



Prospects for pro-environmental protein consumption in Europe: Cultural, culinary, economic and psychological factors



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ABSTRACT

The current ratio between plant and animal protein in the Western diet is causing serious threats to both public health and the environment. Healthy, pro-environmental protein consumption requires a transition to a diet with more plant protein and considerably less animal protein. The present paper focuses on the prospects of this transition by analyzing consumer responses to some key options in the context of regional differences across Europe. The aim is to assess how responses to the options might be shaped by 1) cultural, culinary and economic spatial gradients (including GDP per capita) at regional level and 2) differences in environmental friendly behavior and gender at individual level. The study, covering all EU members in 2012, compares regional level statistics (food supply data) with individual level statistics (consumer survey data) and vice-versa. The south-north latitude gradient showed a decreasing trend in vegetable and pulse protein supplies and, in parallel, a decreasing trend in positive consumer responses to the key options, probably due to differences in meal experiences. The west-east longitude gradient showed decreasing levels of animal protein supplies and GDP per capita. Individuals' willingness to do something positive for the environment and their gender played a weak but consistent role in the responses. To effectively stimulate diet changes, it is important to seek ways in which culinary and environmental aspects can complement each other and to ensure that diet changes do not depend solely on individual decisions but become an integral part of regional social processes.

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1. Introduction

The current ratio between plant and animal protein in the Western diet is causing serious threats to both public health and the environment (Aiking, 2014; Friel et al., 2009; Mertens, van 't Veer, Hiddink, Steijns, & Kuijsten, 2017; Reynolds, Buckley, Weinstein, & Boland, 2014; Westhoek et al., 2014). The dietary imbalance dates from the unprecedented growth of the intensive (high input) livestock industry during the twentieth-century, which made livestock the chief source of protein in many Western countries (Grigg, 1995a; Swatland, 2010). Although meat and dairy are valuable sources of nutrients, the protein produced by Western feedlot animals is quantitatively and qualitatively much less sustainable than the meat and other animal foods acquired by hunting and herding populations in the distant past. According to several reviews (see above), the world's future protein supply can

only be ensured through a 'reversed' diet transition—a shift to a diet with more plant protein and considerably less animal protein. This would mean that many Western consumers will have to add healthy, pro-environmental protein consumption to the other positive things they do for the environment. Obviously, however, pro-environmental protein consumption is a new concept, which until now has little active support from policy-makers in government, industry, and even environmental NGOs (Laestadius, Neff, Barry, & Frattaroli, 2014). The aim of the present study is to assess how consumer responses to pro-environmental protein options (PPOs) in the European context might be shaped by 1) cultural, culinary and economic spatial gradients (including GDP per capita) at regional level (Grigg, 1995a, 1995b) and 2) differences in environmental friendly behavior and gender at individual level (Clayton & Myers, 2009). In order to make such a cross-regional comparison meaningful, it is necessary to use multiple types of data, which allow comparisons of regional level data with individual level data and vice-versa (Scheuch, 1989; de Boer, Helms, & Aiking, 2006). The present study combines food supply data with consumer survey data, focusing on the main spatial gradients in

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European food patterns.

1.1. Conceptual model

The conceptual model of our approach is presented in Fig. 1. One of the central aspects that require further development is the concept of pro-environmental protein consumption. The literature on environment and behavior shows that there are two general, interrelated types of pro-environmental behavior; the first type reflects a commitment to the overarching environmental goal of ‘using fewer natural resources’ and the second relates to the goal of ‘doing things in a different way’ and with a reduced environmental impact (Clayton & Myers, 2009, p. 144). In the case of protein, both types are relevant. The key background issue is that turning protein from feed crops into animal protein for human consumption is inherently resource-inefficient (Smil, 2000). Due to the large scale of agricultural production, reducing the inefficiency through a ‘reversed’ diet transition back to less animal protein could make a significant difference to the most important human-caused environmental issues, including biodiversity loss, nitrogen cycle disruption, and climate change (Aiking, 2014; Westhoek et al., 2014). As protein intakes of adults in Europe are often above the Population Reference Intake (PRI) (EFSA Panel on Dietetic Products Nutrition and Allergies, 2012), achieving a ‘reversed’ diet transition is a matter of ‘using less’ (e.g. leaving the meat out of the dish) and ‘doing things differently’ (e.g. replacing meat with beans). In fact, there is a broad variety of options for a transition, which are more or less different from existing eating patterns and may or may not involve novel foods (Elzerman, Hoek, van Boekel, & Luning, 2011; Hartmann & Siegrist, 2017; Schösler, de Boer, & Boersema, 2012; Vainio, Niva, Jallinoja, & Latvala, 2016). However, due to the overall popularity of meat (e.g. Graça, Calheiros, & Oliveira, 2015; Latvala et al., 2012; Macdiarmid, Douglas, & Campbell, 2016; Pohjolainen, Vinnari, & Jokinen, 2015) and the great variety of

factors that influence food patterns, including in particular gender (Rozin, Hormes, Faith, & Wansink, 2012; Schösler, de Boer, Boersema, & Aiking, 2015), it may take a profound societal effort to achieve a ‘reversed’ diet transition.

The prospects for PPOs may significantly vary by factors related to earlier diet transitions, such as cultural, culinary and economic factors related to geographic area variations in cuisine and diet. These background factors reflect differences between regions in physical characteristics and historic development (Montanari, 1994; Rokkan, 1999; Scheuch, 1989). Cuisine styles, such as the Mediterranean diet, are combinations of ingredients, condiments and food preparation procedures that lie within a common historical and territorial context (Turmo, 2012). Due to gradual differences between neighboring areas, in combination with cultural diffusion and adaptation processes, cuisine styles may vary in patterns linked to spatial gradients, such as a south-north latitude gradient and a west-east longitude gradient. Indeed, descriptions in the European historical literature show that there are large culturally and territorially defined differences between the classic (Roman and Greek) versus the Germanic and Celtic world, which contrast southern diets with a dominant vegetable component and northern diets with mainly milk, cheese and meat (Montanari, 1994). Factors such as economic development, greater trade in food, and more uniform regulations have since then contributed to a homogenization of food consumption patterns across Europe (Schmidhuber & Traill, 2006; Scholliers, 2007; Teuteberg & Flandrin, 1999). However, some of the regional food practices show a remarkable degree of historical continuity (Askegaard & Madsen, 1998; Fischler, 1999), which has been reflected by a south-north latitude gradient across the European continent in the direction of lower supplies of protein provided by vegetables and cereals in the north (de Boer et al., 2006; Grigg, 1995a, 1999).

There also used to be a south-north gradient across the European continent in the direction of smaller supplies of animal-based protein in the south (de Boer et al., 2006; Grigg, 1995a, 1999). This gradient was partly the result of the twentieth-century nutritional transition that made animals rather than bread the chief source of protein in developed countries. As noted by Grigg (1995a), this transition was prompted by a long term rise in real incomes, which began at different dates in different regions. By the 1960s most countries in Western Europe—save the Mediterranean area—had gone through this transition. In hindsight, the high-plant and low-meat, Mediterranean type of diet of the early 1960s has been identified as a valuable reference point for the development of options to create more sustainable, healthful diets in other regions (Dernini & Berry, 2015; Tilman & Clark, 2014; van Dooren & Aiking, 2016). Since the 1960s, however, this Mediterranean type of diet has been supplemented by a higher level of meat protein supply (Leclercq, Arcella, Piccinelli, Sette, & Le Donne, 2009; Moreno, Sarría, & Popkin, 2002; Moreno-Altamirano et al., 2016; Turmo, 2012). In terms of Turmo (2012, p. 128), traditional stews and soups may have been incorporating “abundant animal protein”.

The regions in Eastern Europe may not have gone through the nutritional transition yet. At this point it should be noted that, although the focus of the paper is on regions and individuals, it is necessary to use countries as administrative units. The west-east longitude gradient is not only related to differences between coastal and landlocked countries but also to differences between the 15 countries forming the European Union before the enlargements of 2004 and 2007 and the ‘new members’ from Eastern Europe. This difference corresponds to a split in the meat market for consumers, dividing countries with high incomes and high meat price levels from countries with medium or low incomes and meat price levels (GfK EU3C, 2012, p. 258–259). A notable exception to this pattern is the Netherlands, which belongs to the high-income

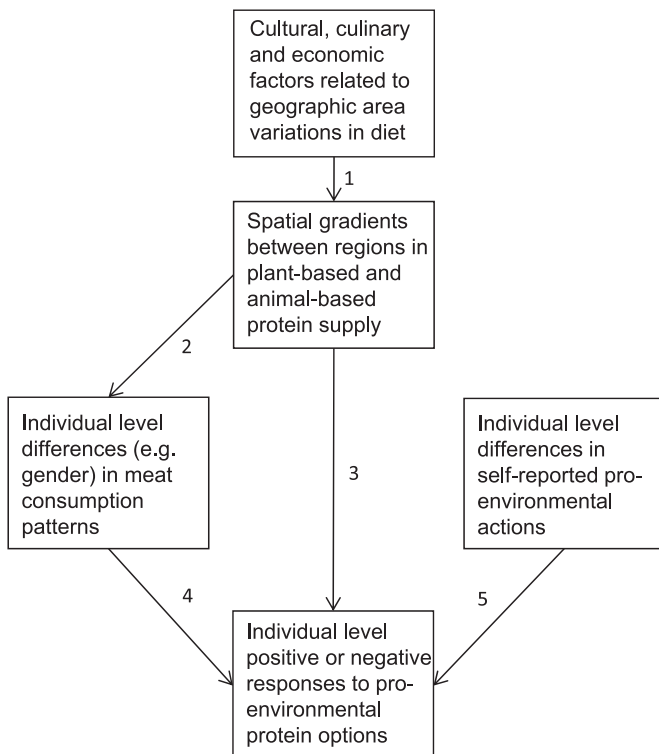


Fig. 1. Conceptual model; the arrow numbers correspond to the research questions.

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