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Market instruments, biosecurity and place-based understandings of animal disease



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ABSTRACT

Neoliberal approaches to managing animal disease use Market Instruments (MIs) to promote biosecurity citizenship amongst farmers. MIs create risk-based trading markets that make disease risks visible, and establish and reward appropriate farming practices. However, for other policies the use of MIs is often context dependent and related to farmers' existing values and practices. This paper considers how different spatial imaginations of disease and place attachment amongst farmers modifies the meaning of disease control MIs. Using the example of bovine Tuberculosis in New Zealand, the paper examines its Risk Based Trading scheme known as 'C status' designed to limit the movement of cattle. Drawing on qualitative interviews in a farming community in the West Coast, the paper shows how farmers accept the legitimacy of C status to create biosecurity citizenship. At the same time, farmers recognise different spaces of disease risk that vary according to landscape and climate, farming practices, and cattle genetics: factors not recognised within C status. These absences, together with farmers' attachment to place, and their adaptive plans to live with disease, can minimise the significance of MIs.

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1. Introduction

This paper explores the role of Market Instruments (MIs) in creating and encouraging biosecurity citizenship amongst farmers to prevent the spread of animal disease. Market Instruments (MIs) – codes of practice, environmental management systems, environmental certification, and financial incentives – are commonly used to secure environmental benefits and encourage positive environmental behaviours amongst land owners and farmers (Dibden and Cocklin, 2005; Lemos and Agrawal, 2006). Increasingly, MIs are employed in the management of animal disease to create risk-based trading markets for cattle in which disease-free livestock can attract financial premiums. At the same time, MIs can help reduce the spread of disease by establishing and rewarding forms of 'good farming' and normative behaviours which act as forms of social control (cf. Burton, 2004).

Whilst studies have examined farmers' responses to MIs for a range of agricultural policies, there are no social science studies that examine their use in managing animal disease. More generally, Higgins et al. (2012) suggest that further research is required to understand how MIs are used in practice, how they are resisted or

adapted, and how existing values, knowledges and practices interact with and reshape policies. This is also true for animal disease MIs: they articulate specific epidemiological understandings of animal disease articulated at different spatial scales (such as the farm, parish or region) yet farmers' disease management practices may be informed by understandings of disease that are rooted in place-based experiences (see for example: Enticott, 2008).

This paper therefore asks to what extent do place-based understandings of animal disease correspond with and support the aims of animal disease MIs? The paper focuses on the management of bovine Tuberculosis (bTB) in New Zealand where a system of MIs is used to limit the movements of potentially infected cattle. The paper begins by reviewing the role of MIs, linking them to Barker's (2010) concept of biosecurity citizenship. Drawing on interviews with farmers in the West Coast, New Zealand, the paper describes the role of place in shaping farmers' understandings of bTB, and how their spatial understandings of disease transmission support and conflict with the aims of MIs designed to prevent its spread.

2. Biosecurity and market instruments

Biosecurity – or measures taken to eliminate and prevent the spread of animal disease – is central to the neoliberal project of the

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free movement of agricultural animals and produce (Busch, 2010). The neoliberal governance of biosecurity relies on the creation of standards and technologies to patrol inter- and national borders (Higgins and Dibden, 2011). At the same time, the neoliberal governance of animal disease has sought to pass the costs, duties and responsibilities of biosecurity to farmers by creating new partnership governance structures. In countries like Australia and New Zealand, the agricultural industry takes the lead in funding and governing the eradication of specific animal diseases with the State representing a minority partner.

Biosecurity is also devolved to individual farmers through specific technologies of rule designed to individualise biosecurity responsibilities by creating new biosecurity subjectivities. Drawing on Rose's (2007) notion of 'biological citizenship' and ideas of 'ecological citizenship' (Dobson, 2003), Barker (2010) suggests that the creation of biosecure citizenship involves 'symbiotic individualisation' in which a variety of technologies of persuasion and enforcement are used to encourage citizens to think about and act upon their individual biosecurity responsibilities. Thus, technologies of rule identify appropriate practices that seek to create 'contractual obligations' for citizens to participate in the surveillance and reporting of unwanted biological presences.

Thinking about biosecurity citizenship and the governance of the self therefore alerts us to the technologies and rationalities required to normalise pro-biosecurity practices. Market Instruments are a prime example. The growing use of MIs stems from a general dissatisfaction with old policy instruments, the rise of governance paradigms based in neoliberal institutionalism and the desire to regulate without challenging free-trade or subsidising production (Higgins et al., 2012). In practice, MIs are a diverse set of instruments, ranging from direct taxation, cap and trade schemes, certification and labelling, and payments for ecosystem services (Lemos and Agrawal, 2006). According to Lockie (2013), MIs will differ according to policy objectives and can take three forms: 'market friction' MIs seek to improve existing markets by providing information that allows product differentiation, such as certification schemes and standards; 'price-based' mechanisms set or modify prices to incorporate the cost of ecosystem services through auctions, tenders grants and taxes; and 'quantity based' MIs set targets to achieve or maintain environmental goals through cap and trade mechanisms.

In the regulation of animal disease, MIs are commonly associated with policies of Risk Based Trading (RBT). RBT seeks to regulate the movement of livestock between different places – defined by either institutional or epidemiological boundaries. RBT schemes can be either statutory or voluntary, and seek to shape farmers' livestock purchasing practices by providing accurate information on disease risks in order to "encourage farmers to consider the relative disease risk of animals that they are buying, empower them to make better informed cattle trading decisions, and take greater responsibility for managing the [disease] risk of their herd as part of wider efforts to stop the spread of [disease]" (Bovine TB Risk Based Trading Group, 2013). RBTs therefore act as a market friction MI, attempting to improve the efficiency of existing markets through the provision of information. Frequently, they take the form of certification schemes, herd classifications and disease ratings in order to make disease risks visible, and create a market for different levels of disease risk. In seeking to robustly define and measure animal disease risks, RBTs can be seen to be part of a 'metrological regime' (Barry, 2002) through which metrics are key components in the shaping of calculative economic behaviour (Çalışkan and Callon, 2010). Equally, the metrological systems inherent to RBTs contribute to Barker's concept of 'symbiotic individualisation'. Their focus is on rendering measurable and calculable aspects of farming practices in order to allow farmers to identify where their conduct

can be optimised (Higgins et al., 2012). In this way, MIs that rely on standards and numerical inscriptions can be seen to 'provide an opportunity and obligation to demonstrate [a] 'duty of care' (Lockie and Higgins, 2007, p. 7). MIs therefore contribute to constructing farmers as 'entrepreneurial and 'active' agents who improve their productivity without government interference' (Lockie and Higgins, 2007, p. 2).

The adoption and use of MIs is not without problems. Crucially, MIs demand that their users put community interests before their own. Tensions between existing values and attitudes, and the new practices encouraged by MIs may lead to their non-adoption or misuse. The use of MIs may ultimately be highly context-dependent, and relate to the significance of competing government policies (Higgins et al., 2012). Whilst MIs may seek to define and make new farming practices socially acceptable, Burton (2004) shows that farmers possess their own symbolic codes of recognising 'good farming' but which can also undermine government attempts to persuade them to adopt different practices through, for example, payments for ecosystem services. Studies of the adoption of new farming practices also emphasise the extent to which adoption is shaped by pre-existing values and attitudes, requiring specific trigger events to break path-dependent approaches to farming (Sutherland et al., 2012; Sutherland and Darnhofer, 2012).

Whilst there are no studies of how MIs have been used to help regulate animal disease and create norms of biosecurity citizenship, there is no reason to suspect that the fate of biosecurity MIs would be any different to those policy areas where they have been used. Recent biosecurity research suggests that the adoption of new disease prevention practices is related to factors such as trust in government (Enticott et al., 2014; Heffernan et al., 2008a) and is dependent on existing cultural beliefs about disease (Heffernan et al., 2008b; Maye et al., 2014). Farmers may resist the introduction of Government-led MIs, fearing disruption to the operation of existing markets or the creation of 'two-tier markets' (Bovine TB Risk Based Trading Group, 2013). Indeed, the establishment of metrological systems – such as those contained within RBTs – is well known for provoking debate and contestation due to the precise difficulties of measurement, definition and commensuration (Cooper, 2015). As Espeland and Stevens (1998) show, metrological systems rely on aggregating different attributes, yet these acts of commensuration depend on the extent to which people accept these metrics legitimately express value, or the extent to which disparate factors can be legitimately combined. Indeed, farmers' own understanding of disease can be shaped by their own place-based experiences of disease. The sharing of stories between farmers about disease outbreaks, can contribute to the creation of 'lay epidemiologies' (Enticott, 2008) in which farmers make sense of animal disease and draw up their own rules of good biosecure farming. Farmers' lay epidemiologies can undermine government attempts to persuade farmers to adopt new disease procedures by highlighting how scientific understandings of disease fail to take into account the local peculiarities of risk, landscape and place. Whilst knowledge of these understandings of animal disease is important, the extent to which they also shape the use of MIs in the management of animal disease is not known. The remainder of this paper therefore turns to an examination of farmers' reactions to a MI used in New Zealand to limit the spread of animal disease, and the extent to which place-based understandings of disease contribute to its use.

3. Methodology

Bovine tuberculosis (bTB) is a zoonotic infection found in cattle, wildlife (e.g. possums and badgers) and humans. The disease is endemic in many countries and is 'notifiable' requiring any

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