).

The Measurement of Economic Performance and Social Progress Report (Stiglitz, et al., 2009) was commissioned by the then French President, Nicholas Sarkozy. The report was fundamental in changing what was being measured in the international statistical systems and redefining the scope of what is now considered of interest to mainstream economic policy (Hicks et al., 2013). Indeed, the Stiglitz report was the catalyst for the Organisation for Economic Cooperation and Development's (OECD) Better Life Initiative which was set up to explore new ways to measure progress (OECD, 2011). The Initiative focused on those aspects that matter and shape people's lives, broken down into 11 domains (e.g. education and skills; social connections; subjective wellbeing;) and distinguishing between current and future wellbeing (Durand, 2015; OECD, 2013). OECD present a dashboard of these indicators which are also compiled into a composite index, albeit such indexes are criticised for loss of information, arbitrary assumptions in weighting of different elements; and level of aggregation (Stiglitz et al., 2009; Fleurbaey, 2009)

This research outputs presented in this critical commentary support such changes by using an enhanced evidence base in relation to better understanding of social, economic and environmental issues. I have contributed as a co-author to such developments, including analysing labour markets through a lens of inequality (Phan et al. 2022), sustainability (Bradley et al., 2024a) and focussing on issues in relation to low pay and those operating in marginalised sectors within the labour market (Ritchie, et al., 2017).

The first paper reviewed in the research section, Output 4 – student working (O4), contributes to the conversation on poverty and social inclusion, focussing on students and local residents potentially competing for work in low-pay labour markets. The debate as to who benefits from students in employment is complicated, especially when considering its impact on the local low-pay labour market. Mainstream economic theories suggest that locals in the labour market may struggle to compete with students for these types of jobs; however, in support of Green et al. (2016), our study found evidence that student workers complement, rather than compete, with the local labour force. A novel finding of our study suggested that there is, however, a longer-term threat to local employment, as the increase in students working is leading to long-term structural changes. The availability of the student workforce, combined with technological development and the changing *frame of reference* of managers who themselves worked as students, leads to jobs being redesigned to meet the students' needs.

The second paper reviewed in this section, Output 5 – green jobs (O5), links labour markets to the sustainable economies' literature, by exploring the value of green jobs (e.g. Rutkowska and Sulich, 2020). Stanef-Puică et al., (2022) reported that the topic of green jobs has grown in

attention in recent years. However, studying green jobs still presents several challenges which reflect the complexity of a field which intersects environmental concerns, economic development, policy, and social dynamics. There is also the additional challenge of the lack of international consensus as how to define and measure a green job (Bowen et al., 2018; Sulich et al., 2020).

Building on the work of Valero et al. (2021), I link employer and employee data together to enable me to account for employer characteristics when estimating pay premiums for working in a green occupation. The study is also novel in as much as it explores how gender and ethnicity are impacted in terms of both green job opportunities and pay.

3.2.3 Pedagogy

Section 3.1 described the skills and competencies needed by a socially-minded economist (e.g. scientific plurality, critical thinking, real-world applications, ethical judgement, and social responsibility) in order to address some of world's greatest challenges (e.g. inequalities; climate change) (Bowles and Carlin, 2020). The student-led *Rethinking Economics* movement has led to some progress in teaching and learning in economics, moving away from a focus on the dominant neoclassical theories, to providing more emphasis on pluralism. An example of the increasing diversity in teaching economics was the development of the Curriculum Open-access Resources in Education (CORE). The vision of CORE was to transform economics education and contribute to a more just, sustainable, and democratic world and address pressing societal problems. The CORE initiative, however, was not uniformly welcomed with some suggesting that it does little to promote pluralism (Mearman et al., 2018b).

As Head of UWE's economics group for five years, with a longstanding reputation for the support of pluralism, I decided not to promote the use of CORE in our programmes. Instead, during my time in charge I chose to lead the refresh of the UWE economics vision, which ensured pluralism was embedded in all curriculum development within economics.

Given my professional background and expertise, my approach to teaching was based on developing knowledge of economic theory and encouraging students to apply these concepts to make sense of the real world. As such, much of my teaching was on applied and professional skills-based courses. Although I was Head of Department, I was still relatively new to teaching and was keen to improve my professional teaching practice. Therefore, I began a pedagogic research practice that focussed both on improving students' understanding, as well as teacher

effectiveness. This is reflected in the papers presented in the critical commentary, which focus on the use of the one-minute paper (OMP) in teaching economics.

The OMP is a popular classroom assessment technique which involves students taking a brief amount of time at the end of class to write responses to a couple of open-ended questions (Vonderwell, 2004). Its purpose is to provide immediate feedback allowing the instructor to assess the effectiveness of their teaching and to understand which concepts students have grasped and where they might be struggling. It encourages students to reflect, while encouraging deeper learning by requiring students to actively engage and process the material in a way that can enhance their learning experience (Anderson and Burns, 2013). It also allows the lecturer to adjust in terms of the way they teach based on student feedback.

The relationship between using novel methods of teaching, such as the OMP, and more heterodox theoretical approaches are intrinsically linked through the values of the educator. As a socially-minded economist, the OMP and more heterodox theoretical approaches dovetail through the commitment to encouraging reflexivity and critical thinking (e.g. questioning dominant narratives); promote pluralism and the student voice (e.g. provides insights into multiple student perspectives); democratising the classroom and addressing power structures (e.g. emphasising dialogue and making the classroom less hierarchical); and encouraging contextualisation and real world applications.

Output 6 – OMP reflections (O6) was the first journal article I published after joining academia. It documents lecturer and student perceptions in relation to using the OMP. Output 7 – OMP model (O7), was published seven years after the initial paper, and in part illustrates the development on my academic journey; it acts as a counterpoint to the first OMP publication. This research paper applies a methodology which captures data from four cohorts of students and three lecturers from two countries (England and the Maldives), studying the same module, pre- and post-COVID. It uses a theory elaboration approach to develop a multidimensional model of the OMP.

Overall, the research from both papers suggests that the OMP is beneficial to both students' learning and lecturer effectiveness. The results show that it is a simple, quick, and effective tool for enhancing teaching and learning, facilitating communication, and fostering a more responsive and engaging educational environment. By opening an anonymous communication channel between the student and lecturer, it creates an equal opportunity for all students to participate in dialog with the lecturer. This is important as it can help to bridge cultural and language barriers, enabling students who may be less able (e.g. international students with

English as a Second Language) or less willing (e.g. from lower socio-economic groups) to engage verbally within a lecture, with the opportunity to engage in a direct dialogue with the lecturer through the OMP (Levin-Banchik, 2022).

Research also reports that the use of the OMP in teaching economics is limited (Becker and Watts, 2001; Stead, 2005; Watts and Becker, 2010), partially driven by a lack of knowledge of the technique. As such, by publishing both papers in the International Review of Economics Education, I hoped to increase awareness of the technique and encourage economics lecturers to incorporate the OMP in their practice.

4.   Critical Reflection on Portfolio of Outputs Submitted for DPhil

Having introduced the general framework of the *Socially-Minded Practice of Economics* in the previous section, in this section I provide a critical reflection on the academic contribution made by the seven outputs presented within this framework. I articulate the novel contributions of the papers, discuss their strengths and weaknesses, while simultaneously demonstrating how I meet the six UWE Doctoral Descriptors.

4.1 O1: WED Project (Repository)

https://www.wagedynamics.com/

I worked with co-investigators from UWE, University College London and City University in London to develop the initial WED proposal. The aim was to create a wage and employment data spine which would be based on ONS' Annual Survey of Hours and Earnings (ASHE) dataset. A UWE colleague was the PI for the first phase of the WED project (circa £0.5 million), while I was the P-I and Project Manager (PM) for Phase 2 and 3 (circa £0.7 million).

In the first phase, the team created an 'enriched' version of the ASHE (Ritchie et al., 2022); by adding in personal characteristics linked to Census 2011 (Forth et al., 2021) and information about the enterprise they work for. This has resulted in a several new research-ready datasets being created, which are quality assured and fully documented. These datasets are available for academic and government researchers to access via ONS' Secure Research Service. Several researchers are already using these datasets, including four ESRC fellowships and five Doctoral Training Partnership funded PhDs.

As Co-I in the first phase, I was involved in developing the original project and presenting our proposal to the ESRC commissioning board. Following a successful application, I was installed as PM and my main responsibilities included project planning, communications and stakeholder engagement. Examples of my direct contribution include creating three stakeholder groups - academic, government and public; setting up and jointly chairing workshops at the University of Sheffield and Bank of England; leading on the location research stream and contributing to others; setting up a community of interest; contributing to quality assurance work; developing Stata code files; presenting research results at conferences (e.g. European Association of Labour Economists – Padova, 2022); contribution to Blogs; project reporting; and managing the team to ensure it delivered all its outputs. I also oversaw the

introduction of the [training provision for potential WED researchers](); worked with ONS's ASHE team to help them understand the limitations of their data; helped in the development of two new datasets (Enriched ASHE, ASHE linked to Census 2011); and managed the development of the [WED website]().

I then became the PI for phase 2 and phase 3 of the WED project. The main difference in my role from the first phase was that I led the development of the funding bids and was the figurehead for the project, representing the project on ESRC and Administration Data Research UK (ADR UK) committees and groups.

The WED project's strengths lie in data linkage, innovative research and methodological advancements, making it a valuable resource for understanding nuances in employment and earnings in the UK. The WED project is set to grow and continue to broaden the scope of data linkages. For example, in March 2024, the WED team secured a fourth round of ESRC funding to link Census 2021 to ASHE (circa £0.2 million).

In summary, I have led the WED project to deliver significant academic and policy impacts. The academic contributions are significant and multifaceted, encompassing methodological innovations (e.g. a[ddressing biases in estimates of low pay]() and [exploring longitudinal attrition]()), empirical discoveries (e.g. [the impact of firm-specific effects on ethnic pay gaps]()) and enhancing labour market analysis in the UK. The WED project has also delivered policy-relevant insights (e.g. [the dynamics of low pay]()) and helped to grow research capacity (e.g. community of interest and knowledge hub). These contributions advance the field of labour economics and provide valuable resources for both researchers and policymakers.

As Programme Manager for Phase 1 and PI and Programme Manager for Phase 2 and 3, I have had a managerial role in delivering all outputs. In addition, I have had an active role in directly delivering several outputs. As such, I have listed the key project outputs, marking those where I have directly contributed with an asterisk. Where I have estimated my input to be above 10, 50 and 75%, I have marked these work streams with *****, ****** and ******* respectively. External corroboration of my contribution is included in the joint letter of support confirming my contribution to all research outputs presented in this critical commentary (see Appendix 3).

- Website *****
    - 21 thousand individual visits
    - 12 thousand visitors
- Research Council Funding ******

- o Four phases, totalling approximately £1.5 million
- Diverse Team ***
  - o Managed academics from five universities and one think tank (NIESR)
- Three Stakeholder Groups ***
  - o Policy - includes nine government departments.
  - o Academic – includes six Professors and the Chief Economist of the Resolution Foundation
  - o Public – includes charities, employment agency and trade union
- Thirteen Published outputs *
  - o Seven research papers
    - One academic peer-reviewed paper published with the Journal of the *IAOS* (see below) **
    - One academic paper currently under review with Labour Economics
    - Two papers presented at the Colloquium on Personnel Economics Conference, 2025
    - Two papers presented at the Economic Statistics Centre of Excellence Conference, 2025
      - Working Towards an Environmentally Sustainable and Equitable Future ***
      - ASHE Weighting
  - o Six methodology papers *
- Enhancing data accessibility and engagement*
  - o Created a peer-to-peer community of interest group hosted on Knowledge Hub *
  - o Seven data documentation files*
  - o 30+ Stata code files freely available to other researchers *
  - o 26 conference and workshop presentations *
  - o Nine online training webinars*

As the PI and core contributor for the WED project, this project and its outputs provides sound evidence for meeting all six of the UWE Doctoral Descriptors.

4.2 O2: The Perils of Pre-filling: Lessons from the UK's Annual Survey of Hours and Earning Microdata.

Whittard, D., Ritchie, F., Phan, V., Bryson, A., Forth, J., Stokes, L. and Singleton, C., 2023. The perils of pre-filling: lessons from the UK's Annual Survey of Hours and Earning microdata. *Statistical Journal of the IAOS*, pp.1-17. Available from: https://content.iospress.com/articles/statistical-journal-of-the-iaos/sji230013

This paper critically examines the impact of pre-filling survey forms on data accuracy, specifically in the context of the UK's ASHE. Building on the work of Jackle (2008) and Rodhouse and Ott (2022), the paper highlights the risks involved and potential for inaccuracies in key fields of survey forms sent out with information already pre-filled. My paper advances knowledge by proposing both short-term and long-term solutions to improve data quality. The study also calls for greater collaboration between NSIs and the research community who can help to enhance statistical methodologies and data use.

The paper evolved out of our quality assurance work and following discussions with analysts at the Northern Ireland Statistics and Research Agency who had some concerns about the accuracy of the work location variable in ASHE. I developed, designed, and implemented an approach to test the accuracy of the variable. This was particularly challenging given that it was not possible to observe the '*actual*' work location. I undertook the analysis and wrote the initial draft which was edited following feedback from other members of the WED team. I was responsible for undertaking the full literature review, conducting the analysis and writing up the paper.

A strength of the article is the innovative approach used to construct and analyse the accuracy of the data. It also provides valuable insights into the implications of pre-filling on data reliability, while providing practical solutions for improving data. The overarching narrative of the paper transcends pre-filling. It argues that, in a time when the role of the NSI is changing, there should be greater collaboration between NSIs and the research community to enhance statistical methodologies. This has the potential to lessen the burden on NSIs, while also improving the evidence base used for policy.

There were challenges with the analysis due to limitations of the source data. For example, I had to make inferences in the absence of any real information, so I had little chance to demonstrate definitively that the findings are robust. As a social scientist I was comfortable employing subjective analysis and interpretation techniques to explore this issue. I believe the '*actual*' answer does lie in some additional data which ONS collects, but does not release. Unfortunately, I was unable to persuade ONS to release the information to us, but the analysis would have been improved had they done so.

More generally the paper would have been improved by expanding the scope to include comparisons with similar surveys in other countries. It would have also been beneficial to provide more detailed case studies of other datasets to illustrate the wider issues caused by pre-filling. Finally, additional insights could have been derived by using a mixed-method approach; for example, incorporating qualitative feedback from a range of stakeholders involved in data collection could have provided a deeper understanding of the processes and their limitations.

As I was the lead author and actively involved in all stages of this project from conceptualisation to publication and promotion, this paper adds to the compelling evidence that I meet all the UWE Doctoral Descriptors (1 to 6 inclusive).

4.3 O3: Measuring the Value of Data Governance in Agricultural Investments: A Case Study.

> **Whittard, D**., Ritchie, F., Musker, R. and Rose, M., 2022. Measuring the value of data governance in agricultural investments: A case study. *Experimental Agriculture*, *58*, p.e8. doi:10.1017/S0014479721000314. Available at: https://www.cambridge.org/core/journals/experimental-agriculture/article/measuring-the-value-of-data-governance-in-agricultural-investments-a-case-study/5BE1BF645DED21B3010332B763EBDE73

In April 2019, I successfully led a bid to the Centre for Agriculture and Bioscience International (CABI) to measure the value of improving data governance and access in projects supported by the Bill and Melinda Gates Foundation. I managed the project working mainly with one colleague, supported by a research assistant who completed the LMIC literature review.

Several projects across India and Ethiopia were considered as possible candidates for evaluation. Following an iterative approach, I decided to focus on the Supporting Soil Health Interventions in Ethiopia (SSHIiE) project. Given the challenges with valuing an imprecise and intangible concept, such as data governance and access, and in the absence of any formal frameworks previously applied to measure such concepts, two key objectives were identified.

- To develop a formal framework that could be used in the planning, measurement, and evaluation of the value of data governance for future donor funded projects.

- To test the framework by evaluating the value of data governance of a CABI funded project and identifying the mechanisms through which value is created.

Multiple frameworks and evaluation structures were tried and tested. This resulted in two separate but interlinked models (i.e. Five Safes Framework (FSF) and Logic Model[3]) identified as being most useful in structuring an economic evaluation of data governance.

The qualitative model, which provided context and an understanding of how value was generated, was based on the FSF which is the dominant model for data governance, but which had not been used for evaluation before. The UWE and CABI team also co-developed a logic model from which the cost and benefit analysis was derived. I managed the development of this model, and then oversaw its application in the cost-benefit analysis.

I drafted the tender application; presented to the interview selection panel; liaised with the customer; and was responsible for ensuring all outputs were produced. I completed the economic evaluation literature review, with two co-authors completing the other two sub-sections of the literature review, as identified in Figure 3.

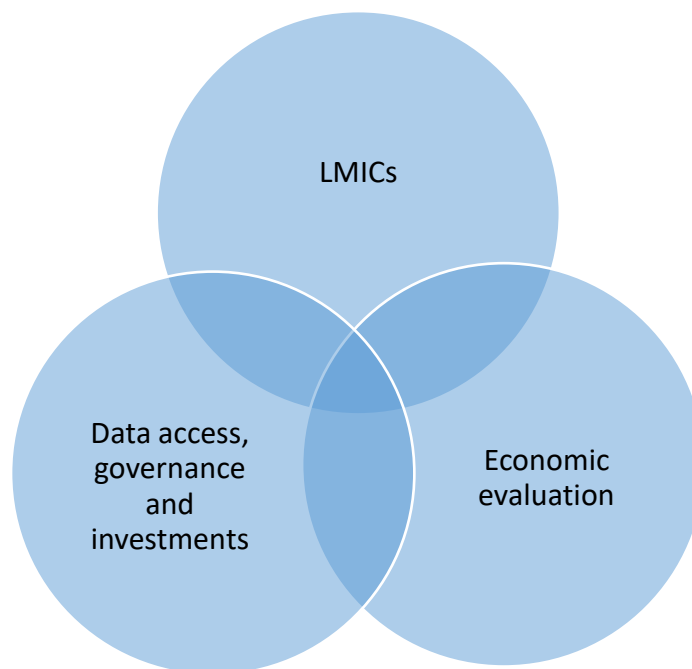*Figure 3: Literature Review Structure*

Source: Whittard et.al (2022)

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[3] A logic model is a standard framework to use in economic evaluation to outline the relationships between the projects resources, activities, outputs, and intended outcomes.

The review revealed that although there was research into the value of data (e.g. McKinsey, 2014) there was relatively little research on the valuation of data governance. In line with Wdowin and Diepeveen's (2020) recommendation to identify the value[4] for the different stakeholders across the value chain, the FSF was applied to guide an initial round of interviews. Following this, I mapped the FSF against the logic model to enable any gaps in information to be identified. Additional information was collected in a second round of interviews.

After analysing the results from the interviews, I developed a survey which would be supplied to twelve project experts. The main aim of the survey was to collect quantitative estimates of the monetised core costs and benefits identified through the interview process. There were several project specific challenges when designing the survey - e.g. it was written in English and as such would be filled in by Ethiopian nationals in a second language to them, and the questionnaire was complex, and, at times, the respondent would be required to make assessments based on counterfactual scenarios. To address these challenges I wrote detailed guidance, tested the survey with CABI's Ethiopian project team, and also recorded a video with additional instruction which was hosted on YouTube.

I then took the lead in analysing the results. I applied the two models to meet the first objective and develop a conceptual framework. The framework was then used to analyse the results generated from the interviews and surveys. By applying these models, I was able to meet the second objective and test the effectiveness of the conceptual framework at valuing data governance in the SSHIiE project through generating both qualitative and quantitative insights. The qualitative research revealed that stakeholders did not believe that quantitative assessments could capture the full value of the project. This was driven in part by intangibles (e.g. trust, empowerment, shifts in culture) which were challenging to measure and monetise.

I drafted the final report with editorial support from my co-author. The research project confirmed that deriving the quantitative (economic) value of improved data governance and access is a very challenging, particularly in the absence of a dominant typology. This challenge is often further amplified in LMICs due to underinvestment in statistical and data collection systems.

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[4] In the context of the project, value was defined as both the economic value as well as broader importance and worth to users and other stakeholders.

The contribution of this research was twofold. I jointly developed the conceptual framework which could be used to estimate the value of improved data governance and access. Following this, I led the application of this framework in the context of an LMIC. The article provided an important contribution to the literature as it demonstrated that by using a novel framework it was possible to generate plausible and credible quantitative estimates of both costs and benefits of data governance and access.

A limitation of the project was the challenge to isolate and measure just the data governance and access elements. I also remain unconvinced as to whether conceptually this was the correct approach. For example, the funder wanted to generate quantitative (economic) estimates of cost and benefits. However, as a socially-minded economist aware of the social subjectiveness of value, I believe economists need to work with the policy community to address the fundamental question of whether it is appropriate to quantify, value and monetise such outputs (Spangenberg and Settele, 2010).

At a more practical level, ideally, the UWE team would have been brought in before the start of the project, so processes could have been put in place to better capture objective estimates of costs and benefits. Furthermore, I would have liked to have secured additional information on outputs and outcomes, considering how they impact across the data and agricultural supply chain.

Having led and contributed to all aspects of this research project, this publication once again provides strong support for meeting all six of the UWE Doctoral Descriptors. While it is worthy of note that as a result of this project, a second peer-reviewed article titled " Using the Five Safes to structure economic evaluations of data governance” was published in the *Data & Policy* journal in 2024. I am second author on this paper, my co-author being the lead as it focuses more on the data governance aspects which is his speciality, rather than the economic evaluation, which is mine.

4.4 O4: Not Just Arms and Legs: Employer Perspectives on Student Workers

> **Whittard, D**., Drew, H. and Ritchie, F., 2022. Not just arms and legs: employer perspectives on student workers. *Journal of Education and Work*, *35*(6-7), pp.751-765. DOI: 10.1080/13639080.2022.2126972

In this paper, I explored the nuanced views of employers regarding student employment in low-wage sectors within Bristol and Cardiff. It employs qualitative research, using semi-

structured interviews to gather in-depth insights. The study challenges the simplistic view of students as interchangeable labour (Canny, 2002), highlighting the strategic use of student workers for their flexibility, skills, and the complementarity they offer to the non-student workforce (Lucas and Ralston, 1997). It revisits Atkinson's core-periphery model, suggesting a more complex labour market segmentation where students contribute positively to business productivity and local economies. The research fills a gap in contemporary understanding by considering the changing dynamics of student employment and its implications for both businesses and the wider labour market.

This project was initiated by my two co-authors who were interested in finding out about students' engagement with low-pay labour markets. They developed the methodological approach and collected the data (interviews). Following this, I was brought into the project to review and analyse the data. In line with Braun and Clarke (2006), I reviewed the transcripts and structured the data using a thematic analysis approach. The paper was very much data-driven: I jointly developed the concept of the paper after I had coded and analysed the data for emerging themes.

I then undertook a literature review to ground the paper theoretically and to identify other similar empirical studies. I produced a first draft of the literature review, which was improved in the editing process. Following this, I presented the paper at the Scottish Economic Society, and solicited feedback from a Professor who had previously written a seminal paper in this area (Green et al., 2016). The article was published in the Journal of Education and Work.

A strength of the paper is the data-driven, and uses an inductive qualitative approach which helped to test and build upon some broad and often conflicting theories. It benefits from using a structured thematic approach to complete in-depth qualitative analysis, offering nuanced insights into employer perspectives on student workers in low-wage sectors. It challenges simplistic labour market models by illustrating the strategic value students bring to businesses, not only in terms of flexibility but also through their specific skills and positive dynamics. The study contributes to labour market theory by revisiting and expanding upon established models (Munro et al., 2009; Green et al. 2016), and providing a more comprehensive understanding of contemporary employment practices, which has implications for businesses, universities, and local economies.

While suggesting that the empirical nature of the study was a strength, it could also be seen as a weakness due to issues in relation to data mining and potentially offering weak theoretical contributions. Kar and Dwivedi (2020) suggest a research project may be able to uncover

deeper insights if the focus of the paper was agreed before the methodological approach developed to elicit specific information. In our paper, however, this approach was not possible, as the research team only had a broad idea of the issues they wanted to look at as the literature was sparse. Following this initial study, I am part of a follow-up project which is now directly attempting to elicit specific responses to research questions identified in the first study.

To enhance the generalisability of the findings of the paper, it could have been improved had the geographic scope been broadened beyond Bristol and Cardiff. It could have also adopted a mixed methods methodology, incorporating quantitative data to complement qualitative insights – e.g. model the relationship between student working and local labour markers (we are also looking at this in the follow-up study). Finally, examining employer perspectives in a wider range of industries could provide a more comprehensive understanding of the role of student workers.

Following the completion of the data collection, I led on the conceptualisation and drafting of the paper, which is reflected by the fact I am lead author. As such, this project provides additional evidence of meeting all Doctoral Descriptors, except Doctoral Descriptor 3 – "the ability to conceptualise [and] design... a project".

4.5 O5: Working Towards an Environmentally Sustainable and Equitable Future

Whittard, D., Bradley, P., Phan, V. and Ritchie, F., 2025. Working Towards an Environmentally Sustainable and Equitable Future? New Evidence on Green Jobs from Linked Administrative Data in the UK. *Journal of Cleaner Production*, p.145025. Available from:

https://www.sciencedirect.com/science/article/pii/S0959652625003750?casa_token=J6VW3aAcBC4AAAAA:AEA6QUG94Uxzly07NmNNWNVn7A6hCfkr8GAJtrh7qBU6G2CoWMyrFYCdLCLsMysqeQSZCG4

The value of green jobs paper is the third paper I have co-authored in relation to issues of green jobs and sustainability. The first paper I worked on was with two co-authors, one from UWE and one from Imperial College London (Bradley et al., 2024a). Initially we completed a wide-ranging literature review of empirical studies into green jobs. Each of us reviewed approximately 50 papers, with my co-author from UWE leading the write up. I then led the development of a workshop with national and regional policymakers to identify their

perceived gaps in knowledge. Working with representatives from six central and local government departments the team presented the state of the knowledge from each of the partners' perspectives. Following which, I led an interactive session to enable attendees to identify and prioritise any other knowledge gaps. The results were analysed using thematic analysis (Braun and Clarke, 2006) and used to augment the systematic literature review. I am second author on the paper having been involved in the conceptualisation, design, implementation and write up.

The second paper I worked on was with four colleague from UWE (Bradley et al., 2024b). The paper evolved from an ESRC bid I helped to develop which used a novel systems-based conceptual framework to underpin place-based approaches to sustainable living. The framework augments and operationalises an institutional economics (Williamson, 2000; Bradley, 2021) and 'five capitals' approach[5] (Porritt, 2007; Ekins, 2008).

The third paper on green jobs and sustainability (the focus of this critical commentary) relates to an analysis of green jobs using linked administrative datasets. I secured an 18-months Administrative Data Research UK fellowship to work on the topic; as such I was the lead author and principal contributor to all aspects of this paper. In this research project (O5) I use a high-quality, large-scale, employer, employee linked microdataset to contribute novel insights in relation to the characteristics (e.g. gender and ethnicity) of those more likely to work in green occupations and the pay distribution for those that do.

The strength of this approach is that by looking at green jobs through an occupational lens it is possible to take a broader focus than much of the literature, which is dominated by a top-down sector-based approach. It also benefits from using large-scale, nationally representative datasets, with high-quality earnings information supplied by the employer. Due to the size and scale of the dataset, for the first time the study investigates green jobs across multiple characteristics. I extend the Valero et al., (2021) methodology used to map US O*NET data on to UK sectors, whilst recognising the main limitation of this approach which assumes that occupational structures and tasks in the US are the same as in the UK. The paper reports that (1) there is a pay premium for working in green occupations (2) conditional on working in a green occupation, the gender and ethnic pay gaps persist. The paper would have been improved if we had expanded the geographical coverage beyond the UK. This is because the

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[5] The five capitals approach emphasises sustainability relies on balancing the five different types of capital: natural, human, social, manufactured, and financial.

results were specific to one country and lacked generalisability to international green sectors. This work stream is set to continue, as I intend to use alternative specifications of green employment to test initial findings.

I led all aspects of this research project, which again provides strong support for meeting all six of the UWE Doctoral Descriptors.

4.6 O6: Reflections on the One-Minute Paper (OMP)

> **Whittard, D**., 2015. Reflections on the one-minute paper. *International Review of Economics Education*, *20*, pp.1-12. ISSN 1477-3880, Available from: https://doi.org/10.1016/j.iree.2015.06.002.

I joined academia in 2012 and had little experience of teaching. Before I began teaching, I spoke with a colleague who told me about the OMP. They suggested it could be helpful to me in develop my teaching practice (Stead, 2005). They recommended that I use the OMP at the end of each lecture to ask two questions, alternating each week between their perception of my effectiveness as a teacher and their understanding of the content taught. They also advised me to keep a reflective log of my thoughts about the lecture before and after I read the students' response to the OMP.

I used the reflective log and the student response in the dissertation module for the Post Graduate Certificate of Education (PG Cert). Having completed the course and gained my Higher Education Authority (HEA) accreditation, I was conscious that my experience may be of value to those teaching economics, particularly those new to the profession. I repeated the experiment with a second cohort of students with the intention of running a focus group at the end of the course to explore their experiences in more detail. I then used the five data sources collected (2 x individual reflective logs, 2x OMP student responses, plus a student focus group) to develop the article.

This paper itself builds on the work of Angelo and Cross (1993) and Chizmar and Ostrsky (1998) to explore the use of the OMP, by focussing on its use in economics lectures. I believe the paper is of particular interest to new lecturers, as the reflections suggest that using the OMP can help accelerate a new lecturer through the learning cycle of teaching, while improving the students' learning experience. The results suggest that students value the OMP because the use of it demonstrates respect for them, which helps to create an atmosphere of trust, encouraging engagement and an active approach to student learning.

The strength of the paper is its innovative and multi-layered approach to exploring the use of the OMP in enhancing educational performance. It includes an extensive review of the literature, offers practical suggestions into the application of OMPs, and provides novel insights contributing to pedagogical methods.

The research was limited in as much as it was based on just one lecturer's perspective, one student focus group and on two cohorts of Business and Economics students. The student focus group was self-selecting resulting in the likelihood that the sample was non-representative of the broader student population. As such, the results lack validity and the paper would have been improved had the scope of research included a wider range of disciplines, educational settings and incorporated more diverse student perspectives. A further limitation was that as well as being their teacher, I was also the person who facilitated the focus group with the students. This increased the risk of confirmation and moderation bias (Vorobyova et al., 2022). I reflected on this and addressed this point directly in my next OMP study (see Output 7).

However, I still believe the paper to be a valuable contribution to educational research. Much of its novelty derives from the multi-layered qualitative approach which provides a deeper insight into the direct and indirect mechanism through which the OMP is perceived to work. Its focus on the OMP as a tool for enhancing learning experiences, and provides practical insights for educators and researchers. In a departure from the literature (e.g. Stead, 2005), I suggest that to achieve the full benefit of using the OMP, then considerable investment in time is required by the lecturer.

Given that this paper is sole authored, the completion of this research paper adds to the evidence that I have met all six of the Doctoral Descriptors.

4.7 O7: The Multidimensional Model of the One-Minute Paper

> **Whittard, D**., Green, E., Shareef, M.S. and Ismail, I., 2022. The Multidimensional Model of the One-Minute Paper: advancing theory through theoretical elaboration. *International Review of Economics Education,* 41, p.100248. Available from https://doi.org/10.1016/j.iree.2022.100248

Given my positive experience of using the OMP, I continued to employ it in all the modules that I taught. I was module leader for Applied Economics, a Level 3 module taught to Business and Economics students. In 2018, Applied Economics was added to the programme of

modules UWE offered to its international partners. This presented an opportunity to test the use of the OMP across two geographies (i.e. England and the Maldives) and cultures (e.g. religion, educational institution, technology), while controlling for module content.

Although the module was taught in the same academic year, the vagaries in timetabling between the two institutions (UWE and Villa College, Maldives) meant the module was taught in different semesters. The module was initially taught in the UK pre-COVID (face-to-face), but the module in the Maldives was taught during the COVID pandemic, and therefore all teaching went online. As such, this also provided an opportunity to explore the use of the OMP in face-to-face teaching compared with its use in an online environment. It also, however, added to the challenge of accounting for several different factors (e.g. a relatively small class size in the Maldives compared to the UK) with a relatively small number of observations.

The paper itself is an in-depth study of the OMP across two countries. It advances theory through a theoretical elaboration approach, which refined and developed existing theories based on observations (Fisher and Aguinis, 2017). It used a qualitative research approach to develop a model of the OMP, using new empirical findings to integrate and extend existing theories. The paper is also novel in that it contributes to the understanding of the OMP's multifaceted impact in different academic and cultural environments.

I conceptualised, designed, and managed the implementation of the project, administered and collected the OMPs for the UK students, and was the main author for all sections of the paper, except methodology. To develop the research project, I initially recruited the Applied Economics Lecturer at Villa College, Maldives to join the research team. Their contribution included administering the OMP to the students, being interviewed, and contributing to the write-up of the paper - mainly in an editorial capacity.

Having learned lessons from the previous OMP, I recruited a research assistant to the project to facilitate the focus groups and undertake a thematic analysis on the transcription. Prior to working on this research project, the recruit had no experience or knowledge of the OMP which helped to limit the risk of confirmation and moderation bias. The research assistant was also primarily responsible for drafting the methodology section of the paper and contributed to the overall editing process.

After writing up the results, I submitted the paper to the International Review of Economics Education. Following the peer-review process it was recommended that the study undertake major revisions. This included completing a second round of data collection from a new cohort

of UK and Maldivian students. During this time the original lecturer at Villa College, Maldives had left. I therefore approached the new lecturer to join the research project and they agreed to administer the OMP to their students, and to be interviewed in relation to their experience with the OMP.

Although challenging at the time, the revisions process considerably improved the quality of the paper, enabling me to have greater confidence in the findings. This encouraged me to use the results to develop the '*Multidimensional Model of the OMP*', our theoretical contribution to the literature.

A strength of the project was the planning and the flexibility shown in its execution. I was able to respond to events and take advantage of a natural experiment that emerged because of COVID. I was also able to respond quickly following feedback from the peer-review process and repeated the experiment at short notice with a different cohort of students. A benefit of repeating the exercise was that it provided an opportunity to further investigate various dimensions (including pedagogical, psychological, cultural, and contextual factors), offering a holistic view of how the OMP influences teaching and learning processes. As such, this model provides educators with a nuanced framework to assess and enhance their use of OMP in diverse educational settings.

The main limitation of the paper was that there were several different factors between the two groups (e.g. UK vs Maldives; class size; pre- and post-COVID; face-to-face and online), while I had a limited number of responses for each of the number of categories. I partially addressed this through rerunning the study across a second cohort of students in the UK and Maldives. By doing so, I was able to increase the number of observations, yet the study remains a small-scale research project. As such, in the paper I am clear to state that I was unable to isolate each dimension and therefore do not make any claims of generalisability. I report, however, my confidence in the model, because the framework was built on the results from prevailing studies.

In the peer-review process, which recommended major revisions, one option suggested to us was to undertake a quantitative assessment of the effectiveness of the OMP in students' performance. Given this was not the focus of the paper, I choose not to pursue this option, while recognising the value of completing this type of study in the future. In addition, even though the model is based on findings from four student cohort groups, three lecturers, across two countries, studying one module, there is considerable scope for extending the analysis across more diverse settings. Finally, although the model did look at technology, given

the seismic change in teaching practices post-COVID, the paper would have benefited from a deeper exploration of technology's role in enhancing the model's applicability in modern classrooms.

Having conceptualised, designed, and led the team to implement this research project, the peer-reviewed journal article provides additional supporting evidence of meeting all six Doctoral Descriptors.

5.   Bridging Theory and Practice: Evidence of Meeting the Doctoral Descriptors

In this section I set out my ontological and epistemological position and consider how this has affected my choices in relation to the methods and approaches I have taken in producing the portfolio of research outputs described in Chapter 4. I then consider how these approaches help to build the evidence of meeting the Doctoral Descriptors.

5.1 Ontological and Epistemological Position

Given my practitioner focus, set within an ontological assumption that the real world exists independent of an individual's knowledge of it, while also acknowledging that our interactions and interpretations of the world are shaped by human practices and purposes, I have concluded that I have a post-positivist epistemological position, that includes elements of critical realism and pragmatism (Dieronitou, 2014).

Given the relationship between these different paradigms is complex, taking such a position is challenging. For example, critical realism and pragmatism are often positioned as conflicting with each other (Baert, 2005), with some emphasising a binary division between realism and pragmatism (Rorty, 1985).

These differences were elaborated on by Elder-Vass (2024) who highlighted the concerns some pragmatists raise in terms of critical realism in relation to foundationalism (relies on some fixed ultimate truth), builds unnecessary complex ontological frameworks, overarching power structures, and is dualist, dividing concepts into two opposing categories, when reality might be more fluid or complex. However, he asserts that neither of these paradigms are monoliths, suggesting that the diversity of these paradigms mean they can share several similarities including "commitment to anti-foundationalism and fallibilism, a belief in the contingency of events, and the importance of socially influenced individual agency in their approaches to social theory" (p.269).

Extended Kemp's (2017) assessment of working "close to the border of realism and pragmatism" and by focussing on the commonalities emphasised by Elder-Vass, I judge my position to be one which intersects paradigms. I believe it is not possible to ever know everything perfectly, but it is possible to learn meaningful things about the real world through careful, practical research that acknowledges its own limits. In line with my support for more

pluralist approaches, rather than being limited by a single ideology, I am drawn to focusing on what helps us understand and solve actual problems.

I assume that theory and practice are deeply interconnected, while knowledge is imperfect and subject to change. I consider there is a truth, but truth and knowledge are not the same. Knowledge is a process that evolves over time which is supported through a practice of inquiry and experimentation (Fantl and McGrath, 2009). This view helps to explain why much of my work is drawn to the process of theory elaboration – a concept that refers to the process of developing, refining, and expanding existing theoretical frameworks to enhance their explanatory power, scope, and precision (Fisher and Aguinis, 2017).

The combination of critical realism's emphasis on the depth and complexity of reality, pragmatism's focus on practicality and action, and post-positivism's critical and reflective stance towards knowledge, helps to explain the methodological choices I have made. I have employed a variety of quantitative and qualitative research methods in my attempt to understand and influence the world, but have prioritised methods that have practical relevance and contribute to solving problems.

Set within this ontological and epistemological framing, the following section outlines the methodological approaches I have used and provides support for how I meet the requirements of the six Doctoral Descriptors.

5.2 Doctoral Descriptor 1: Original Research and Advanced Scholarship

I am the lead author for all the original research outputs presented in the critical commentary (O2-O7), while I am the sole author on O.6 (OMP reflections). All six outputs have been published in academic, peer-review journals; all but two required minor revision, while O5 (green-jobs) and (O7 (OMP model) required major revisions.

The publication of these six articles provides compelling evidence of meeting Doctoral Descriptor 1 criteria of "creati[ng]… new knowledge…shown by satisfying scholarly review".

Excluding O4 (student working), when I joined the project after it had been conceived and data collection completed, I either individually or jointly conceptualised or co-designed all the research projects presented in this critical commentary. In addition, I have contributed to all parts of the research process, while I have been responsible for drafting all articles.

Following academic publication, results from several of the papers have been presented at policy/public focused events. Each of these papers either seeks to answer a question that has not been fully explored or provides a new perspective on existing knowledge. In line with my ontological viewpoint and epistemological position, the papers have been produced using a variety of methodological approaches that are tailored to the appropriateness for the question. For example, O2 (ASHE survey) and O3 (CABI project) seek to improve the quality of data used in evidence based policymaking (DPhil Objective 1). O2, however, takes a quantitative statistical modelling approach to understand the characteristics of the data, whereas O3 applies a mixed methods approach. In line with my pragmatic perspective which supports a method of trial and error, the methodology in O3 developed iteratively; models were co-created and tested before the contribution (a novel conceptual framework) was established and applied in field research.

An additional example of my scholarly contribution to the profession can be seen in the WED project (O1). WED has an academic stakeholder group which consists of eight world-leading academics who provide expert opinions on the creation of the novel linked datasets and guide our pathfinder research. To date, I have contributed to five WED academic articles. I was lead author in one peer-reviewed journal article (listed separately as O2 -ASHE survey) and co-author of one which is under journal review. I am lead author of one and co-author of another two WED articles which have been presented at international conferences ahead of being prepared for submission to journals.

In line with my current practice and as I develop as an academic, I intend to continue to develop a mixed-method practice, applying and elaborating on theory, to provide an evidence base that informs policy and helps drive social change.

5.3 Doctoral Descriptor 2: Critical Understanding of Theory and Practice

My knowledge of theory and practice is continually updated as I immerse myself in the literature before undertaking research projects. For example, in all the six journal articles presented (O2-7), I have written at least some or part of the literature review, while maintaining overall editorial control for all. I completed the full literature review for O6 (OMP reflections) but was supported in writing the others.

Being actively involved in the literature reviews has enabled me to familiarise myself with current and seminal works in a variety of fields, covering key theories, methodologies,

debates, and the latest research findings. Given the breadth of the areas covered in my research, I have gained experience in reviewing literature from the fields of data science, labour markets, human resources, inequality, sustainable economies, and pedagogy. Each of the reviews include a summary and critical evaluation of the most appropriate and important papers; the process involves identifying strengths, weaknesses, and gaps in the research.

Other ways I seek to expand my knowledge of current thinking includes attendance at conferences (e.g. Work, Pension and Labour Economics Study Group), workshops (e.g. ESCoE - Small Area Estimation) and other scholarly events (e.g. Low Pay Commission (LPC) Symposium). My practical experience, combined with knowledge of the academic literature, has helped me to develop a critical understanding of the use of theory in applied research.

5.4 Doctoral Descriptor 3: Conceptualising, Designing and Implementing a Project.

I am a Co-I and Programme Manager for WED Phase 1 and the PI and Programme Manager for WED Phase 2 and 3. As such, I have considerable experience of designing, managing and delivering complex research council funded projects. I wrote two successful funding applications and was also responsible for the delivery of the £1.5 million programme. This included managing the workload of eight people from five institutions; curating several linked admin datasets; delivering a pathfinder research programme; establishing three stakeholder groups; delivering a WED training and stakeholder engagement programme; and managing all project reporting.

I am also the lead author on all research outputs presented (i.e. O2-O7) and was the PI in all but one research project (O4 – student working). As such in five of the six papers presented in this critical commentary, I have had a significant role in all aspects of conceptualisation, design and implementation.

For O5 (green jobs) and O7 (OMP model), I was entirely responsible (100%) for the conceptualisation and design. For O3 (CABI project) I estimate my contribution to be in excess of 75% and for O1 (WED), O2 (ASHE survey), O7 (OMP model) approximately 50%. For O6 (OMP reflections) although this was sole authored, I developed it under the guidance of a colleague, so in reality my contribution to the design conceptualisation and design-phase was around 50%, albeit the implementation was 100%.

For each of these projects I have been the lead author and PM. As such, excluding O4 (student working), I have been involved in the whole process from conceptualisation, bidding for

funding (where relevant), creating work plans, undertaking data collection, analysing data, presenting preliminary results, and writing up the final output.

In line with Doctoral Descriptor 3, I have also had to demonstrate the "capacity to adjust the project design in the light of emergent issues and understandings". For example, for O1 (WED) during the project I applied for additional budget from our funder to undertake a feasibility study to extend the project; submitted change requests to bring additional academics on to the project to expand the scope of the work; and requested extensions to the deadline due to non-delivery of data by ONS and having restrictions on data placed upon us.

5.5 Doctoral Descriptor 4: Critical Understanding of the Methodology of Enquiry

I have experience in using several different methods of enquiry and am always open to learning and adopting new approaches. Most of my research has been delivered in collaboration with other experts, often from different disciplines, which has helped me to develop my skills of enquiry, while broadening my knowledge of the methodological strengths and weaknesses. Table 2 identifies all the different methodological approaches I have used in relation to the outputs presented as part of the critical commentary.

Table 2: Methodology of Enquiry

Paper	Doctoral Descriptors	Methods I have used

O1 – WED Repository	All	**Various approaches used to produce a portfolio of outputs, including but not limited to:**
		
		• Quantitative analysis
		    ○ Descriptive statistics
		    ○ Regression analysis

O2 – Perils of Pre-filling	All	**Quantitative analysis (positivism, pragmatism)**
		
		• Dataset based on 1% sample of British employees
		• Analysis included:
		    ○ Descriptive statistics
		    ○ Hypothesis testing
		    ○ Probit regressions
		    ○ OLS regressions

O3 - Value of Data Governance	All	**Mixed-method approach (critical realism, pragmatism)** • Quantitative

		- Co-created theory of change framework - Established sampling strategy (purposive) - Developed survey - Guide created to complete the questionnaire - Questionnaire piloted - Cultural review of questionnaire - You Tube video to support questionnaire completion - Cost and benefit analysis - Qualitative - Qualitative investigation and framing - Repurposing Five Safes conceptual model - Purposive and snowball sampling - Semi-structured interviews - Content and thematic analysis
O4 – Not just arms and legs	1,2,4,5,6	**Qualitative analysis (critical realism)** **Team completed data collection** - Employers interviewed on their experience with employing students - Convenience and snowballing sampling strategy - Semi-structured interview **My direct involvement:** - Content and thematic analysis
O5 – Working toward an environmental and equitable future	All	**Quantitative (post-positivism)** - Using a novel data set - Linked US O*NET data on green occupations - Longitudinal analysis for years 2011-2018 - Descriptive statistics - Multivariate modelling
O6 – Reflections on the OMP	All	**Qualitative (critical realism)** - Weekly class survey administered to two cohorts - Weekly reflective log - Focus group (self-selecting) - Developed a cost and benefit framework
O7 – The multidimensional model of the OMP	All	**Qualitative (critical realism)** - Natural experiment - Multidimensional view across five facets

		• 114 students in total across four groups (self-selected) • Four groups of weekly OMP survey responses • Four focus groups • Three Lecturer interviews • Content and thematic analysis • Theory elaboration • Identification of three core constructs

Table 2 shows that as an economist, grounded in a post-positivism epistemological position, I am comfortable working with multiple scientific methods, using statistical and econometric techniques to describe the phenomena and test hypothesis (e.g. O2 – ASHE survey and O5 – green jobs). However, as a post-positivist, I recognise the limitations of a purely positivist approach, which favours quantitative methods. These types of approach often overlook the complexity and the importance and depth of human experiences, which are more fully embraced with the use of qualitative methods (O4 - student working and O6 – OMP reflections), or mixed-method approaches (O3 – CABI project).

I regularly use qualitative methods to gain a deeper understanding, particularly in relation to its effectiveness in solving problems or achieving a desired outcome. The conceptual framework developed in O7 (OMP model) demonstrated a growing confidence and ambition in my academic work, which explicitly documented the use of qualitative insights to focus on theory elaboration. This paper is situated in the post-positivism epistemological paradigm which acknowledges the imperfect nature of human knowledge. Other outputs discussed in this portfolio have impacted on the development of theory, however, this was the first paper which does so explicitly, placing theory elaboration at the core of the paper.

In terms of my skills and experience with quantitative data, I have designed, tested and administered surveys, capturing textual responses as well as utilising Likert scales to make subjective assessments. When processing data from small-scale studies, I am skilled at using Excel to generate descriptive statistics and complete basic statistical tests. I am also an experienced user of large-scale administrative data sources, for which I am accredited to work in TREs. As such, I have become an advanced user of Stata and am able to create complex computer coding programmes to work with these large-scale datasets. The benefits of using these large-scale datasets are sizeable sample sizes with the ability to track units across time and amenability to complex multivariate estimation. In projects presented here, I have used multivariate, logistic, cross sectional and panel estimation, critically selecting the most

appropriate model to control for factors such as such as binary dependent variables and heterogeneity over time and between groups.

My experience of qualitative research is focussed on thematic analysis (identifying patterns), content analysis (meaning), and theory elaboration (modifying and refining theory). I have experience of using purposive, convenience and snowball sampling approaches. I have used these results to understand the experiences from the participant's perspective. Principally I use NVivo in order to undertake content- and thematic analysis, which in turn I have used to inform and develop theories.

5.6 Doctoral Descriptor 5: Independent Judgement and Communication of Issues

Given that I have been the lead author on all the papers, I have been involved in all core decisions in relation to each output. I am very collaborative in my approach and like to discuss issues with team members and peers before making my judgement. Good examples of this are O1 (WED) and O4 (student working), where I have set up stakeholder groups to oversee and support the project. For example, as part of O1, I lead a team to create a novel dataset by linking ASHE to HMRC's PAYE and Self-Assessment data. There are many ways in which the data could be structured and linked, and I wanted to get an understanding from the stakeholders what would be most useful to them. This was helpful for clarifying how to present the final datasets created but would require a change of policy/practice by ONS to enable this to happen. Having decided my preferred approach, I spoke with the Head of Research-Ready Data and Curation at the Office of National Statistics and convinced her of the benefits of presenting the data as suggested.

One of the most challenging projects I have led was attempting to measure the value of data governance in one of CABI's international investments (O3). Given the nebulous concept of data governance there was very little academic work to guide such an exercise. The challenges were compounded as CABI were unsure which of their projects would make a good case study: access to the international project teams was challenging; there was very little pre-existing data already collected; and the opportunity to collect data was limited as the projects were already finished.

Initially, CABI suggested an Indian project should be evaluated. As such they provided me with all project documentation and I led an exploratory interview with the PM. Following that conversation, it was clear to me that it would be impossible to collect and generate sufficient

data to meet the aims of the project. I then took the hard decision to recommend to the funder that this evaluation was stopped and suggested a further planning meeting. At this meeting more realistic aims for the project were agreed which included developing the theory of change model on which to base the evaluation and to use this model to identify the most suitable project to evaluate. I ultimately decided that the SSHIiE project was the most appropriate project on which to focus. This marked a pivotal moment in the project, although it continued to present significant challenges. Successful delivery required a flexible approach and the ability to adapt to evolving circumstances. For example, from early on it was clear there was just limited data available on the project and that I would have to create innovative solutions to collect estimates of the cost and benefits of data governance.

Additional challenges included conducting the evaluation amidst a global pandemic, with the project located in Ethiopia and the project team based in the UK. Moreover, the Ethiopian project team initially approached the evaluation with scepticism. To overcome this initial resistance, I worked with the CABI team in Ethiopia to encourage them to champion the project and explain the benefits to the other Ethiopian stakeholders. I ensured that all project materials were culturally checked and tested before being administered on the ground. I also took the unusual decision to communicate the aims of the project and provide guidance on filling in the survey by recording an online video which was hosted on YouTube.

5.7 Doctoral Descriptor 6: Critically Reflect on their Work Issues, including Understanding Validation Procedures.

By nature, I am a reflective practitioner. This is demonstrated by my first peer-reviewed publication after joining academia (O6 – OMP reflections) which is partially based on my observations recorded in a reflective log.

When presenting my research, I am always conscious of the accuracy, reliability, and overall trustworthiness of research findings. My efforts to validate the research findings have involved employing different techniques and foci depending on the methodology employed. For example, in O2 (ASHE survey) and O5 (green jobs) I used statistical tests, different model specifications (e.g. OLS, Least Absolute Shrinkage and Selection Operator, censored regressions) and other robustness checks (e.g. replication using different dependent variables, timeframes, or samples) to test validity. In the mixed methods and/or qualitative papers I have used triangulation (e.g. using multiple data sources) and dual thematic coding

(undertaken independently by more than one member of the team), while explicitly acknowledging and bracketing my own bias (reflexivity).

All my journal articles (O2-O7) include a section on limitations and future work, which is an explicit record of my critical reflective practice. Finally, the critical commentary presented in this publication also provides additional evidence of such a practice.

6.   Individual Impact: Evaluation Using the Three Objectives

In this section, I assess how my research portfolio has made an impact assessed against the objectives for the three pillars (data, research and pedagogy) listed in the General Framework of the *Socially-Minded Practice of Economics* (page 19). The three objectives are:

1. To improve data and enhance evidence informed decision making
2. To create new knowledge through conducting innovative research which prioritises social objectives and outcomes
3. To create more effective, inclusive, and engaging educational practices that prepare the next generation of economists for academic success and real-world economic challenges

I also discuss the mechanisms through which my research portfolio has created impact. Building on a number of impact studies (e.g. Douthwaite et al., 2003; Kaitibie et al., 2010; Neugebauer et al., 2016; Whittard et al., 2022), I suggest there are seven pathways through which building the evidence base can be used to create impact. These are as follows:

1. Policy design
2. Enhanced decision-making
3. Improved implementation
4. Evaluating impact
5. Building public trust and accountability
6. Promote long-term planning
7. Encourage collaboration and consensus

The research portfolio discussed in this section primarily focusses on the core outputs presented in the critical commentary. Where relevant, however, I also reference other publications I have produced over my 25-year career as an economist.

6.1 Objective 1: To improve data…

The WED project has been transformational for UK labour market research and its main impact will be seen in 'policy design'. I led the WED team in creating several research ready, linked administrative datasets, which are available to accredited researchers as a public good. The datasets currently include ASHE linked to Census 2011, and ASHE linked to HMRC's PAYE

and Self-Assessment data. ASHE linked to the Migrant Workers Scan and ASHE linked to Census 2021 will be released in spring 2025.

An example of the impact of WED project is evidenced by the fact that economists from the LPC and Resolution Foundation joined the WED team on a temporary basis. They did so to produce research that was used to inform the advice LPC gives to government about the National Living Wage and the National Minimum Wage, and used to inform policy makers focussed on improving the living standards of those on low-to-middle incomes.

There are also two outputs presented in the DPhil that directly contributed to improving the quality of data - O2 (ASHE survey) and O3 (CABI project). The first of those outputs was published in 2023 and has the potential to deliver significant impact in terms of *'improving implementation'* (pathway 3) of administering the ASHE survey. The Head of ONS's Labour Market Statistics, has reviewed the paper and informed me she is currently working with the methodology department to explore ways to improve ASHE in the light of the findings of the WED methodological papers. This is very unusual; methodological change is rare in official statistics; even more rarely do NSIs take methodological advice from non-NSIs. If WED recommendations led to changes in the way they collect data for the UK's headline earnings survey, this output will be a strong candidate for a UWE impact case study in the Research Excellence Framework 2029.

In terms of demonstrable impact, O3 received over 1,300 full text views (HTML and PDF) and six citations (Google Scholar). As well as generating the published peer-reviewed article listed in the DPhil, the project itself has generated several other additional outputs. The original project report completed for CABI and the ODI has been published on the Bill and Malinda Gates Foundation Open-Access Research Repository (Whittard et al., 2021). It has received over 500 views and 200 downloads, with 2 citations (Google Scholar). Further evidence of its impact in terms of 'improving implementation' is demonstrated by the testimonial provided by CABI. They state:

> *"In order to achieve our goals of cultural change towards improved data practices, data governance must be valued. Valuing data governance is extremely difficult and often intangible, however, the work that the UWE performed clearly demonstrated that it can and must be done. CABI will be taking the UWE team approach forward as we work with donor organisations to achieve best data practices and more sustainable change."*

(Ruthie Musker, Data Policy and Practice Officer – CABI)

In addition to the outputs discussed in Section 4 of the critical commentary, I have also been involved with other projects which are helping to improve the evidence base. For example, while at UWE, I developed financial statistics training for ONS and was commissioned to complete a review of ONS's balance of payments statistics. My review was considered as a potential UWE REF2020 Impact Case Study and is further evidence *of 'building public trust and accountability'*. ONS reported:

> *"[Damian's recommendations]... will both enhance the value of statistics to policymakers and ensure the UK meets its regulatory requirements."*

6.2 Objective 2: To create new knowledge…

The two outputs identified in this critical commentary as contributing to this objective are O4 (student working) and O5 (green jobs). In terms of O4, the published journal article has over 1,350 views and combined with the initial working paper has three citations (Google Scholar). At the time of writing, O5 has only just been published in the Journal of Cleaner Production (February, 2025), as such, it has not had time to be reflected in reported metrics. However, given the considerable policy interest in green jobs (e.g. Skidmore Review, 2022), and the lack of data and research outputs in this area, the impact potential from this research stream is considerable. For example, following peer review of their scientific committees, the paper was presented at two conferences (ESCoE; Welsh Institute of Social and Economic Research and Data) and since has generated interest from both the policy and academic community in attendance.

All the research outputs presented have gone some way to creating new knowledge useful to inform *theory, policy and practice*. I have a sustained record of producing research with impact that goes beyond academia. For example, an LPC project which I was part of (Ritchie et al., 2014) provides evidence of impact in terms of *'enhancing decision-making'* (pathway 2): it was shortlisted for a REF 2020 Impact Case Study (ICS) at UWE as the LPC referenced it in their annual report as directly influencing the level at which the minimum wage was set at (LPC, 2015, p.273). Since then, the WED project has been cited in several of the LPCs annual reports (e.g. 2023, p.201), helping to *'build public trust and accountability'* (pathway 5) in the decision-making process.

In addition to directly contributing to research in this area, I have also been active in knowledge exchange which is focussed on improving the evidence base and how it has been used in *theory, policy and practice* through *'encouraging collaboration and consensus'* (pathway 7). For example, I have arranged a number of events including a conference 'Data and the Pandemic' with ONS as a joint partner. The conference attracted over 400 delegates and the National Statistician (Sir Ian Diamond) gave the keynote speech at which he praised UWE for its innovative work in the data space.

In April 2024, I presented a regional analysis on the '*Challenges faced by the West of England'* at the Flourishing Regions conference held in Bristol. The panel members included both the Chair and the Head of Strategy and Policy for the West of England Combined Authority, with many local councillors present.

In May 2024, I arranged a workshop with Administrative Data Research UK and ONS - Better Data. Better Research. Better Policy. The event brought academics and policymakers together to promote the use of linked administrative microdata sets to support policy development. I am currently working with ONS's Head of Labour Market Statistics to arrange a Labour Market Statistics Research Symposium in Spring 2025. The focus of the symposium is to explore the latest trends, methodologies, and applications in the field of labour statistics, focussing on ASHE and WED datasets.

I have also *'encouraged collaboration'* (pathway 7) through my participation in research networks. For example, I was a member of ESRC's Doctoral Training Partnerships' PhD Scientific Committee; the International Population Data Linkage Network Conference review panel; and ADR UK's Data Linkage Steering Group which considers ways to help deliver the strategic objectives of ADR UK's research strategy.

6.3 Objective 3: To create more effective, inclusive, and engaging educational practices…

As detailed in this critical commentary, I have published two peer-reviewed journal articles based on using the OMP in teaching (O6 – OMP reflections and O7 – OMP model) and published a journal article focussed on students who work to fund their studies (O4 – student working). All three papers include a discussion section, making recommendations focussed at either improving teaching practice and/or student experience.

O6 is my most cited paper, with 29 citations (Google Scholar). The paper was also selected for presentation at the [Economics Network Conference in 2015](#) which is Europe's premier international economics education conference (Economics Network 2024).

O6 is very much a practitioner focussed paper which encourages the wider use of the OMP in the economics education profession. It describes how to make best use of it in the practice of teaching and learning through *'improving implementation'* (pathway 3), but potentially has a wider impact as it is focussed at developing a supporting theoretical framework.

O7 was published in 2022 and has received two citations (Google Scholar), has been downloaded 21 times (International Review of Economics Education), and has received 56 social media shares likes and comments.

In addition to producing these research outputs, I have undertaken several leadership roles which have contributed to the furthering of knowledge and practice of teaching in economics. For example, I was head of the economics team at UWE (AHoD) for five years. In this role I led a team of 30 economists and was responsible for *'promoting long-term planning'* (pathway 6) and *'improving implementation'* (pathway 3).

While AHoD, I also impacted on furthering of knowledge and practice of teaching and learning in economics through introducing a Strategic Research Development Funding Programme. I set up the programme to support *'policy design'* (pathway 1) and encourage projects that were in line with the AEF learning and teaching strategy and economics strategic vision. I funded projects in relation to artificial intelligence, gender economics and pluralism. The output of the programme included specialist guest lectures and seminars, funding bids, textbooks and journal articles.

In support of 'improving implementation' and helping professional economists and analysts outside of academia (pathway 3), I set up a programme called *Economics for Professionals*. The programme offered small bite-sized skills-based courses to professionals and post-graduate research students. The course attracted delegates from the local economic development policy community as well as internal PhD candidates who wanted to improve their analytical skills.

In support of *'long-term planning'* (pathway 6) and ensuring the next generation of public sector economists are equipped with the necessary skills, knowledge and competencies, I am an Academic Assessor for the Government Economic Service. My role is to test the students' knowledge of economics and ability to apply this in a professional capacity. I was also part of

HM Treasury's Degree Apprenticeship Trailblazer Committee. The committee was set up to create the apprenticeship standard that each economic apprentice across the country would have to meet to graduate. My main contribution was to ensure that pluralism was embedded in the apprenticeship standard, which was all part of *'building public trust and accountability'* (pathway 5).

7.   Holistic Impact: Evaluation Using the General Framework

In this section, I synthesise the findings from the full portfolio of research outputs presented in this critical commentary to explore my contribution in relation to the overarching aim of the *Socially-Minded Practice of Economics* general framework (Figure 1). In particular, I concentrate on the different methodological approaches used to create the *evidence base*, before exploring the portfolio's impact on *theory, policy, practice*. I close this section by reflecting on contributions to *'social objectives and outcomes'*.

7.1 Assessment of Overall Contribution to Evidence Base

Table 3 lists each of the outputs, identifies the methodological approach used to create my contribution to the *evidence based* and identifies whether they are judged to have had a demonstrable impact on *theory, policy, practice* and/or *social objectives and outcomes*. The impact is further explored in the following sections.

Table 3: Contribution of outputs to theme

Portfolio of outputs	Evidence Base Creation: Methodology		Impact		
	Quants.	Quals.	Theory	Policy	Practice
O1: **WED Repository**	✓			✓	✓
O2: **Perils of Pre-filling**	✓			✓	✓
O3: **Value of Data Governance**	✓	✓	✓	✓	✓
O4: **Not just arms and legs**		✓	✓	✓	
O5: **Working toward a greener future**	✓			✓	✓
O6: **Reflections on the OMP**		✓	✓		✓
O7: **The multidimensional model of the OMP**		✓	✓		✓

7.2 Key Contribution 1 – Theory

Of all seven outputs, I judge four have made a novel and significant contribution to the development of *theory*. What is striking about all of these papers is that in line with my

epistemological position, they all developed from the perspective of theory elaboration (Fisher and Aguinis, 2017). Furthermore, all apply a qualitative approach, rather than the more traditional quantitative approach often used in economic study. This approach is supported by Bacharach (1989, pp. 508-509), who suggested that qualitative research can go further in enhancing the explanatory adequacy of a theory. This approach was evident from my first academic paper published in 2015 (O6 – OMP reflections), where I build on the work of Angelo and Cross (1993) to develop a simple conceptual framework of the perceived cost and benefits of the OMP.

As I have developed as an academic, I have been more willing to explore complexity, most clearly evident in the second of my OMP articles. This paper built on existing models (Campbell et al., 2019; Whittard, 2015) to develop an overarching theoretical framework, focussing on five facets to develop a multidimensional model of the OMP. The model suggested there are three core constructs, which are all influenced by several identified and distinguishable sub-constructs. Its novelty lies not only in the identification of new contextual constructs and sub-constructs to the model, but the fact that this was the first time anyone had attempted to construct such a nuanced model, explaining the interconnections and the relationships between the two.

The value of data governance paper (O3) was similar to the approaches described above, as it built on previous work to create a novel framework. However, its genesis was completely different as it was developed from combining and repurposing previous models to structure the collection of data needed for a practical purpose of undertaking an economic evaluation. This contrasts with the theoretical frameworks created in the OMP papers, which were derived in an attempt to understand and explore the results rather than to structure the framework to collect the data. The novelty lies in the fact that the FSF data governance model had widely been used in data management, but never in formal economic evaluations. Our analysis also showed that governance, which is often seen as a cost, should in fact be seen as an investment which can wield substantial returns.

7.3 Key Contribution 2 – Policy

The papers which contribute to the development of *policy* are dominated by those which use a quantitative approach. This type of research fits well within the post-positivist approach which emphasises the importance of observable, empirical evidence in the formation of

knowledge. For example, O2 (ASHE survey) and O5 (green jobs) use large-scale administrative datasets to explore clearly defined research questions and hypotheses. These propositions are explored using a variety of methods including producing descriptive statistics and using multivariate modelling, both of which are helpful to policymakers.

As discussed in Section 6, descriptive and multivariate analysis produced by the WED team (O1) has been cited for supporting the work of the LPC in the annual report. I am also working with the London School of Economics and the Resolution Foundation (funded by the Joseph Rowntree Foundation) to enable them to use WED datasets to better understand wage volatility. This research is informing their work in relation to the JRF goal of speeding up and supporting the transition to a poverty-free future, where people and the planet can flourish (JRF, 2024).

Futures West appointed me to produce a regional labour market analysis using WED data. The report was commissioned to be part of the evidence base to drive regional economic policy - I presented the preliminary findings at the Festival of Flourishing Regions (April 2024).

O2 (ASHE survey) includes a section on 'Lessons for National Statistical Institutions' and calls for closer working between NSIs and microdata researchers. It also makes a number of recommendations directly to ONS on how to improve the ASHE survey. Ultimately if our findings provide the catalyst for such a change, the impact on policy will be significant, given ASHE statistics are used to inform policy across government.

The policy impact of O5 (green jobs) is less clear as it has only just been published in the Journal of Cleaner Production. The findings, however, are potentially influential as this paper is the first to bring together data which can understand intersectional effects. The study includes some important and novel findings including confirmation of a pay premium for working in green jobs in England and Wales; the dual inequality of opportunity and pay experienced by female and some ethnic groups in relation to green employment.

O3 (CABI project) uses a mixed method approach which includes a quantitative element, but this is where the similarity with the other outputs discussed in this section ends. The quantitative approach is based on collecting primary data to test and inform a conceptual framework for evaluating the cost and benefits of data governance, while a qualitative approach is used to inform the development of the conceptual framework. It is the development and then application of the conceptual framework that is the main contribution of the paper. The policy impact again could be significant, given publication in Agricultural

Economics, with a second spin off paper published in Data and Policy; and the original report being published on the Gates Open Research portal.

O4 (student working) is the only paper that uses a purely qualitative approach which I judge to have a limited impact on policy. Given its focus on student working, its impact is potentially on a smaller scale than the other outputs discussed in this section, albeit it does have implications for low wage labour markets. The key findings impact directly on universities who may wish to consider policies in relation to curriculum provision to cater for a growing population of students who must work while completing their study. The novel second generation effect I uncovered (i.e. ex-students who are now managers and embedding student centric approaches within formal career structures) suggests university Careers Services may need to update to keep pace with the changes.

7.4 Key Contribution 3 – Practice

In terms of the variety of methods applied, the portfolio reflects my belief in interdisciplinarity, pluralism and the fact economics should be seen as a social science. This diversity of approaches rejects the constraints of taking a solely neoclassical approach to economics which supports the view of economics as a natural science, with its heavy reliance on general laws and theories.

The variety of methods employed is a reminder to the profession that unlike the natural sciences, where experiments can often be controlled and variables isolated, economics deals with human behaviour. As such, economics is influenced by many factors, including psychological, cultural, and social dimensions that are difficult to quantify or control. For example, in my paper 'Working towards an environmentally sustainable and equitable future (O5 – green jobs), I applied sustainability and inequality frameworks to combine normative with positive aspects of economics, where values and beliefs have a role in shaping economics policies and recommendations. Therefore, I believe that to advance knowledge in economics, it is important for the economist to have a wide-ranging tool bag of methods and a diversity of approaches to call upon to explore and better understand the phenomena under investigation.

At an individual level, six outputs (O1 – WED; O2 - ASHE survey; O3 – CABI project; O5 – green jobs; O6 – OMP reflections; and O7 – OMP model) are all judged to directly contribute to

developing/improving practice of economics in some way. Five of the six outputs (O1, O2, O3, O5 and O6), provide advice and guidance in terms of improving data inputs.

O1, 2 and 5 provide guidance and support in relation to working with large-scale administrative dataset. All focus on cleaning and improving the data, while O1 and O5, in line with their conditions of funding, are supporting the creation of the public good: by making the Stata code freely available, other researchers can improve the source data without having to invest significant time and effort to create their own code.

Similarly, O4 (student working) applies a quantitative approach to improving data inputs, but unlike O1, O2 and O5, the focus is on the collection of small-scale datasets used for a particular purpose – in this case measuring the value of data governance. However, it does have similarities with O1 and O2, in terms of providing advice in relation to modelling strategies to improve research outputs. All include specific recommendations and guidance on how researchers can derive more precise estimates by following particular approaches. For example, O1 (WED) includes advice about creating revised weights to account for potential bias in the official weights published; O2 (ASHE survey) includes a number of specific researcher recommendations (p.21) such as "use the 'special arrangement' variable as a specification test"; and O4 (student working) suggests how researchers can combine the quantitative and qualitative framework.

O6 (OMP reflections) and O7 (OMP model) both focus on the practice of teaching and learning, and explore the student and lecturer 's perspective to understand how the use of the OMP can help improve the learning experience. Together the papers provide clear recommendations as to how the lecturer can most effectively use the OMP in their teaching practice to support student learning. O6 focusses purely on teaching economics in the UK HE context, emphasising the OMP benefits to individuals who are new to teaching. O7, however, takes a wider perspective, exploring the OMP's use across several different facets. It then makes recommendations in relation to using the OMP in different geographic and cultural contexts.

Although all these papers take a variety of approaches, they are all united in that they look to apply the most appropriate method to understand and explore the phenomena. Through working with others and developing new skills, I have been able to apply a variety of methods in order to create new knowledge, which often led to some practical guidance to help others working in this area.

In general, the work has been helpful in providing novel scholarly insights and driving theoretical advances, but at times the focus has been purely practical in nature. Rather than developing theory, this type of research is principally motivated by improving the evidence base to generate better policy, while providing practical guidance to other economists who are operating in this field.

7.5 Reflections

In line with the initial aim outlined at the start of the critical commentary, the litmus test is whether the portfolio of work presented here has contributed to '*social objectives and outcomes*'. Through my discussions on the impact of individual research outputs (chapter 6) and the portfolio as a whole (chapter 7), I feel confident in judging that my work has, or given sufficient time will have, contributed to an evidence base that supports *social objectives and outcomes*.

My experience shows, however, that as well as being published in well-respected academic journals, the extent of the impact of research is also dependent on making sure the findings are communicated and understood by the policy community. Having been a public sector economist, engagement and communication with wider stakeholders comes somewhat naturally to me, which I observe is not always the case with some of my colleagues and peers. As such, to ensure greater impact of the profession, I suggest that the modern-day, 's*ocially-minded'* economic practitioner may wish to invest time and effort in developing their soft skills and be more open to engage more readily with the policy and wider stakeholder community.

8.   Conclusion and Future Directions

8.1 Conclusion

In this critical commentary I reflect on my 25 years' experience as a *socially-minded* economist who challenges the limitations of just using the neoclassical doctrine which places economics as a natural science. I explore my contribution to the practice of economics through seven research outputs, espousing support for pluralism and multidisciplinary approaches, which I believe better reflect economics' true position as a social science. Through discussion of my contribution to the field, I am able to demonstrate how I have met all six of the doctoral descriptors in line with UWE's DPhil requirements.

Initially, I developed and presented a general framework called the *Socially-Minded Practice of Economics*. This enabled me to structure and discuss my body of work and consider my contribution to the field. I presented seven research outputs and assessed their impact in meeting the aims and objectives of the framework. The portfolio showed my versatility as a researcher as the outputs used a variety of approaches, covering a range of qualitative, quantitative and mixed methods approaches. This reflects my real world ontological and epistemological positioning. It also demonstrates my interest in interdisciplinarity, normative economics, and a desire to continue to evolve and develop as a researcher.

One area I am aware where I have a particular expertise, which is not uniform across the economics profession, is my links and willingness to engage with the policy community. This was initially cultivated by working as a public sector economist, which further developed in academia through investing time to build my networks. The benefit of doing so is that it has enabled me to embed impact within my research projects. As such, I suggest that these skills and competencies should be embedded in training for the modern-day economists.

Completing the critical commentary and reflecting on my practice has highlighted another of my core beliefs. In line with Laurent (2020) and Mearman (2018a, 2020) I believe that greater emphasis should be placed on issues such as ethics, inequality and justice. In a rejection of the limitations of neoclassical economics which places it as a science and thinks only in terms of efficiency (Wight, 2009), I assert that the modern-day, socially-minded economist needs to be flexible and adaptable, embracing interdisciplinarity and normative approaches, while also investing time and effort to develop interpersonal skills that enable effective interaction with others to communicate their ideas. To have the greatest impact, a socially-minded economist needs to be able to present complex ideas in an accessible way to different audiences, work

effectively as part of a team, and develop their negotiation and persuasion skills in order to advocate for policy changes and secure funding for their research. By developing these complementary skills, this will help to ensure that the academic economic profession has the greatest impact in terms of supporting better policy for the benefit of society.

To support the development of the next generation of socially-minded economists, I believe that the degree programmes must prepare students to address the big challenges of our time, including growing inequality and climate change (Atkinson, 1970; Raworth 2017). As such, consideration of philosophy, ethics, and justice should complement a focus which builds well-rounded set of skills, from technical proficiency in data analysis to critical thinking and policy evaluation. Students should also be encouraged to develop strong communication and collaboration abilities. By integrating these skills and competencies, students will be well-prepared to contribute to academia, government, business, and international organisations.

8.2 Future Direction

The critical analysis of my portfolio of academic work has highlighted several future opportunities. In line with my epistemological position, I will continue to use an interdisciplinary lens and apply a variety of methods and approaches to diverse topics; many of these will be new to me.

Given my professional experience working at the ONS and my continued engagement in the field of statistics, in terms of the first pillar (*data)* I believe I have much to offer in terms of creating and exploiting large-scale datasets. I intend to continue to lead the development of the WED project by securing funding to link DWP's benefits data and DfE's education data to the wage and employment spine. Completion of these linkages will enable issues of intersectionality to be explored in relation to social exclusion, employment and poverty.

The completion of the DPhil has given me the space to reflect, and I have identified an additional area of interest that I would like to develop further. This is in relation to considering power dynamics in data, data justice and the use of data as an ideological tool (Leslie et al., 2022) . I would like to spend time considering questions in relation to who decides what data to collect; who controls and funds data; by which mechanism of power are they enforced; how are the data used to frame economic narratives; who loses and who gains from these data structures and collection procedures; and what can be done to address such challenges. These questions are perhaps more pertinent now than ever with the rise of big data and AI-driven analytics which

means that much economic data is now controlled by private corporations, reinforcing neoliberal governance models, where public decision-making can be increasingly outsourced to private entities.

In the short-term, I intend to enter the conversation through my work in relation to the Brunel Centre. My first research project will be to set out a working conceptualisation of productivity for the centre, this will be at the heart of the centre's philosophy and drive much of its work. Rather than be driven by a neoliberal agenda and concentrating solely on economic value, it will take a broader focus, emphasising generating a range of value for society, environment and the economy.

In terms of the second pillar *research*, I intend to use the skills I have amassed working with large-scale administrative datasets to support a regional economic evidence base. I am currently working with Business West and the University of Bath to create a regional economic observatory for the West of England region. This project will have considerable policy impact, while also reconciling the various aspects of my journey into a coherent whole. It will enable me to use all the skills I have amassed over a lengthy career which started out as a regional economist, managing the Business and Economy model of the South West Regional Development Agency funded Regional Observatory.

My other main research strand will focus on sustainable development through analysis of the green economy and green jobs. I have created a novel dataset which will allow me to explore a variety of sustainable development research questions from a post-positivist perspective. I also plan to continue to support this quantitative approach, by undertaking smaller-scale qualitative research to address social questions which provide depth and add insight to the empirical studies.

In terms of the third pillar *pedagogy*, I will continue to work to develop economic literacy and competency through my work with the Government Economic Service and through the development of economic programmes. I believe that an economics degree should focus on building a well-rounded set of skills, from technical proficiency in data analysis to critical thinking and policy evaluation, while also fostering strong communication and collaboration abilities. By integrating these skills and competencies, students will be well-prepared to contribute to academia, government, business, and international organisations.

At a more practical level, I also plan to continue to work with my students on small-scale research projects that support learning and teaching outcomes. One option I am currently

considering in relation to developing the OMP research strand is to undertake a quantitative assessment of the effectiveness of the OMP in students' performance. There are challenges to doing so, as I would need to identify a programme with a large enough cohort of students and gain ethical approval given the concerns about applying different treatments to specific groups. Regardless of the exact study, the focus of these type of research projects will be on informing theory, policy and practice of teaching and learning in economics.

Overall, I aim to advance my *socially-minded practice of economics* by continuing to concentrate on three key pillars identified in the framework: *data, research, and pedagogy*. In addition, I plan to dedicate substantial time and effort toward expanding my professional networks and visibility within academic, policy, and third-sector communities. By prioritising stakeholder engagement, I believe I will be in a stronger position to influence the broader economics profession and make a meaningful contribution by fostering the development of future economists with a socially-minded perspective.

9. Appendix

Appendix 1: Declaration of Authorship

I hereby declare that this DPhil commentary and the body of work presented in it is my own and has been generated by me as the result of my own original research. Where I have consulted the published work of others, this is clearly attributed. Where I have quoted from the work of others, the source is given.

The DPhil submission includes a critical review of six peer-review outputs (five journal articles and one conference paper) and a portfolio of outputs produced as part of the Wage and Employment Dynamics Project (WED) project and published on its repository. The WED core team includes five other academics from four universities and one think tank. I am the Principal Investigator (P-I)for Phase 2 and 3 of the WED project, and co-investigator (Co-I) for Phase1. All WED phases were funded by the Economic and Social Research Council (Grant reference Numbers: ES/T013877/1; ES/W005298/1; ES/X000516/1).

I am the lead author for all six articles presented, five of which were co-authored. Given several of the articles presented are co-authored, I explicitly identify my individual contribution which I summarised in Table 1 and discussed throughout. To confirm my personal contribution to the joint outputs, I provide a joint signed letter of support from the PI/Co-I of the three phases of the WED project, as well as the second authors listed on the six articles presented (see Appendix 3).

I confirm that none of the published body of work included within this portfolio of selected publications has been submitted for another academic award in this or any other institution.

In addition, I also confirm that the necessary training requirements to complete the DPhil have been met through accredited learning. The following accredited module was completed in 2002 and matched to a current UWE module with similar learning outcomes. Accredited module: International Business Economics Dissertation (UNE19TM)

- Matched module: Economics Dissertation (UMEN49-60-M)

The approval was confirmed in a letter (dated 26th October 2023) from the Graduate School following a meeting of the Graduate School Accredited Learning Panel.

Damian Whittard, 2024

Appendix 2: Ethics

Each study presented here has received ethics approval from a relevant ethics committee or ethical approval process. Several of the outputs presented in this critical commentary have involved working with potentially disclosive, sensitive data, which is available at the level of the unit (e.g. individual, business etc.). As such, to access and use these data appropriately, I was required to complete a safe researcher training course. I passed the assessment and am a fully accredited researcher under the Digital Economy Act 2017.

Outputs 1, 2 and 5 (see Table 1) all received project accreditation with the Research Accreditation Service on behalf of the UK Statistics Authority. These three projects were reviewed by the UK Statistics Authority's s Research Accreditation Panel to ensure their compliance with the Digital Economy Act 2017. Following a detailed assessment which included consideration of ethical risks, all three projects were assessed to have met the standards required.

Three projects (outputs 3, 4 and 7) were approved by the UWE Faculty of Business and Law Research Ethics Committee. The project applications were reviewed by two committee members, with the Chair issuing the final ethical approval. Output 6 was developed from data collected for the Post Graduate Certificate of Education course at UWE. In line with practice outlined in UWE's Handbook of Research Ethics (2022), ethical approval was provided by the UWE module leader.

Given that individual ethics approval had been granted for each of the outputs presented in the critical commentary, and that no new empirical research was undertaken as part of the process, the Chair of UWE's University Ethics and Integrity Committee confirmed no further ethical approval was required ahead of full submission (email 5th June, 2024).

Appendix 3: Letter of Support

This appendix has been removed as it contains personal information.

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