



Controversy and Doxa: Sustainable Food Policy and the English Vegetable Sector

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Abstract

Context: A major shift in UK Food Policy happened in 2002 when, after a series of environmental, health, animal welfare and economic crises, the UK government created a framework for a sustainable future for farming and food. The policy was distinctive for addressing sustainable food production for the first time, but it was also a step change because it was seen as a turn to the market in food policy. Our study focuses on the English vegetable sector, which was in serious decline at the time.

Aims: We explore the shaping of markets as controversies concerning the meaning and practices related to sustainability for the English vegetable sector. The research aims are: i) to explore what happened in a market-oriented policy regime, which aimed to address sustainability in farming and food; ii) to assess how the policy impacted on the vegetable sector in England; and, iii) to consider whether the market-oriented policy regime created a more sustainable food system for Britain.

Methods: Using a case study approach we examined policy documents and conducted interviews with experts: from across this heterogeneous production sector.

Findings: Whilst controversy over the meaning of sustainability impacted on the evolution of food policy and grower business practices, market conceptualisations remained in a doxic mode – naturalised and beyond dispute throughout the market agora.

Contribution: Market doxa limited how policy makers and market agora understood the economic challenges and the solutions that could be deployed for a sector so pivotal for sustainability. We propose that ideas from industrial marketing can be used to reignite controversy, challenge market doxa, and in so doing create space for progress in creating sustainable markets.

Keywords: Networks; food policy; sustainability, controversy and doxa

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1. INTRODUCTION

After reviewing four decades of IMP research, Håkansson and Gadde (2018) contend that future IMP research opportunities lie in combining and recombining empirical phenomena to derive managerial and policy implications. In this paper we examine the impact on vegetable production of UK Food Policy 2002-2015 and respond to the call from Waluszewski, Snehota & LaRocca (2019, p237) who assert that: *'There is a need for a deeper understanding of the consequences of applying market-based policy in a networked and interactive business landscape.'* Mindful of the role of controversies in bringing about change we map the evolution of Britain's first attempt to create a sustainable food policy. We explore its impact on a sector pivotal for sustainability by capturing the contradictory voices of the market agora as they engage in the processes of market shaping.

We conceptualise sustainable development (SD) as a controversy (Blanchet & Depeyre, 2016) one where policy and market actors dispute and resolve (or not) ideas for SD and shape markets. The research aims are: i) to explore what happened in a market-oriented policy regime, which aimed to address sustainability in farming and food; ii) to assess how the policy impacted on the vegetable sector in England; and, iii) to consider whether the market-oriented policy regime created a more sustainable food system for Britain. By examining the evolving controversy located in a specific time and space, we provide a novel explanation of why a market-oriented policy did not make better progress towards sustainability.

Our study takes as its starting point the publication of the Report of the Policy Commission on the Future of Farming and Food in January 2002 (DEFRA, 2002) known as the Curry Report, considered a watershed moment in UK Food Policy. Our research suggests that a market-oriented conceptualisation of the vegetable supply chain is inadequate as a way of addressing the challenges of a transition to a sustainable food regime. Inspired by previous IMP research that has investigated relationships and networks in fresh food supply (Abrahamsen & Håkansson, 2012; Hingley, 2005; Hingley & Hollingsworth, 2003; Hingley & Lindgreen, 2001; Machat, 2009; Skytte & Blunch, 2005) we show that shaping a sustainable market requires a denaturalisation of market doxa – a controversy to which IMP ideas can contribute.

Firstly, we examine the types of market governance mechanisms (MGMs) that were adopted to assist growers become more market-oriented. These included the formation of strategic horizontal nets (Möller & Rajala, 2007; Möller, Rajala, & Svahn, 2005) in the form of the Producer Organisation scheme, a type of current business net. Secondly, in policy documents of the time, market-oriented policy goals were couched in conventional marketing terms: to encourage better marketing by: a) becoming more competitive; b) collaborating more; and, c) increasing consumption. We consider to what extent these policy goals worked for the vegetable sector. Finally, we consider the impact of the 2002-2015 market-oriented policy regime on sustainability and assess whether – and to what extent – the policy helped create a more sustainable food system.

We argue that an IMP conceptualisation of industrial systems is a threshold concept – integrative, transformative, irreversible, re-constitutive, discursive and troublesome (Austen, Heaton, Jones-Devitt, & Pickering, 2017). Although in other parts of Northern Europe these ideas are well understood, in the UK they have not gained traction in policy circles. Whilst SD was being hotly contested, market doxa went unchallenged. Re-conceptualising markets as networks may be a way to denaturalise a disentangled view of markets, which will facilitate contestations that will shape sustainable markets. All this is timely because an IMP conceptualisation of business networks mirrors theoretical developments in policy and sustainability discourses, for example the shift from government to governance (Rhodes, 2000) reflexive modernization and governance (Beck, Giddens, & Lash, 1994; Voß, Bauknecht, & Kemp, 2006) and the embedded nature of industries and their environments (Geels, 2014) that, taken together, constitute a new way to engage with the problems of industrial policy and the SD challenges.

The paper is organised as follows: The conceptual frameworks that informed the research are presented in the next section, including the concepts of controversy and doxa, and outlines approaches from the sustainable transitions literature, policy analysis, and the industrial networks approach that have been used in prior studies of the food sector. Next, we document the policy and sector context affecting vegetable supply chains, and articulate our research objectives. Subsequently, we outline the design of our empirical research and the methods used to gather data for the paper, and present the findings, organised using the concepts identified in the literature review. The paper concludes by discussing the contribution arising from this study, and the implications for future research and policy in the food sector.

2. CONCEPTUAL FRAMEWORKS

2.1 SUSTAINABILITY

Sustainability can be interpreted in various ways, two prominent definitions are: 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs' (Brundtland, 1987) and, 'consuming resources at a rate which allows them to be replaced, and only producing pollution at a rate that the environment can assimilate' (Peattie, 1995, p. 33). This is often summarized as the triple bottom-line (Elkington, 1994). UK Food Policy 2002-2015 used the triple bottom-line as its framework for policy interventions. However, not everyone agrees with the implicitly optimistic stance of triple bottom-line advocates, that global capitalism (profits) can be successfully reconciled with social (people) and environmental (planet) progress. For example, Fleming and Jones (2013) argue that corporations are incapable of delivering outcomes that are beneficial to society as a whole. A sustainable market is defined by Mattsson as 'a governance form for economic activities (including production and use of products and services) that supports sustainable development' (Mattsson, 2016, p. 343) so sustainable food production may be thought of as production that supports SD. Echoing Alderson (1965), SD contains

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3 within it contradictions – development implies expansive growth and resource use
4 whilst sustainability suggests restraint.
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6 A body of literature on socio-technical transitions to sustainability has emerged, which
7 draws on evolutionary thinking, in particular, Nelson and Winter's concept of
8 technological regimes which aims to understand why inertia occurs, and how it can be
9 overcome (Nelson & Winter, 2002). Regimes are seen as being composed of multiple
10 layers of social, techno-scientific, cultural and institutional elements that link together,
11 and are reproduced by the coordinated activities of the many different actors within
12 them (Geels, 2002, 2010). The entangled nature of regimes means that incremental
13 change – along a particular technological trajectory - is more likely to succeed. This
14 account mirrors the entangled systems perspective articulated by IMP thinkers Eklund
15 and Waluszewski (2015) and the nested layers of the general theory of network
16 management (NetFrame) (Möller & Halinen, 2017). Similarly, in examining IMP studies
17 into sustainable markets, Mattsson (2016) distinguishes the holistic interaction and
18 network approach from a simplistic *'greening of the 4Ps approach'*. More recently
19 Romestant explored what she termed *'agential configurations for sustainability'* to
20 explain the heterogeneous roles of business and non-business stakeholders in shaping
21 sustainability (Romestant, 2020, p535). Mattsson (2016) calls for further studies that
22 examine how sustainable policies translate into practice, and most recently Sharma
23 noted that *'Academic research on the effect of regulatory and legal frameworks for
24 sustainability on sustainable business strategy was not found.'* (Sharma, 2020, p. 327).
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30 2.2 CONTROVERSIES AND DOXA

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32 According to Callon (1998), and reflected in Venturini's definition (2010) controversies
33 start when actors perceive disagreements that cannot be ignored and end when a solid
34 compromise is devised with which actors are in broad agreement. Latour suggests
35 *'feeding off controversies'* (Latour, 2005, p. 21) as a way of examining the uncertainties
36 related to the nature of various phenomena in the social world, in what became known
37 as Actor-Network Theory (ANT). By mapping controversies we can develop insights
38 about how knowledge is created, how meaning is captured, and how power is deployed
39 to create the social world of the markets that are brought into being through a process
40 of framing and reframing (Callon, 1998). Conflicts may be unpleasant but they enable
41 new facts to emerge from the contestation of ideas, thus learning, change and innovation
42 require the contestation of a controversy (Hoholm, La Rocca, & Aanestad, 2018). Various
43 studies have used controversies as a lens through which to explore market shaping
44 (Fremont, Frick, Åge, & Osarenkhoe, 2019; Hoholm et al., 2018; Hoholm & Olsen, 2012)
45 and recently Hunt and Madhavaram (2020) analysed the development of the marketing
46 discipline by tracing the evolution of controversies in marketing thinking.
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51 Doxas are *'naturalized preconstructions'* (Everett & Jamal, 2004) and refer to viewpoints
52 that are imposed, typically by those with power to do so (Goxe & Belhoste, 2019). The
53 term doxa derives from the work of Pierre Bourdieu in which the social world is
54 assumed to be evolving in an on-going process of formation and reformation as actors,
55 shaped by their habitus and unconscious learning of how the social world works, deploy
56 their capabilities (capital) in social interactions and impose their worldview (doxa) in
57 market agora (field).
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3 Bourdieu (1977) used the term doxa to describe the experiences of social facts perceived as
4 natural phenomena in which the '*prevailing classificatory system encounters no rival or*
5 *antagonistic principle*' (Bourdieu, 1977, p. 164). We notice, paradoxically, that
6 controversy involves conflict but without which progress, innovation and change cannot
7 happen. In contrast doxa, which may be experienced as certainty and stability, involves
8 consensus brought into being by the imposition of the ideas of the powerful, accepted by
9 others with their consent.
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12 13 2.3 POLICY ANALYSIS, POLICY MECHANISMS AND THE ROLE OF BUSINESS IN POLICY 14 MAKING 15

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17 Howlett & Ramesh (2003) suggest a simple analytical framework for understanding
18 policy: the scope of policy; the policy instruments employed; and, the distributional
19 outcomes as a '*conceptual torch*' to illuminate the development of policy (Greer, 2005, p.
20 12). They also use the term policy regime to refer to a long-term coalescence of policy
21 actors, institutions and ideas that maintain a degree of policy consistency. Given the
22 dominance of marketization across British policy in the late 20th and early 21st centuries,
23 it seems reasonable to refer to a market-oriented policy regime in British politics in
24 which business actors have been able to exert more influence over governments. Whilst
25 a Competition State perspective might view the increased involvement of business as a
26 mechanism for appropriating the benefits of global trade for the state (Cerny & Evans,
27 2004), Donovan et al. (2015) were concerned about the adverse impact of policy driven
28 by business actors. They argued that '*unity of effort*' requires '*unity of goals*' arguing that
29 industry should not be allowed to drive the implementation of policy since there is a
30 disjunction between profit goals and the public good. The International Institute for
31 Environment and Development (IIED), in its work on shaping sustainable markets, uses
32 the term '*market governance mechanisms*' (MGMs) to describe policy interventions
33 which it classifies into: economic (for example, tax); regulatory 'hard' MGMs;
34 cooperation 'soft' MGMs such as voluntary agreements; and information (for example,
35 certification and private voluntary standards) (Blackmore, 2011). Bemelmans-Videc et
36 al. (1998) provide a similar typology of policy mechanisms: regulations (policy sticks);
37 economic incentives (carrots); and information (sermons).
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44 2.4 THEORETICAL BASIS FOR THE TURN TO THE MARKET IN UK POLICY 45

46 The turn to the market that influenced policy of the early 20th century was rooted in a
47 social democratic discourse and a '*Third Way*' theoretical perspective (Giddens, 1998).
48 This rejected both the classical social democracy of the old left and neoliberalism of the
49 new right. Ideas from the marketing discipline, based on competitive markets and
50 customer sovereignty, began to influence policy (Jordan, 2006; Rhodes, 2000). Hunt
51 (2000) assimilated a spectrum of economic ideas in his General Theory of Competition
52 (HGTC) and provided a powerful theoretical explanation of why policy makers should
53 promote and protect unencumbered markets. Hunt's theory is widely accepted and
54 applied (for example Tay and Lusch (2005) use it to model complex oligopolistic
55 markets). It provides a nuanced explanation of how competitive markets promote
56 innovation and create value. HGTC provides policy makers with clear guidance: '*to the*
57 *extent that productivity, economic growth, and wealth creation are valued, formal*
58 *institutions promoting vigorous R-A [resource-advantage] competition should be the*
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3 *objective of public policy.*' (Hunt, 2000, p. 239). HGTC aligns closely to the disentangled
4 system perspectives outlined by Eklund and Waluszewski (2015). However, HGTC does
5 not account for a number of phenomena that are features of business networks. These
6 include interaction, interdependence and the heaviness of exchange (context matters).
7 In addition, HGTC policy advice does not acknowledge the challenge of sustainability.
8 Jackson (2009) offers alternatives to conventional policy priorities, replacing
9 productivity, economic growth, and wealth creation with efficient resource use,
10 prosperity and stability, and well-being.
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13 14 15 2.5 NETWORK RESEARCH ON THE FOOD SECTOR

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17 Möller and Halinen (2017) bring together streams of research on industrial networks
18 developed since Snehota and Hakansson's Actors-Resources-Activities (ARA)
19 Framework (1995) and develop a general theory of network management (NetFrame).
20 Möller and Halinen's research opened up the possibility that networks can be
21 purposefully managed with different generic network types requiring different
22 management responses, and different approaches to strategising. The nested and
23 overlapping nature of different sorts of networks at different levels of aggregation may
24 provide both structural '*opportunities and constraints for strategic action*' (Möller &
25 Halinen, 2017, p. 7). With the unit of analysis as the net, Bayne, Schepis, and Purchase
26 (2017) used Möller et al's classification of strategic nets (Möller et al., 2005) and
27 investigated the performance of strategic nets in Australian food production, showing
28 empirically that network *effectiveness* is driven by building actor webs and collective
29 sense-making whereas network *efficiency* depends on developing strategic network
30 activities and utilizing network resource constellations.
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36 The food sector has always been of interest within the IMP Group and there is a strong
37 sense that neoclassical models are not a good description of the way these industries
38 work (Håkansson, Ford, Gadde, Snehota, & Waluszewski, 2009). Researchers have
39 sought to re-conceptualise these markets as industrial networks. The goal has been to
40 discover '*how the real-market-economy actually works "below the surface" of competitive*
41 *market images*' (Olsen, 2012, p. 186) and arrangements involved in parallel networks
42 have been investigated in the Norwegian seafood industry (Abrahamsen & Håkansson,
43 2015; Abrahamsen & Håkansson, 2012a; Håkansson et al., 2009; Hingley & Lindgreen,
44 2002; Hingley, 2005). They show that the interconnectedness of relationships is a key
45 aspect of how food supply chains function, and that apparently similar markets may
46 differ because of differences in interaction patterns (Abrahamsen & Håkansson, 2016).
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49 Wycherley (2002) investigated the UK organic food industry and the concept of parallel
50 networks again emerged. The pioneer network is built on close personal relationships,
51 driven by an idealistic beliefs and the conventional network is built on conventional
52 business relationships, where organic is seen as simply a growing niche market.
53 Research by Hingley and Lindgreen (2002) on the UK fresh produce industry found that
54 power/dependency and retailer dominance were important characteristics. Although
55 becoming a 'preferred supplier' to a major retailer could lead to rapid sales growth, it
56 also led to reduced profit margins. Hingley (2005) concluded that competition in the UK
57 food industry is best conceptualised as competition between managed industrial
58 networks, with a major retailer at the centre of each network, and super-middlemen
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3 acting as network coordinators. A study of the Greek food supply chain arrived at
4 similar conclusions (Maglaras, Bourlakis, & Fotopoulos, 2015) and an Australian study
5 by Rampersad et al (2019) reported that government has an important role as a
6 relationship and innovation facilitator in supply chains. Andersen and Munksgaard
7 (2009) investigated NPD processes that involved extensive collaboration and joint
8 development meetings, with the supplier being regarded as a member of the product
9 development team. A study of food retailers conducted across 15 European countries
10 found that the active management of supplier/customer relationships was a critical
11 issue (Skytte & Blunch, 2005).
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16 3. THE POLICY AND SECTOR CONTEXT

17 Before moving on to outline the research objectives and the details of our study, we
18 explain the context of UK food policy in the early years of the 21st century, and the
19 position of the vegetable sector in England.
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23 3.1 STRATEGY FOR SUSTAINABLE FARMING AND FOOD 2002

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25 The turn of the new millennium was a critical moment for the UK in which the adverse
26 impact of food and farming on health and the environment became a major controversy,
27 a wicked problem with interconnected causes and effects, serious social and economic
28 consequences, and one where ways forward are contested and contradictory. The Curry
29 Report (DEFRA, 2002) argued that the farming crisis demonstrated what Searle (1995)
30 would have termed the '*brute facts*' of a dysfunctional food system. Its
31 recommendations, which were adopted almost in their entirety, argued for a move away
32 from a system of production subsidies to one based on a farming sector that was
33 responsive to its customers and its supply chain, and that protected the natural
34 resources on which it depended. It was seen as a turn to the market in UK Food Policy.
35 To bring about this transformation, policy makers implemented a series of MGMs to
36 promote competitive markets. They drew on business strategies derived from Porter
37 (1985), and Ansoff (1986) '*Farmers can cut costs and increase efficiency. They can add
38 value to their products. Or they can diversify into new markets.*' (DEFRA, 2002, p. 25).
39 Although the policy evolved, the Curry Report's fundamental ideas remained the basis of
40 agricultural policy up to Britain's exit from the EU. Using Blanchet and Depeyre's
41 narrative framework for controversy analysis (2016), and following an approach
42 adopted by Nordin et al (2018). Table 1 provides a chronological overview of the policy
43 regime in Britain 2002-2015 for the vegetable sector. It highlights the agenda-setting
44 documents, the policy that followed, and operational documents to show how the policy
45 was implemented over three key periods: Early New Labour policy in which policy
46 engaged with environmental challenges, Late New Labour policy, where the social and
47 health aspects of sustainability gained traction in policy, and Coalition policy, where
48 competitiveness and economic priorities became the focus on a policy influenced by
49 austerity.
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58 In terms of the scope of the policy, a shift was apparent from a narrow focus on farming
59 to a broader perspective of farming as part of the food supply chain, an activity in
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3 globalised buyer-dominated commodity supply chains (Gereffi & Korzeniewicz, 1994). A
4 widening in scope was also apparent in the attempt to include sustainability in the
5 policy discourse, and in terms of distributional outcomes the focus shifted from farmers
6 to consumers.
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10 3.2 THE VEGETABLE SECTOR IN ENGLAND

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12 Vegetables are heterogeneous commodities, with social, cultural and bio-physical
13 attributes. They exist in heavy producing and using networks with embedded space and
14 journey characteristics (Håkansson & Waluszewski, 2018). The long-term trend data
15 from DEFRA show that the volume of vegetable production declined rapidly throughout
16 the 1990s and the number of UK grower organisations also declined (DEFRA, 2014).
17 Post Curry the decline was halted but production did not recover to earlier levels .
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22 Vegetable production in England is diverse and growers are involved in production
23 across protected and field environments in conventional or pioneer networks (AHDB
24 Horticulture, 2015). The UK food sector was and remains highly concentrated. Most
25 vegetables are sold at supermarkets and supply chains are characterized by substantial
26 power imbalances that favour large supermarkets and their preferred lead suppliers
27 (Hingley & Hollingsworth, 2003; Hingley & Lindgreen, 2001).
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31 Increased production of a commodity is often associated with increased environmental
32 impact. But for vegetables increased production – if it leads to reduced production and
33 consumption of more environmentally impactful food alternatives (e.g. meat), or
34 reduced production and consumption of foods associated with diet-related illnesses (e.g.
35 ultra processed foods high in salt, sugar and saturated fats) – has the potential to
36 contribute to a more sustainable model for food and farming. So if there is one sector in
37 which a market-oriented sustainable food policy could work it would be the vegetable
38 sector. Hence the starting point is to explore a market-oriented sustainable food policy
39 and its impact on the vegetable sector in England.
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44 4. RESEARCH DESIGN

45 We use Blanchet and Depeyre's framework (2016) for the study of controversies. The
46 delineation of a controversies study is often troublesome and it is wise to avoid
47 boundless controversies. Boundaries in time and space, arbitrary though they may be,
48 are necessary. Venturini (2010) also suggests selecting controversies that are: 'hot' –
49 salient, unresolved, and open to public debate. UK Food Policy 2002-2015 provides a
50 discrete time frame in which the direction of food policy was broadly set beginning with
51 the Sustainable Farming and Food Strategy of 2002. The decision to leave the EU has
52 disrupted UK food policy so the Conservative government of 2015, which ushered in the
53 Brexit referendum, is an appropriate end point. We focus on vegetable production
54 because it is a pivotal sector for achieving health and environmental goals and also it
55 was experiencing economic and environmental crises at the turn of the millennium.
56 Various studies have explored consumption of vegetables, or the role of buyers in supply
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3 chains but by focusing on those organisations involved in production we could follow
4 how policy created solutions to shape a sustainable market.
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6 Our approach has been informed by the critical realist ontological tradition (Bhaskar,
7 1975). Critical realism is performative (Easton, 2010) that is, capable of delivering
8 useful explanations (Pawson, 2006). Within this approach i) causation is not inferred
9 solely on the evidence of regularities and ii) the specifics of context - its distinctive
10 materiality in terms of heaviness, space and journey need to be uncovered if effective
11 policy solutions are to emerge (Håkansson & Waluszewski, 2018). Our aim is to trace
12 connections between controversies by listening to the voices of the market agora as they
13 engage in the processes of market shaping for a sustainable future. Drawing upon
14 Latour's ideas of how scientific knowledge is created (Latour, 1987), we assume
15 markets are never 'natural' but are created by the actions of those involved in them
16 (Araujo, Finch, & Kjellberg, 2010) and their exchange, normalising and representational
17 practices (Kjellberg & Helgesson, 2007).
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23 A case study methodology is appropriate to explore the agora of the vegetable sector in
24 England over a defined time period (Yin, 2003). We used two methods: policy-document
25 analysis and depth interviews. Analysis of policy documents provided extensive
26 evidence of the nature of the MGMs adopted and the evolution of food policy, while
27 depth interviews, an intensive method, can capture evidence from multiple viewpoints.
28 Triangulation of data from different sources enhances the validity of the study and
29 whilst the role of triangulation is questioned in a recent paper (Farquhar, Michels, &
30 Robson, 2020), its conventional purpose of convergence and corroboration is
31 appropriate for case studies that are at the critical realist end of the epistemological
32 spectrum.
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38 A market agora is made up of many more actors than those in a conventional
39 commercial dyad, who are involved market shaping activities that go well beyond their
40 final exchange transactions (Baker, Storbacka, & Brodie, 2019). Table 2 sets out a
41 typology of participants, following an approach adopted by Kneafsey et al. (2008) where
42 a heuristic framework was created and reconfigured as our understanding of the
43 heterogeneous features of the vegetable sector developed over the course of the study.
44 We began by talking to grower representatives using a list of crop associations obtained
45 from the Agriculture and Horticulture Development Board website (AHDB Horticulture,
46 2015). They then recommended suitable growers to approach. Research on farming
47 segments helped us classify economically different farms with different farming values
48 (Wilson, Harpur, & Darling, 2010). Most vegetable production, especially in the
49 conventional network, is based in Eastern and South East England (British Growers,
50 2019) however, some pioneer producers based in the south west of England were also
51 included in the study. In total almost 90 organisations and individuals were invited to
52 take part in the study, from which twenty-three participants were interviewed in
53 twenty-one interviews (at two of the interviews two experts were interviewed
54 simultaneously, hence twenty-three interviewees).
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The discussion guide for the interviews with growers and grower consultants set out open-ended questions to explore their approach to marketing, their relationships with others in their supply chain, their engagement/experience of policy mechanisms and how they addressed environmental challenges. A discussion guide for grower representatives and policy makers (assumed to have a broader cross-sector perspective), explored their views on policy priorities for the sector, the impact of policy and considered future developments and priorities for policy. The interviews lasted between 50 minutes and hour and a half and, for interviews that took place on growers' farms, it was usually possible to explore the glasshouses or fields, as well as storage and processing facilities. The involvement of stakeholders is crucial: their interests are affected, and they possess essential and tacit knowledge and resources. Table 3 provides a detailed list of participants and their role/interest in the English vegetable sector.

INSERT TABLE 3

For the document analysis we used the Bemelmans-Vidéc et al. (1998) classification of policy mechanisms. NVivo was used to code the findings from the interview, beginning with descriptive categories related to the Howlett and Ramesh policy analysis framework (2003). Second-level thematic analysis moves from data-driven descriptive coding to more abstract themes (Ritchie, Lewis, McNaughton Nicholls, & Ormston, 2014) that relate to business activity in the vegetable sector network, and visions of sustainability.

5. CASE FINDINGS

5.1 WHAT TYPES OF MARKET-ORIENTED POLICY MECHANISMS WERE ADOPTED TO SUPPORT THE VEGETABLES SECTOR?

MGMs aimed at supporting English vegetable producers are mainly classified as 'carrots' and 'sermons' - economic incentives and information provision. These include: better (consumer) marketing, branding or adding value through the Assured Produce/Red Tractor scheme, and support for innovations to improve efficiency through the Food Chain Centre (FCC). Improved access to alternative routes to markets, for example through locally controlled farmers' markets, was also encouraged. A code of practice, overseen by the Grocery Code Adjudicator (GCA) began as a voluntary arrangement and became more regulatory ('stick-like') over time, focusing on transparent contracts between big retailers and direct suppliers. A powerful MGM was the Producer Organisations (PO) Scheme, a policy carrot and stick mechanism that linked significant capital funding with environmental compliance. As intentionally formed nets, POs best fit the description of current business nets, horizontal market nets (HMNs) of highly autonomous actors working via a single marketing desk with joint branding and marketing (Möller & Rajala, 2007). Initially UK Food Policy had focused on competitiveness and collaboration but later increased consumption of vegetables became more prominent in key policy documents such as Food Matters (Cabinet Office, 2008), and Food 2030 (DEFRA, 2010), and substantial funding was invested in Change for Life, and 5-a-day campaigns. Under the UK Coalition government, a revised Action Plan for Fruit and Vegetables (2010a) focused on improving the competitiveness of the

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3 supply base, discarding broader goals from the earlier Fruit and Vegetables Task Force
4 Report (2010b) and mainly confining its MGMs to weaker advocacy and information
5 provision/advice.
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9 A UK Strategy for Agricultural Technologies was launched in 2013 (HM Government,
10 2013). It sought to invest in technological solutions to the problems raised in the
11 Foresight Report on sustainability and the food system. The Agricultural Technologies
12 steering committee was led by key industry actors and excluded voices from academia.
13 It was able to foreground concerns that fitted with its members' commercial priorities.
14 For example, although the Foresight Report highlighted the importance of both
15 increasing global food production to meet increasing global demand and reducing the
16 production of less sustainable food products such as dairy and meat, the UK Agricultural
17 Technologies Strategy focused on the former and ignored the latter. The strategy
18 focused on innovations that aligned with industry's economic goals, overlooking
19 innovations that might disrupt them, and provides an illustration of the 'unity of effort'
20 problem raised by Donovan et al (2015). A summary of the analysis of market-oriented
21 policy mechanisms is given in Table 4.
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29 5.2 IMPACT OF POLICY MGMs ON THE VEGETABLE SECTOR

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31 The second research question considers what worked: whether, and to what extent, the
32 policy mechanisms analysed above addressed the problems that English growers faced.
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35 5.2.1 HOW DID VEGETABLE GROWERS BENEFIT FROM MGMs TO IMPROVE 36 COMPETITIVENESS? 37 38

39 In terms of competing better, participants highlighted the problem of retailer
40 dominance. Profit margins for growers, particularly in the supermarket networks, were
41 tight and price pressure limited the extent to which growers could reinvest. Throughout
42 the expert interviews there was a belief in the effectiveness of markets across both the
43 conventional and pioneer networks, often accompanied by a concern that somehow the
44 present arrangements were not always fair.
45
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48 *'...I think that whole circle needs to be reconnected, rewired in a way which there is
49 a better balance. So the retailers don't continuously take 50% margin.'* Quote from
50 grower representative (Rep04)
51

52 A key issue was the ability of the large retail multiples to appropriate a large share of the
53 value created in the supply network. Scale was required to ensure low unit costs, but
54 scale locked a grower into the retailer supply network since only about 15% of
55 vegetables go through alternative networks.
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3 *'And if somebody says to you, "We don't want your lettuce this week," what are you*
4 *going to do with, you know, half a million lettuce?' Quote from grower consultant*
5 *(Con01)*
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8 Innovations such as extending the growing season, which had been successful in English
9 soft fruit production, were not being fully exploited because GPMOs could turn to
10 overseas suppliers as an alternative to investment in growing seasons at home. The
11 dominance of the supermarket supply chain means that alternative competitive
12 domains retreated to the margins of vegetable supply. Although farmers' markets are a
13 lifeline for smaller growers, there are few alternative routes to market for the medium-
14 sized and larger growers. Market-oriented MGMs to 'add value' such as Red Tractor did
15 not enable growers to achieve higher margins on prices to supermarkets since decisions
16 about the adoption of the Red Tractor label was determined by the retailers, whilst the
17 cost burden of assurance schemes was borne by the grower. A further example of the
18 light touch approach to the problem of retailer dominance is to be found in how
19 government discarded a Curry recommendation affecting retailers. Only three of 105
20 recommendations from the Curry Report were rejected but one of these involved
21 retailers providing shelf space for local fresh produce. The competitive market narrative
22 framed this policy as an unnecessary restriction on retailers that served consumers well
23 and the recommendation was rejected.
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28 *5.2.2 HOW DID VEGETABLE GROWERS BENEFIT FROM POLICY MGMs TO ENCOURAGE* 29 *COLLABORATION?* 30 31

32 Most growers had little positive to say about contracts as a mechanism for managing
33 relationships and collaboration.
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37 *'...it's very rare that anyone sticks to the contracts, [...] they can be worthless at the*
38 *end of the day...'* Quote from conventional grower (Gr01)
39

40 The retailers controlled the enforcement of contracts, effectively a system of private
41 governance of the supply chain. In response to pressures on margins growers were
42 leaving the sector, for example, to produce other crops such as rapeseed. A policy expert
43 expressed concern about the long-term societal implications for sustainable supply:
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46
47 *'We're also getting to the point where Asda has no one to buy carrots from ...'* Quote
48 *from policy expert (Pol02)*
49

50 POs were the key policy MGM for encouraging better *horizontal* collaboration. Whilst
51 POs worked for some parts of the horticulture sector such as soft fruits, they did not
52 work very well for English vegetable growers. The participants highlighted reasons,
53 linked to the heaviness of the social and material resources of grower organisations. The
54 PO Scheme was designed with smaller growers in mind, in conventional production the
55 English vegetable grower organisations are larger than their southern European
56 counterparts and some growers displayed distrust towards other growers, reflecting the
57 heaviness of a heterogeneous sector where each grower has different combinations of
58 crops. It seems that policymakers failed to take account of heaviness in producing
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3 context (Håkansson & Waluszewski, 2018). Conventional growers depended on a few
4 large contracts located in space and time with retailers and/or GPMOs, and growers
5 feared that new horizontal POs would upset existing arrangements.
6
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8 9 *5.2.3 HOW – AND TO WHAT EXTENT – DID VEGETABLE GROWERS BENEFIT FROM POLICY* 10 *MGMs TO INCREASE CONSUMPTION*

11
12 Although some increase in consumption was apparent, imported produce accounts for
13 an increasing share of supply (DEFRA, 2014). Some respondents noticed that although
14 the UK School Fruit Scheme was successful in providing produce to children it was often
15 imported produce (e.g. bananas). Post 2008, consumption amongst lower income
16 groups fell further and, according to DEFRA's Family Food (DEFRA, 2017) consumption
17 of vegetables remains below recommended levels, and is lower for lower income
18 groups. Marketing messages reminding consumers of the benefits of consuming more
19 vegetables are helpful, but as the sustainable transitions literature highlights they have
20 limited impact on embedded food choices that resolve complex and competing lifestyle
21 pressures beyond nutritional considerations.
22
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26 *5.3 WHAT WAS THE IMPACT OF THE MARKET-ORIENTED POLICY REGIME ON* 27 *SUSTAINABILITY?*

28
29 The conventional network tended to see sustainable production in terms of incremental
30 improvements in productivity along the current socio-technical trajectory, for example,
31 the replacement of fossil fuels with renewable energy. Those in pioneer/alternative
32 networks generally talked of sustainability in terms of transformation of the whole
33 system of production and consumption of food, envisioning a transition to a new socio-
34 technical regime.
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39 Table 5 summarises the findings from the empirical study organised around the market
40 oriented policy themes of competing better, collaborating more, stimulating demand,
41 and adopting more sustainable approaches to production. We contrast these themes to
42 an IMP view. The findings show there was widespread agreement about the need to
43 compete better, collaborate more and increase demand. Almost all participants accepted
44 market doxa of effective competition and yet the participants were able to highlight how
45 the MGMs were not as effective in reviving the fortunes of the vegetable sector as
46 originally hoped. Participants felt that somehow things were 'not fair' but they largely
47 remained wedded to conventional market doxa. In contrast there were a multiplicity of
48 views of sustainability, what it meant for the sector and how it could be brought about.
49 These could be summarised as broadly a) sustainable improvements within the present
50 socio-technological trajectory, and b) those more radical voices that sought to shift to a
51 different socio-technological trajectory. But there was debate and a willingness to
52 incorporate ideas from alternative perspectives, especially by some conventional
53 growers. The debate on sustainability was heated but the market doxa remained largely
54 unchallenged.
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59 *INSERT TABLE 5*
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6. DISCUSSION

Despite policy efforts to help English growers become more market oriented, growers found the power asymmetries are at least as significant as they were when earlier studies were reported (Hingley, 2005; Hingley & Hollingsworth, 2003; Hingley & Lindgreen, 2001). There is evidence that the way that the 'real market economy' works in practice in this sector is as competing managed networks with a major supermarket at the hub of each network. Alternative routes to market, such as farmers' markets, account for a small proportion of trade and are not a viable alternative for larger-scale conventional producers. Formal contracts play a relatively unimportant role in the sector. Price pressures reduce growers' margins and their investment in sustainable practices. Growers are focusing their efforts on sustainable solutions to achieve incremental progress along the existing regime trajectory. Renewable energy, low input production models (such as integrated plant management) may have cost benefits for farmers, but environmental solutions that affect the already low margins that growers experience seem difficult to implement.

Why couldn't ways be found to address the many problems that both policy experts and market actors identified? We suggest that market doxa, stifled debate on alternative models of business activity. Latour (2005) suggests that new knowledge is created when we explore controversies but market doxa is beyond contestation and market values, practices and representations are accepted as natural phenomena. We noticed in our study that conventional market doxa is widely accepted across the various participants even organic and part time 'pioneer' growers. All but one policy expert, included in the study because of his vocal criticism of conventional farming, appeared to accept market doxa, even when faced with networked features of their commercial relationships. IMP thinking opens up an alternative way of seeing business activity and the policy MGMs designed to stimulate a sustainable market. Under a market-oriented policy regime there has been a lower than expected uptake of PO status because policymakers failed to understand and leverage existing resource constellations. The changes that the MGMs required were not effortless, for example, it was difficult for growers to disentangle from existing networks and form horizontal POs. Policy-makers had not appreciated the substance and heaviness of exchange interactions between business actors in the vegetable sector (Waluszewski, Snehota, & La Rocca, 2019). Similarly, a Grocery Code Adjudicator and codes of practice do not protect growers, for example when they do not deal directly with retailers. Retailer power over suppliers along the supply chain may be beyond the terms in a contract. Existing investments in current networks create friction that may limit the adoption of new ways of organising and combining (Hoholm & Olsen, 2012). Farmers' markets provide an alternative route to market for growers, but do not enable access to the majority of consumers whose shopping practices reflect existing working patterns, family structures, the material locations of homes and shops, transport systems, legal frameworks and so on. Consumers' preferences are embedded in lifestyles that have developed within the prevailing socio-technical regime.

In the UK the idea of the competitive market resonated with the dominant social paradigm and provided a set of 'symbolic tools' that policy makers could deploy to encourage others 'to accept, to believe, to commit ...and never to question' (Astley, 1984,

p. 270). UK policy-makers adopted a disentangled view of markets, interdependence and sustainability, driven by non-reflexive thinking. Disentanglement is manifested, for example, in the adoption of two distinctive policies to address grower problems in their supply chains – GSA/GSCOP and POs. GSA assumes contracts govern interactions and POs assume horizontal collaboration. Both fail to take account of or leverage the heaviness of resources across and within grower organisations. Crossing the conceptual threshold from markets to networks, can help policy makers interrogate market doxa and create more effective policy solutions to address context specific challenges.

Why did a market doxa remain in place for so long in this case? Callon's account of market framing and overflowing provides one explanation (Callon, 1998). Callon suggests that controversies proliferate in 'hot' situations and for progress to be made in market framing the externalities (what he terms overflows) first need to be identified and their controversies resolved. In this case the controversies of sustainability – what it is, and how it can be measured - have to be resolved before progress can be made on market (re)framing. It would seem that the on-going controversy on sustainability curtailed market agora negotiations related to the controversies of market framing, and hence market doxa remained unchallenged. We are just beginning to see more consensus on sustainability, aided by ideas of networks and interconnectedness. This opens up the possibility that the market agora can negotiate anew to dismantle market doxa, elaborate and contest social facts, and to create new spaces for calculative actions in a sustainable market. We discuss the policy and research implications below.

7. POLICY, MANAGERIAL AND RESEARCH IMPLICATIONS

For policy makers this research illustrates the limitations that market doxa imposed on the development of effective MGMs for SD. Better progress will be made if market doxa can be denaturalised – that is, seen as one possible social construction – useful perhaps – but not the only way to understand business activity. An IMP/entangled systems perspective provides an alternative explanation that opens up a space for market shaping and denaturalising market doxa so that new social facts can emerge as we attempt to shift to a more sustainable trajectory. IMP conceptualises the UK fresh produce supply chain as a network rather than a market so the policy focus becomes the network and network actors are understood to be engaged in thick, embedded and evolving continuous interactions. Firms are interdependent and coordinate activities to develop new and better ways to combine resources. Rather than simply assuming each unit of the network needs to be maximally efficient to achieve an optimal system, an IMP perspective acknowledges that interdependencies between organisations make it challenging to find optimal solutions (Håkansson, 2006). In networks it cannot be assumed that change will happen in a neutral way that benefits everyone and so policy must address the problem of retailer power more effectively than with a GCA.

In terms of managerial implications, and in line with Håkansson (2006), for the UK food system and the vegetables sector as a unit within it, we cannot assume that the optimal solution for sustainability is one where the vegetables sector is maximally efficient and

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3 competitive, especially if this leads to increased production of other more unsustainable
4 foods. Given the pivotal role of vegetable production in a more sustainable food system,
5 a small, highly efficient vegetable sector may not bring about a sustainable food system
6 as a whole.
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10 Håkansson et al (2009) employ an ecological, rainforest metaphor in their discussion of
11 'business in networks'. Policy-makers need to tread carefully lest they damage this
12 fragile eco-system. Thinking of the vegetable production system as a network, and
13 taking account of its 'heaviness' – related tangible and intangible investments that cross
14 organisational boundaries – renders simplistic market-based solutions inappropriate.
15 We show that network inspired thinking can open up debates on a sustainable socio-
16 technical regime for food by providing a theoretical framework for a more nuanced
17 understanding of the interconnectedness of the processes involved in creating a society
18 capable of sustaining a desired standard of living (Alderson, 1965).
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23 *INSERT TABLE 6*
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27 8. CONTRIBUTION, LIMITATIONS AND FUTURE RESEARCH

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30 Our contribution has identified the impact of market doxa and, by using an IMP
31 perspective, opens up space for controversy, for contested ideas of markets to be
32 confronted. Table 6 highlights how IMP ideas can 'denaturalise' market doxa. This
33 framework, it is hoped, will stimulate debate in market agora and revitalise the
34 processes of market shaping. Table 6 shows IMP thinking could create space for
35 controversy.
36

37 Sharma (2020) in a recent review of sustainability research in B2B markets, identified a
38 paucity of academic research on the effect of policies for sustainability and our research
39 contributes to an under researched aspect of B2B studies. This is a unique single study
40 of a single sub-sector of the fruit and vegetable sector in a single European country and
41 over a particular period of time and seeks to present a detailed, authentic
42 representation of that sub-sector in context. However, it is acknowledged that this is a
43 limited, qualitative study involving relatively few key informant interviews. Future
44 research could address the shortcomings, for example by exploring other
45 sector/country contexts. Indeed Sharma also points to a need for future research along
46 these lines, as well as on firms' influence on policy making, international comparative
47 studies, policy and business collaboration, the impact of policy on B2B relationships, and
48 what he terms the 'following of the spirit of policy' by B2B firms. Finally, this study
49 looked at the years before the UK's decision to leave the EU, so SD food policy post-
50 Brexit provides a unique context of controversy in which to develop urgently needed
51 knowledge and understanding of sustainability and the policy/B2B interface.
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Table 1: A Chronological Overview of Periods of UK Food Policy 2002-2015:

Scoping and Framing, Policy, and Vegetable Sector Operational Plans



	Early New Labour Period 2002-2008	Late New Labour Period 2008-2010	Coalition Period 2010-2015
Evidence gathering, scope setting and framing leads to ... 	Farming and Food: A Sustainable Future, Report of the Policy Commission on the Future of Farming and Food, (2002) (known as the Curry Report) <i>Market-oriented SD MGMs, focused on environment and economic interventions</i>	Recipe for Success: Food matters towards a strategy for the 21st century (2008) <i>Health concerns become as prominent as environmental and economic concerns</i>	Taylor Review 'Science for a new age of agriculture' (2011) <i>Refocus on a competitive supply base</i> Foresight Report: The future of food and farming: challenges and choices for global sustainability (2011) <i>Multiplicity of SD issues...</i>
...Policy, which is implemented in... 	The Strategy for Sustainable Farming and Food: Facing the Future (2002) <i>Almost all Curry recommendations accepted</i>	Food 2030 (2010) <i>Broadening scope of policy from production to consumption</i>	UK Strategy for Agricultural Technologies (2013) <i>... but industry priorities for increasing production dominate and other issues overlooked</i>
...Operational plans for the Vegetable sector and specific MGMs	National Strategy for Operational Programmes of Producer Organisations in the United Kingdom (2007) <i>Financial support for growers conditional on environmental compliance</i>	Fruit and Vegetable Task Force Report (2010) <i>Comprehensive MGMs for competitiveness, collaboration and increased consumption</i>	Fruit and Vegetable Action Plan (2010) <i>Scaled back MGMs focused on competitiveness of supply base and R-A competition to drive policy goals (in line with HGTC advice)</i>

Table 2: Heuristic Framework: A Typology of Participants (following an approach adopted by Kneafsey et al. (2008))

'Analytical Fields'	Participants
Experience of Horticulture produce categories Field scale vegetables Protected vegetables	<i>(AHDB Horticulture 2015)</i> Gr01, Gr03, Gr04, Gr06, Gr08, GP01, GP02, Rep01, Con02, Rep04, Pol01, Pol02, Pol03, Pol04 Gr01, Gr02, Gr03, Gr04, Gr07, Gr08, Con02, Rep04, Pol02, Pol03, Pol04
Role in vegetable sector Grower farmer-manager GPMO manager Grower consultant/agronomist Grower Representative Policy Expert	<i>(categories emerged from fieldwork)</i> Gr01, Gr02, Gr03, Gr04, Gr05, Gr06, Gr07, Gr08 GP01, GP02, Con01 Con01, Con02, Con04, Rep04 Rep01, Rep02, Rep03, Rep04, Pol01 Pol01, Pol02, Pol03, Pol04
Food network allegiance Conventional (mainly supermarket customers) Conventional (customers mainly not supermarkets) Pioneer	<i>(Wycherley 2002)</i> Gr01, Gr06, GP01, GP02, Con02, Rep01, Rep02, Rep03, Rep04, Pol01 Gr05, Con02, Rep02, Rep03, Rep04 Gr02, Gr03, Gr04, Gr07, Con02, Con04, Rep01, Pol04
Current Farm type Custodians Lifestyle Choice Pragmatists Modern businesses Challenged enterprises	<i>(adapted from Wilson et al. 2010)</i> Gr01, Gr04, Pol01, Gr05 Gr02, Gr03, Gr07 Gr06, GP01, GP02 Gr08
Geographical location (in England) of production East and North East South East West and South West	<i>(British Growers, 2019)</i> Gr01, Gr02, Gr06, Con02, Rep04, Rep06, Pol01 GP01, GP02, Gr05, Gr08, Con01, Con04, Rep01 Gr03, Gr04, Gr07

Table 3: List of Participants and a Description of their Role in the Vegetables Sector

Key: Gr = grower/farmer; GP = grower/packer marketing organisation, involved in home and overseas production; Con = grower consultant, involved in advisory role to growers (e.g. agronomist); Rep = grower representative, crop association or farmer association; Pol = policy expert (e.g. Defra horticulture specialists)

ID	Description
Gr01	Conventional network, medium/large mixed traditional farm, field and protected crops, East Anglia Model farm, professional manager but conservation also an important concern, main supply network avoids retailers
Gr02	Pioneer network, organic grower mainly protected crops, East Anglia, entrepreneurial young owner-grower, family farm but branched out into downstream supply, alternative supply network through traditional/farmers' markets
Gr03	Pioneer network, organic producer/lifestyle farmer field and protected crops, West Country, small farm, experience of food cooperatives, runs market stall as outlet for produce
Gr04	Pioneer network, medium/large organic grower/supplier field and protected crops, Successful box scheme, main location is West Country but also overseas
Gr05	Conventional network, young owner farmer, third generation family farm, South East, sustainability champion, field scale vegetables, serving mainly ethnic wholesale foodservice markets
Gr06	Conventional network, semi-retired, traditional family medium sized farm Field scale vegetables, Eastern England
Gr07	Pioneer network, organic grower (not certified), West Country/Very small niche producer (chillies) supplements income from farm, part time, lifestyle choice Serves farmers' markets and some food producers
Gr08	Conventional network, grower owner (retired) with some consultancy experience, small/medium sized farm, South East Formerly a mixed farm, most recently focused on specialist vegetable production for catering trade
GP01	Conventional network, grower/supplier of field and protected crops, based in South East, crop technical manager for large GPMO, focal supplier for retail multiples
GP02	Conventional network, supplier of field and protected crops based in South East, Business Development Director for large GPMO, focal supplier for retail multiples
Con01	Conventional network, consultant/agronomist, experience of UK and overseas production, knowledge of large scale production and mainstream supply networks
Con02	Knowledge of conventional and pioneer network, senior representative from LEAF, grower environmental standards body, broad knowledge of vegetable sector across England, conventional and organic production
Con03	Re-classified as Pol04
Con04	Pioneer network, aligned to organic or non-conventional approach to production, South East Grower consultant and writer, sustainability champion
Rep01	Experience of both conventional and pioneer networks, representative from Tomato Growers Association - mainly protected crops, knowledge of both conventional and organic production
Rep02	Mainly conventional affiliation, representative from CLA (Country Land Association), rural business focus, traditional farming
Rep03	Mainly conventional affiliation Representative from CLA, rural business focus, traditional farming
Rep04	Conventional network affiliation, representative of British Growers Association (senior manager), broad knowledge across field scale and protected crops
Rep05	Conventional affiliation Representative from FPC (Fresh Produce Consortium), broad knowledge of the supply network,
Rep06	Conventional network affiliation, representative of British Growers Association (Chair), conventional affiliation, broad knowledge of field scale and protected crops, also successful niche grower (asparagus, sprouts), based in North, farming family background
Pol01	Conventional network, also a grower - traditional family farm, Eastern England, medium/large traditional mixed farm field scale vegetables and other crops, member of the Policy Commission on the Future of Farming and Food, had been involved at a senior level in a major farmer representative organisation
Pol02	Mainly experience of conventional networks. Representative from Defra, senior role Extensive knowledge of horticulture across both field and protected crops
Pol03	Mainly experience of conventional networks Representative from Defra, middle manager role Extensive knowledge of horticulture across both field and protected crop
Pol04	Pioneer network affiliation, writer on food and agriculture (semi-retired), former member of Agriculture and Food Research Council, a prominent critical voice in the policy discourse

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Table 4: Analysis of Market-Oriented Policy MGMs

UK Food Policy MGM	Policy Type	Link to HGTC/Disentangled Systems Perspective
Assured Produce/Red Tractor Scheme	Carrot - economic incentive	Resource-Advantage (R-A) Competition, generic strategy: become more competitive by adding value
Food Chain Centre FCC	Carrot - economic incentive	R-A Competition, generic strategy: become more competitive by reducing costs
Change for Life/5-a-day Marketing Campaign	Sermon— backed by significant funding	The rational consumer: well informed consumers make better consumption choices based on the nutritional value of food and buy more vegetables
School Fruit (and vegetables) Scheme	Carrot – backed by significant funding	Bounded rationality: Children learn good habits that are adopted in adulthood
Farmers' markets	Carrot – economic incentive	Formal institution to support competitive markets by providing alternative routes to market
Grocery Supply Code of Practice (GSCoP)/ Grocery Code Adjudicator (GCA)	Sermon - voluntary code becoming increasingly regulatory, less voluntary (stick) –	Formal institution to promote conditions for R-A competition Initially the GSCoP was based on voluntary adherence to good practice, but later a stronger regulatory framework, overseen by the GCA, required compulsory adherence to the code for large supermarkets
Producer Organisations (PO) Regime	Carrot plus some stick: economic incentive and regulatory compliance. Significant funding for capital investments linked to environmental compliance.	Formal institution to support R-A competition envisaged as horizontal collaborations between growers, using a single marketing desk to coordinate supply of a crop. Buyer power is not curtailed by monopoly regulation but constrained by a consolidated supply base that can seek out more opportunities to compete.
Fruit and Vegetables Task Force Report and Action Plan	Recommended some economic incentives in the earlier report related to competitiveness, a pared down action plan is dominated by weak policy mechanisms – sermons, information/ advice	State support for informal and formal institutions to support R-A competition since societal welfare and key policy goals of economic growth, productivity and wealth creation are driven by competition in lightly regulated markets.
Strategy for Agricultural Technologies	Carrot - economic incentives for research into technological solutions to food production challenges	State support for innovation, focused on scaling-up production to meet global demand for food, doxic assumption that consumer preferences for a Western diet are innate. Steering of the strategy enacted by dominant actors in the food system including supermarkets and large food manufacturers, assumption that societal welfare is driven by the actions of self-interested actors.

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Table 5: UK Food Policy MGMs for the Vegetable Sector, Links to GTC/Disentangled Perspective, Findings and Quotes

Policy Priority and IMP Theme	HGTC/Disentangled Perspective	Summary of Empirical Findings	Illustrative quotes (mainly from interviews, with a quote from a policy document)
<p>Policy priority: Competing Better</p> <p>IMP insight: Addressing the Problems of Retailer Dominance</p>	<p>Retailer dominance is not as problem so long as consumer prices remain low.</p> <p>Generic strategies: Red Tractor quasi-brand adds value and FCC helps to improve efficiency</p>	<p>Low margins for growers and dependence on supermarkets for access to markets means farmers find it difficult to invest in sustainable innovations, leave market to grow other crops (e.g. rape seed)</p> <p>Growers create value but are unable to appropriate sufficient share of the value created</p>	<p>'...what does the grower do? Does he say, "No, you can't have it," if he does that, he will no longer supply that supermarket, he will no longer have a business.' Quote from grower consultant (Con01).</p> <p>'One of the major problems that growers face [...] is lack of margin [...] caused by fierce price competition between the supermarkets.' (Con01)</p>
<p>Policy priority: Competing Better</p> <p>IMP insight: How the Economy Actually Works 'Below the Surface'; sticky resources; networks, unlike markets, cannot be assumed to be fair (unity of effort)</p>	<p>'Horizontal' POs</p> <p>Effortless to shift from one organizational form to another.</p> <p>Alternative routes to market provide opportunities for competitive growers.</p> <p>Industry-led investment in technology.</p>	<p>The benefits of improved competitiveness and innovation does not translate to better profits for many growers</p> <p>Growers 'stuck' in one (or a few) networks, not able to easily move from one network to another, efforts to stimulate other routes to market have stalled.</p> <p>Organic/pioneer growers use farmers' markets and other routes but remain niche</p> <p>Incremental change within prevailing trajectory</p>	<p>'...in the last five years we've seen three very major companies go out of the industry [...] Because they can't make profit.' Quote from grower consultant (Con01).</p> <p>'So what have we got left? We've got box schemes, we've got farmers' markets, we've got a few little local markets might happen every Saturday and so on...' Grower consultant (Con04)</p> <p>'The Agri-Tech Strategy will be led by industry' (Ministerial Foreword, A UK Strategy for Agricultural Technologies: HM Government, 2013)</p>
<p>Collaborating Better</p>	<p>Private governance of the supply chain is consistent</p>	<p>Private governance of the supply chain</p>	<p>'We do [adopt the Red Tractor standard] but really at the retailer's request[...]GPMO manager (GP02)</p>

Policy Priority and IMP Theme	HGTC/Disentangled Perspective	Summary of Empirical Findings	Illustrative quotes (mainly from interviews, with a quote from a policy document)
<p>IMP insight: Managing Relationships</p>	<p>with societal outcomes</p> <p>Support for contracts, voluntary COP and GCA.</p> <p>Interactions between growers and retailers can be reified in the form of contracts.</p>	<p>Contracts do not regulate interactions – GCA welcomed but perceived as having limited impact, supermarkets determine how contracts are enforced</p>	<p>'.. There is a clear fear factor within the vegetable sector...' Quote from grower representative (Rep03)</p>
<p>Increasing consumer demand for vegetables</p> <p>IMP insight: Embedded Consumer Preferences</p>	<p>Marketing campaigns to improve information to consumers</p>	<p>Consumers' preferences shaped by the features of the prevailing socio-technical regime</p>	<p>'... it requires more thinking for a low-income family to achieve five a day, that's 35 units a week and if it's a family of three that means moving 105 units of fruit and veg into their household...' Quote from policy expert (PoI02)</p>
<p>SD by improving the efficiency and effectiveness of the vegetable sector</p> <p>IMP insight: Maximal efficiency of one unit in a network may</p>	<p>Sustainability goals can be achieved by improvements within the existing arrangements in the vegetable sector</p>	<p>Contested views of SD shown in two distinct visions forSD: one focused on sustainability within the vegetables sector (low carbon, low cost), the other focused on sustainability across food production sectors (diversity, replacement of consumption of less sustainable produce with sustainable produce such as vegetables)</p>	<p>'Now, somehow in order to change the whole agricultural dynamic [...] we have to convince people [i.e. growers] that there is a market for crops, we have to convince people, the growers, to invest in those production systems and make it happen.' Quote from grower consultant (Con04)</p>

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Policy Priority and <i>IMP</i> Theme	HGTC/Disentangled Perspective	Summary of Empirical Findings	Illustrative quotes (mainly from interviews, with a quote from a policy document)
<i>not lead to maximal efficiency of the network as a whole</i>			

Table 6: Denaturalising market doxa and creating space for controversy

	From Market Doxa: HGTC/Disentangled System Perspective...	...To Space for Controversy: An IMP Entangled System Perspective:
Key Underpinning Theoretical frameworks	R-A competition - dynamic disequilibrium drives innovation and improvements in quality and quantity of food Sustainability is not considered (Hunt, 2000)	Networks – efficient and effective but favour more powerful actors (Håkansson, 2006), context is important Multi-level perspective and socio-technical transitions to sustainability (Geels, 2002)
Policy goals and food policy priority	Hunt's policy goals: productivity, economic growth, wealth creation (Hunt, 2000) Efficient and consolidated global food system	Goals for sustainability: efficient resource use, prosperity and stability, well-being (Jackson, 2009), Resilient, diverse and fair food system (Kneafsey et al. 2008)
Problem to be addressed	Economic demise - an inability to compete in global markets, rising global demand for affordable food	Ecological disequilibrium – resources depleted by destructive technologies
Policy solutions based on	Support for R-A Competition in lightly regulated markets; sustainable intensification of global commodity supply chains, generalised recommendations based on rational approach to problem solving	Strategic nets; different policies for different types of nets, institutional and structural change to support network interaction, context matters, reflexive approach to solving policy challenges, shift to new sustainable socio-technical regime
Consumers	Boundedly rational, innate needs, market doxa assumes price and nutritional function of food dominates other drivers of food choice	Embedded choices, food choices influenced by complex, sometimes contradictory concerns, preferences are mutable
Models of production and trade	Mainly conventional production, some organic production as value-added produce, global trade model	Regime change - socio-technical transition to new sustainable food system
Features of interactions with supply chain	Thin, discrete, adversarial	Thick, embedded, interdependent based on mutual benefits
Innovation	Focused on mechanisation and bio-tech developments, high tech, innovation takes place within firms, policy directed by industry, radical innovation is effortless, innovation is disentangled	Focused on the adaptation of natural ecological systems, entangled innovation - default to incremental innovation along a particular technological trajectory emerging business networks may drive radical innovation and regime change
Desired output	Affordable, plentiful produce, low carbon, efficient production, competitive markets	Healthy food, sufficient production, balanced appropriation of value across supply networks