EPISTEMIC COMMUNITIES, RELATIONAL DISTANCE AND THE TWO GOALS OF DELEGATION: HORMONE GROWTH PROMOTERS IN THE EUROPEAN UNION

Claire A. Dunlop
Politics Department
University of Exeter,
Rennes Drive, Amory Building,
Exeter, EX4 4RJ
c.a.dunlop@exeter.ac.uk

DRAFT VERSION: PLEASE DO NOT CITE WITHOUT AUTHOR'S PERMISSION

EPISTEMIC COMMUNITIES, RELATIONAL DISTANCE AND THE TWO GOALS OF DELEGATION: HORMONE GROWTH PROMOTERS IN THE EUROPEAN UNION

Claire A. Dunlop

ABSTRACT

This paper deploys principal-agent analysis to interrogate the relationship between epistemic communities and the governments they advise. Decision-makers delegate power to agents with at least one of two goals in mind – efficiency and credibility – however; the delegation literature suggests that the successful delivery of them implies very different levels of principal control over their agent. For policy efficiency a close alignment between principal and agent would be expected. Whereas confidence that a policy is likely to continue in the long-term and is therefore credible requires that the agent remains aloof from the political whirl. This article is centrally concerned with the implications of an epistemic community's proximity to decision-makers for the advice they give and delegation goals they are able to satisfy. This is explored by comparing the contributions made by two scientific working groups upon whom the European Commission relied in the formulation of policy on growth promoters.

These committees are conceptualized as two distinct types of epistemic community distinguished according to where they originate in relation to the policy process. It is postulated that the degree of 'relational distance' (Black, 1976 in Hood et al, 1999) between epistemic agents and their decision-making principals. Two main hypotheses are explored concerning the impact of relational distance upon the delivery of efficiency and policy credibility. First, 'governmental' epistemic communities, which have been deliberately selected and crafted by decision-makers, will offer more efficient delegations than their 'evolutionary' counterparts whose existence as collective entities pre-dates their entry to the policy arena. Second, 'evolutionary' epistemic agents' greater independence from decision-makers makes them better able to secure credibility for a policy than their 'governmental' colleagues.

The paper reports two key findings. The hypothesis on efficiency is confirmed. The control the principal was able to exert over the governmental epistemic community's composition and mandate set the limits of its research agenda and resulted in the close interpretative 'fit' and a delegation of optimal efficiency. The hypothesis on credibility, however, was not confirmed. Despite its high level of independence, the evolutionary epistemic community did not secure the confidence of the wider European audience. Indeed, the governmental community, though more susceptible to claims of political bias, secured a high level of confidence in its policy advice. The findings challenge the orthodox view of policy credibility as primarily a function of agent independence by suggesting

that in issues where a social consensus exists policy credibility a function of the resonance of agent's advice with the wider social audience.

The paper concludes with a discussion of the implications of these findings for the epistemic communities' research agenda and the delegation literature.

INTRODUCTION

Decision-makers delegate power to agents with at least one of two objectives in mind – efficiency and credibility (Majone, 2001, 2005: chapter 4). The article's point of departure is this: epistemic communities' ability to create knowledge which is at once socially relevant and imbued with scientific credibility gives these actors the unique potential to deliver on both goals. Principal-agent analysis is used to illuminate what epistemic communities offer decision-makers in the European Union (EU) attempting to both deliver and justify their policy preference to ban the use of hormone growth promoters and the import of hormone treated meat.

Decision-makers may seek efficiency and credibility simultaneously; however, the delegation literature suggests that the successful delivery of each implies very different levels of principal control over their agent. For policy efficiency a close alignment between principal and agent would be expected. Whereas societal confidence that a policy is likely to continue in the long-term and is therefore credible requires that the agent remains aloof from the political whirl. Thus, the article is centrally concerned with the implications of an epistemic community's proximity to decision-makers for the advice they give and delegation goals they are able to satisfy. This is explored comparing the contributions made by two scientific working groups, first in the 1980s and then again in the 1990s, upon whom the European Commission (CEU) relied in the formulation of policy on growth promoters.

These committees are conceptualised as two distinct types of epistemic community distinguished according to where they originate in relation to their principals. The degree of 'relational distance' (Black, 1976 in Hood et al, 1999) between an epistemic agent and its decision-making principal determines its propensity toward the delivery of efficiency and credibility. Two main postulates are tested. First, 'governmental' epistemic communities which have been deliberately selected and crafted by decision-makers will offer more efficient

delegations than their 'evolutionary' counterparts whose existence as collective entities pre-dates their entry to the policy arena. Second, 'evolutionary' agents' greater independence from decision-makers makes them better able to secure credibility for a policy than their 'governmental' colleagues.

Analysis confirms expectations that governmental epistemic communities produce more efficient delegations than their evolutionary counterparts. The hypothesis on policy credibility, however, is not confirmed. Findings suggest that the additional dimension of policy credibility emphasising the degree of value alignment between the expert agents and wider society warrants attention. Despite being untainted by political bias, the evolutionary epistemic community did not produce policy proposals which enjoyed credibility. By contrast, the governmental community's close relationship to the political principal did little to compromise its ability to deliver credibility to the EU stance. This latter agent succeeded in winning the confidence of the wider European audience – represented by the European Parliament (EP) and member states – because its policy advice was socially resonant.

The research presented here makes four analytical and empirical contributions. The article is situated within the growing EU literature deploying agency analysis (for example, Pollack, 1997 and Franchino, 2002 on the Commission; Ballman et al, 2002 on comitology; Egan, 1998 on standardization bodies and Blom-hansen, 2005 on cohesion policy). Despite this healthy corpus of work, less attention has been given to the application of agency logic to the advisory relationships between experts and decision-makers in the Community (Elgie, 2002 on the European Central Bank), although a growing interest in the framework in science and public policy studies suggests that cross over to the EU literature is only a matter of time (for recent application see Braun and Guston, 2003). This piece contributes to this trend offering an agency analysis of delegations to those groups of experts most numerous[1] in the Community whose role in policy

---

[1] In 1999 an internal Commission document numbered these committees at nearly 800 (CEU, 1999).

formulation remains surprisingly opaque – Commission advisory committees (for the beginnings of a literature see Christiansen and Kirchner, 2000; Rhinard, 2002).

Related to this, the article's second contribution is to develop and test hypotheses on credibility delegations. While the translation of efficiency studies of industrial organizations into political science has reached an advanced stage[2], the application of the monetary literature on policy credibility to theoretical and empirical questions in political science has only just begun.

The third contribution concerns the exploration of the epistemic community concept itself (Haas, 1992a). Despite being the conceptual name to drop in studies of technical issues in comparative politics and International Relations (IR) alike, very little work has been done to interrogate and develop the concept theoretically[3]. The use of agency analysis realises much of the untapped potential of the concept by moving away from simply examining experts role in filling knowledge deficits to viewing them as policy actors engaged in politicised relationships with decision-makers. In this way analysis attends to the potential political impacts of these communities can have and the instrumental uses to which their reputations and knowledge can be put.

The paper's final contribution is an empirical one. Drawing upon in-depth interviews with scientists and Community officials, the less well known side of the high profile hormone growth promoter controversy concerning the construction of paradigms and use of experts is discussed.

The remainder of the article is structured as follows. Section one outlines the epistemic community concept and addresses why and how decision-makers delegate to them. Building upon insights from the epistemic communities and delegation literatures, section two delineates detailed hypotheses on what each

---

[2] See Bauer (2002) for a review and critical evaluation of agency analyses application in political science.
[3] For exceptions to this see Dunlop (2000); Radaelli (1999) and Zito (2001).

community type offers decision-making principals in terms of efficiency and credibility. The third section is given over to case study evidence with section four housing the analysis. The conclusion discusses the results of the hypotheses tests and outlines the article's wider implications for both the delegation and epistemic communities' literatures.

SECTION 1: EPISTEMIC COMMUNITIES AND DECISION-MAKERS: A TALE OF TWO DELEGATIONS

Before dissecting the delegation goals of efficiency and credibility and the possible contribution epistemic communities make toward their achievement, we should first be clear about what actually constitutes an epistemic community and what they can offer decision-makers. An epistemic community is a group of professionals with a legitimate claim to highly specified policy relevant knowledge. Such communities embody a belief system around an issue which contains four knowledge elements:

> [1] a shared set of normative and principled beliefs, which provide a value-based rationale for the social action of community members; [2] shared causal beliefs, which are derived from their analysis of practices leading or contributing to a central set of problems in their domain and which then serve as the basis for elucidating the multiple linkages between possible policy actions and desired outcomes; [3] shared notions of validity – that is, intersubjective, internally defined criteria for weighing and validating knowledge in the domain of their expertise; and [4] a common policy enterprise – that is, a set of common practices associated with a set of problems to which their professional competence is directed, presumably out of the conviction that human welfare will be enhanced as a consequence (Haas, 1992a: 3).

The epistemic communities framework offers an essentially anthropomorphic conceptualisation of knowledge (Radaelli, 1997: 169) where those who carry the ideas are central to analysis; 'ideas would be sterile without carriers' (Haas', 1992a: 27). Thus, to identify an epistemic community is to identify a set of actors with the professional and social stature to make authoritative claims on a politically pertinent, socially relevant issue of the day. These claims find expression through a blend of substantive knowledge (elements 2 and 3 of

Haas's definition) and socio-political convictions (elements 1 and 4) resulting in decision-maker friendly 'interpretative knowledge' (Haas, 1992a).

Decision-makers undoubtedly have access to a huge amount of information; however policy-oriented knowledge produced by authoritative actors is a scarce resource. By virtue of the useable interpretative knowledge they produce, epistemic communities possess a rare product which decision-makers need to transcend the two classic dilemmas of efficiency and credibility. The article's starting point is that, decision-makers have significant incentives to institutionalise these actors in bureaucracies – usually in the form of advisory committees. Given this, the relationships between these actors are conceptualised as being between principal and agent.

Before producing hypotheses of how epistemic communities contribute to these two goals, the view that decision-makers and epistemic communities can be bound together in delegation relationships requires elaboration. Three particular issues require attention: when decision-makers delegate to epistemic communities; the type of agents these collectives represent; and finally, the nature of power that is delegated to what are essentially advisory bodies.

First we must establish under what conditions would we expect decision-makers to depend upon an epistemic community? Identifying what motivates decision-makers to delegate in the first place tells us about the strength and longevity of principals' commitment to their relationship with an epistemic community. Decision-makers have a variety of reasons for consulting epistemic communities some more political than others (Haas, 1992a: 15). Where substantive and political uncertainty is high experts can delineate cause-and-effect relationships and help define states' self interests. In such cases, we would expect the delegation to be short-lived – after an initial peak principals' dependence on an epistemic agent is expected to decline as substantive enlightenment progresses and political preferences become clearer.

8

However, scope conditions exist which demand less one-sided, transitory relationships. Decision-makers also require epistemic communities for instrumental purposes to help formulate policies to legitimate fixed political preferences (Haas, 1992a: 15). Such delegations are particularly common where issues are marked by distributional consequences that put pressure on decision-makers to negotiate high levels of conflict in order to deliver policy commitments to favoured groups or to justify themselves to losing constituencies. Here, epistemic communities and their knowledge product become transformed into political tools which principals need to shut down unfavourable policy options or to lend credibility to their commitment to a policy stance. This article explores delegation through such a politicised case.

In examining the kind of agents epistemic communities represent we need to know about these groups' commitment to their policy role. Given that these experts are not employed by governments, why would epistemic actors accept a contract to offer advice to principals who are not legally bound to follow it? What incentives do epistemic communities have to become agents?

The answers lie in the two sides of these actors' belief systems which suggest that epistemic communities do not require legal or direct pecuniary incentives to be interested parties. Their substantive authority ensures that as creators of knowledge they are essentially 'residual claimants' (Alchian and Demsetz, 1972); long-term shareholders in a product. By dint of their socio-political beliefs these are experts who *want* rather than need to be in the policy arena. These are self-selecting policy actors driven by a desire that certain normative and policy beliefs are taken on board. Thus the voluntary status of these advisory bodies should not be mistaken as synonymous with partial commitment. Indeed, the strength of their commitment is such that, once granted entry to the decision-making arena, withdrawal is likely only if a community faces substantive challenges – i.e.

9

anomalous evidence – which demand a re-consideration or revision of its world-view (Haas, 1992a: 18).

Finally, we must get a sense of the type of power that can be ceded to epistemic communities. These are not full delegations; epistemic communities' advisory status ensures that these experts will never be the ultimate decision-makers. In theory epistemic communities will always be on the receiving end of a contingent contract where the principal controls the final outcome and retains the ability to veto advice that does not 'fit' with their preferences. However, the power balance between principal and agent is more nuanced than this legalistic interpretation suggests[4]. While accepting the principal's power of *ultima ratio*, in several ways the decision-maker/epistemic community relationship does resemble the incomplete contract model principal-agent analysis aims to illuminate.

First, the specialised good epistemic communities have at their disposal gives these agents a substantial informational advantage. When it comes to highly politicised issues, this information can secure substantial political property rights for epistemic agents. Second, the connotations of neutrality and objectivity associated with these policy actors and the knowledge production process ensures that, in practice, decision-makers must at least pay lip service to epistemic agents' 'truths'. Finally, by institutionalising an epistemic community in a bureaucracy, principals effectively confer authority on one set of actors investing in one paradigm at the expense of another. Breaking these ties would, at the very least, necessitate the costly process of recruiting new epistemic agents from a finite supply.

How might delegations to epistemic communities deliver efficient advice and credible policies to principals? The answer to this lies in principals' ability to identify, structure and manage the unique blend of the socio-political values and substantive knowledge embodied by the two distinct sides of an epistemic

---

[4] See Horn, 1995 for a more detailed discussion of the delegation scale between 0-1.

community's belief system. Taking efficiency first, it is well known from the principal-agent literature that decision-makers delegate authority for policy advice to agents with greater substantive expertise than their own (Sappington, 1991). Information inputs alone however will not secure efficiency. Agents' socio-political beliefs are key and, crudely stated, a delegation is assumed to be efficient where the advice delivered by the agent contributes to the satisfaction of the principal's preferences.

An epistemic community's normative convictions and policy ideas represent key assets in this pursuit of efficiency. Where an epistemic community is selected whose socio-political beliefs on an issue are, broadly speaking, aligned or can be engineered to 'fit' with those held by decision-makers we can expect the knowledge they produce – i.e. their interpretative knowledge – to be geared toward the delivery of decision-makers' policy preferences.

Political scientists have been reminded recently that decision-makers also delegate to enhance the credibility of their policy commitments (Majone, 1997, 2001, 2005[5]). Rooted in monetary policy analysis, the credibility challenge decision-makers face is to convince their own principals – the electorate – that their economic policies are time consistent (Kydland and Prescott, 1977). Governments will only win citizen confidence by surrendering control to reputable expert agents operating in independent central banks whose commitment to conservative economic targets – on low inflation, for example – cannot be politically tainted.

This 'orthodox' interpretation of credibility treats citizen confidence as a function of process-oriented factors associated with the central bank and bankers (Hayo, 1998). Banker's reputations, transparency in how they reach their economic targets and the independence of the central bank itself insulate monetary policy

---

[5] The agency approach to policy credibility followed here should not be read as a direct challenge to Majone's thesis on the fiduciary logic. Rather, further empirical work is required to investigate agents as trustees and in particular to establish whether this is a special type of agent (for cases of divergent preferences) or a new species of actor entirely.

from political whims (Barro and Gordon, 1983). Agents' independence from their principals is a means to the end of policy credibility; 'an agent who simply carries out the principal's directives cannot enhance the latter's credibility' (Majone, 2001: 104). It is independence that stymies expedient decision-makers and enables central bankers to 'lock in' political successors to fiscal decisions and so promote policy consistency over the long-term. Epistemic communities' production of professionally validated knowledge suggests that, by definition, these actors have the potential to secure policy credibility on such terms.

This emphasis on the primacy of reputation and independent process has been readily translated to political science accounts of policy credibility. However, some economists question the extent to which the exogeneity of central banks and the experts therein tells the full policy credibility story and instead highlight the role played by social consensus on inflation for central bank design and low inflation targets (Forder, 1996; Hayo, 1998, McCallum, 1995). The best known example of this account of credibility is that the high level of citizen confidence in post-war German economic policy was, in part, a function of the fact that Bundesbank policy reflected the population's 'deep-rooted' aversion to high inflation and preference for price stability (Bofinger, 1992; Da Haan and van't Hag, 1995; Treutler, 1993).

In this view, to analyse policy credibility purely in terms of the relationship between principal-agent is to misses a key point. In policy issues and contexts where society holds a clear preference or set of values, an agent's autonomy from the political bias may not be the primary source of policy credibility. Accordingly, this study tests hypotheses based upon the orthodox model with two goals in mind; first, to ascertain the role of RD between principal and agent and second, the significance in this case of attitudinal alignment between agent and society.

SECTION 2: **DELEGATION SATISFACTION ACROSS EVOLUTIONARY AND GOVERNMENTAL EPISTEMIC COMMUNITIES: THE HYPOTHESES**

Decision-makers' motivations for delegating knowledge production can be the result of a desire for both policy efficiency and credibility and should not necessarily be seen as mutually exclusive goals (Franchino, 2002: 690). However, the literature positions optimal delegations of efficiency and credibility at opposing ends of a continuum running between strong and weak principal control. This leaves it open to question whether or not, despite their unique blend of substantive credibility and their potential for socio-political efficiency, a single epistemic community could satisfy both goals simultaneously. In a bid to ascertain the extent to which such dual satisfaction might be possible and to uncover the role of principal control / agent autonomy in the delivery of these goals, the article compares the satisfaction delivered by two types of epistemic community distinguished by their proximity to decision-makers.

To convert the two main theses on delegation into concrete hypotheses we need to uncover more about what might make one epistemic community fundamentally different from another. What is it about epistemic communities themselves and their relationship with decision-makers and the political context in which they are situated that determines the extent to which they are able to offer advice which delivers decision-makers' preferences in an efficient manner or lend a policy credibility for the longer term? All epistemic communities represent a blend of Epstein and O'Halloran's internal and external delegation types (2006: 83-4) where, for a time, decision-makers seek advice from experts they institutionalise in key bureaucratic positions. Not all epistemic communities, however, are the same. Though studies identifying epistemic communities reveal an array of variation in composition, the central postulate here is that where an epistemic community originates in relation to its decision-making principals determines its propensity toward the delivery of efficiency and credibility.

A review of the epistemic communities' literature reveals a fault line in the origins of epistemic communities. The two community types found on either side of the divide are distinguished by their degree of 'relational distance' (RD) from decision-makers. Drawn from Black's work in law (1976) and readily applied in public administration (notably by Hood et al, 1999 in their discussion of regulatory formality), the concept concerns the extent to which people participate in one another's lives making it a useful shorthand with which to capture agent autonomy and principal control.

This article deploys principal-agent modelling to explore the relationship between decision-makers and the two epistemic community types. Agency analyses focus upon micro-level relationships means it sits well with the epistemic communities concept enabling the construction of two base hypotheses relating each type of epistemic community to one delegation: H_A on efficiency and H_B on credibility. The central idea underpinning this paper is that the degree of RD determines where an epistemic agent sits on the control-autonomy continuum. It is proposed that the different levels of RD to their principals each of the two agent types better disposed toward one delegation goal than the other.

The first epistemic community type concern groups of experts assembled in the policy arena and are marked by the low RD they have from the decision-making principals who have brought them together. Decision-makers who are able to assemble such committees know their own policy preferences. The membership of 'governmental' epistemic communities is vetted and engineered by political principals to produce the optimal 'fit' with their policy goal. These groups are often highly heterogeneous and the experts involved are unlikely to have strong professional ties to one another. The absence of a collective history means that almost by definition governmental amalgams lack a purpose beyond the task set to them by their principals. While the content of governmental epistemic communities' belief systems remains the sum of the experts' convictions and knowledge these actors rely on the principals that created them to help guide

their focus (for example, the Delors' committee formulated to prepare an EMU concept, Verdun 1999).

The second community types are those with a high degree of autonomy from the decision-makers they advise. Termed here 'evolutionary' epistemic communities these groups have developed organically over time within professional arenas and through their members own networks (for example, Adler, 1992; Haas, 1992b). Though representatives of these established networks can, for a time, become institutionalised in bureaucratic positions their movement into the political arena is *incidental* to their existence. Such agents, and the paradigms of thought they represent, had a life before political principals' intervention and are expected to have one after it.
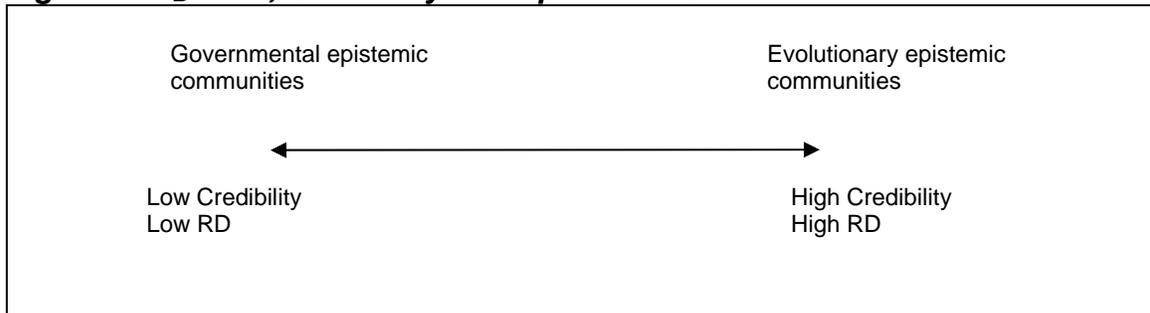
The Hypotheses

The central part of the efficiency challenge for principals is to structure delegations in a way that guards against agent opportunism or 'moral hazard' (Homström, 1979). It is postulated that the low RD which marks governmental communities' relationships with decision-makers makes them more likely to engage with an issue from the principal's viewpoint than their evolutionary counterparts whose independently formed belief systems will be more entrenched and less adaptable to decision-makers' agendas. On this basis it is suggested that *governmental epistemic communities provide more efficient delegations than evolutionary epistemic communities* (H_A).

Figure 1: H_A – RD, Efficiency and Epistemic Communities

Evolutionary epistemic
communities

Governmental epistemic
communities

Low Efficiency
High RD

High Efficiency
Low RD
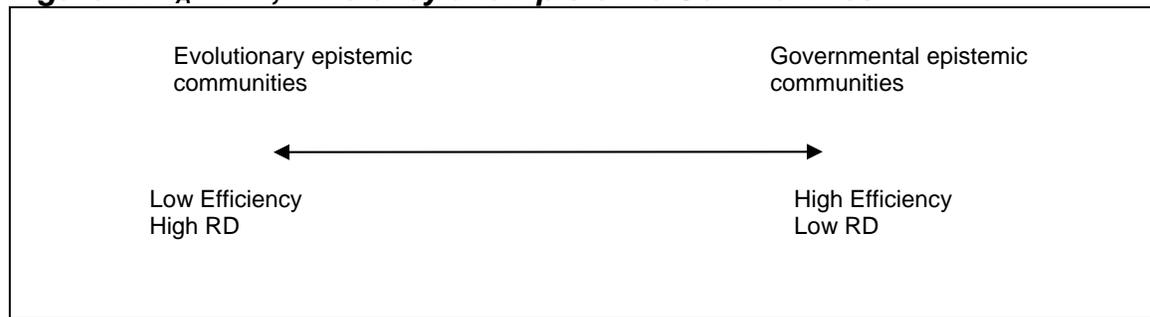
In the orthodox view, to secure policy credibility agents must operate free from political interference. It is postulated that, because they enter the policy process with entrenched belief systems and established collective agendas, evolutionary epistemic communities will been less susceptible to principal bias than the newly formed governmental communities. This leads to the expectation that *evolutionary communities would score higher on policy credibility than their governmental counterparts* (H$_B$).

Figure 2: H$_B$ – RD, Credibility and Epistemic Communities

For analytical purposes, the two main hypotheses are each broken down into postulates based upon two themes of *ex ante* principal control: the agents who are selected and the contractual terms under which agents produce advice.

Efficiency Hypotheses

- **H$_{A1}$ Efficient Selection:** Principals will achieve a higher degree of preference alignment with governmental epistemic communities whose membership they can engineer than with their evolutionary counterparts whose membership is established before entry to the policy arena.

- **H$_{A2}$ Efficient Contracts:** It is anticipated that, governmental epistemic communities' low RD from decision-makers will make them less resistant to principals' involvement in the production of knowledge that their evolutionary counterparts.

Credibility Hypotheses

16

- **H$_{B1}$ Credible Selection:** It is expected that evolutionary epistemic communities' higher RD and detachment from decision-makers will make them more likely to hold an independent line in the face of decision-maker pressure and so deliver policy credibility.

- **H$_{B2}$ Credible Contracts:** High RD makes principal intercession in evolutionary epistemic communities' production of knowledge less possible than with their governmental counterparts. Such independence makes evolutionary communities more likely to offer advice which will be seen as time-consistent than governmental ones.

SECTION 3: CASE STUDY – THE EUROPEAN HORMONES 'SAGA'

Case Selection and Research Design

To test these hypotheses, the article examines the role of the two epistemic communities that advised the European Commission on the safety of hormone growth promoters in meat, first in the 1980s and then again in the 1990s. Analysis is informed and belief systems identified through interviews conducted by the author with members of the two bodies and decision-makers from the Community[6]. This is accompanied by the customary analysis of documentary evidence – predominately scientific reports, legislation, internal reports and government publications.

The hormones case has been used to explore the patterns of interaction and control implied by the two different epistemic community types and their impact on efficiency and policy credibility for three reasons. First, the two epistemic community types are present. Second, it is a case of delegation to epistemic agents where the political stakes for the principal were high. Finally, it satisfies the pre-condition of utility models that actors' preferences are stable. Both efficiency and credibility challenges remained fundamentally the same across the two decades of the saga. On efficiency, the Commission delegated in search of

---

[6] The author conducted 38 semi-structured interviews with active and retired scientists, civil servants, politicians and interest group actors. In most cases anonymity was requested.

information – scientific evidence – sufficient to justify a ban on growth promoters to a few dissenting member states[7] and trading partners. On credibility, the motive was to persuade the domestic audience – the majority of member states and the European Parliament – of the Commission's long-term and wider commitment to consumer protection. It was with these dual challenges in mind that two different types of epistemic community were called upon for advice.

Delegation 1: The Evolutionary Epistemic Community

As the descriptor suggests, the hormones 'saga' as it was tagged in Brussels was not a short-lived affair – surfacing first in the late 1970s and continuing until the turn of the century. In 1981, following high profile public health scares in Italy triggered by the discovery of residues of the known carcinogen diethylstilbestrol (DES) in baby food and veal served in school meals, legislation across the Community was harmonised to outlaw the administration of this compound and other such synthetic estrogens to livestock for fattening purposes[8]. This move met with no resistance – these compounds known as stilbenes had been accepted as complete carcinogens by the scientific world for nearly a decade.

With consumer concern pushing the veal market to the brink of collapse and the majority of EU producers liable to benefit from a ban, DG Agriculture had moved to ban all other hormones used for non-therapeutic purposes[9]. The draft regulation was put on hold by three member states[10] where the use of growth promoters was prevalent and disquiet from the Community's two largest beef trade partners the United States (US) and Canada. To address this dissent, the Commission launched a scientific investigation into the safety of five hormones in question to provide experts with an opportunity to make hormones acceptable.

---

[7] It should be noted that only the UK was consistent in its dissent against the ban.
[8] These were: three naturally occurring or endogenous hormones – 17ß-estradiol; progesterone; testosterone and two exogenous, synthetic compounds – trenbolone acaetate (TBA) and zeranol.
[9] COM(80)614.
[10] Belgium, Ireland and the UK.

DG Agriculture requested that scientists from its Scientific Veterinary Committee (SVC) construct a short-life working group. With international veterinary experts on hormones already serving on this committee and further eminent specialists in the field invited to join the hormones group, DG Agriculture had delegated to an archetypal evolutionary epistemic community. The Scientific Group on Anabolic Agents in Animal Production chaired by the UK SVC representative Professor Eric Lamming was a 'who's who' of experts on the use of anabolic and hormone growth promoters in agriculture[11]. The 'Lamming committee', as it was known, were asked to report on 'any harmful effects to health' induced by growth promoter use. As academic veterinary scientists, they interpreted this as an empirical research puzzle of pure science and research dominated by quantitative laboratory studies.

These methodological commitments are reflected in the group's interim report of 1982 which advised that while intrinsically carcinogenic the fact that the three naturally occurring hormones exist in humans and should be present in meat only low levels ensured that they posed no additional carcinogenic risk. While noting that 'vulnerable populations' for whom any additional doses of hormones could prove problematic might be at increased risk and that good animal husbandry practices were required if the use of growth promoters was to be laboratory safe, the scientists' normative commitment to strict empiricism led them to the view that such risks did not warrant the policy of prohibition favoured by the agent. Thus, the degree of harm done in the real world of misuse upon which the principal sought advice was not part of the scientists' analyses.

The high RD between this evolutionary agent and DG Agriculture not only revealed itself in the agents' substantive focus. In procedural terms, the principal could exercise no control over the research timetable. Lamming was unequivocal that the only limits to which the committee could submit were those dictated by

---

[11] Interview with working group member.

the evidence gathering process and the data gaps on the two synthetic compounds were such that the research would continue indefinitely.

The scientists were off the political pace. The increasing power of the consumer and environmental lobbies around the EP left the hormones issue as a test case for similar 'trans-scientific' (Weinberg, 1972) dilemmas which were appearing on the supranational agenda notably biotechnology. Twinned with domestic pressure, key member states such as France had lost patience and were considering domestic legislation outlawing hormones leaving the agent producing evidence with little policy relevance and the principal under fire for letting its work continue[12]. By the time scientists considered the evidence base was sufficient to report back, DG Agriculture was moving to prohibit the use of the five hormones and to stop third country imports of hormone treated beef. It had taken no further advice from its scientific group. On the verge of formally presenting their final report their work had been suspended. The close-out meeting was cancelled and the report neither formally signed-off nor published by the Commission, indeed the working group remains in prorogation.

Professor Lamming presented the final report at the British Veterinary Association (BVA) conference in 1987. The publication involved each scientist who signed-up breaking their confidentiality agreement by which they were legally bound[13]. This reaction to excision from their advisory role illustrates the strength of this evolutionary community's normative and policy beliefs that the laboratory evidence which found all five growth promoters to be safe for human consumption should be translated directly into policy. Though the decision was not taken lightly, it was ultimately 'non-negotiable'[14] given their loyalty to their wider disciplinary audience. To withhold data was viewed as an academic crime which would have left the research process incomplete.

---

[12] Interview with working group member; DG Agriculture official.
[13] 16 of the 22 members felt able to put their names to the report, though all endorsed its conclusions.
[14] Interview with working group member.

Delegation 2: The Governmental Epistemic Community

In the absence of any quantitative risk assessment as justification, the import ban was characterized as an illegal trade barrier by the US and Canada and the EU faced a 100% *ad valorem* duty on goods to the value of $93million. Negotiations to resolve the dispute eventually reached the World Trade Organization (WTO) Dispute Settlement Body (DSB) in March 1996. Under the WTO's Sanitary and Phytosanitary Measures (SPS) Agreement, members are free to choose a higher level of protection than the norm – such as the ban on growth promoters – however such measures must be justified on a scientific basis (Article 2.2). The EU's direct contravention of what was a stable international scientific consensus on growth promoters' safety gave the complainants watertight case. The WTO ruled accordingly.

However an unexpected concession was made. While upholding the DSB's main ruling, in January 1998 the WTO Appellate Body (AB) accepted that the use of a precautionary approach had been an 'act of good faith' (WTO/AB, 1997: paragraph 194). The EU was given leave to provide quantitative scientific assessment of the risk of the individual hormones as residues in meat. Significantly, the AB ruling reminded parties that higher sanitary measures could be supported by non-scientific factors in risk assessment – such as 'relevant evidence arising from difficulties of control, inspection and enforcement' (WTO/AB, 1997: paragraph 205) which take into account the 'real world' context 'where people live and work and die' (WTO/AB, 1997: paragraph 187). This blurring of risk assessment with more policy oriented risk management issues was accompanied by the note that evidence need not come from the scientific mainstream (WTO/AB, 1997: paragraph 194).

This opened the door for the EU's precautionary interpretation of the safety of growth promoters. With over a year to produce the new assessments, the Commission's newly empowered directorate for Consumer Protection and Public Health – DG Sanco – launched a programme of research ranging from

experimental studies to those concerning management oriented issues of control and abuse. The findings of these and an evaluation of the existing data was to be delivered by a new working group of experts. As with the Lamming committee, the nucleus of this group was scientists already advising DG Sanco or fulfilled similar roles in their member state administrations. However, the Scientific Committee on Veterinary Measures Related to Public Health (SCVPH) growth promoters sub group, to give it its full title, was a consciously crafted governmental epistemic agent.

To understand the means through which DG Sanco was able to select scientists whom it knew shared its socio-political agenda some contextual detail is required. The SCVPH sub group was established in the wake of the Commission's post-BSE reorganization. Under instruction by member states and the EP, the centerpiece of this had been the movement to scientific advisory committees on matters of food safety from DG Agriculture to DG Sanco. The scientific committees were reformulated and their membership recruited and vetted by DG Sanco. Operating under the guiding principle that decision-makers should have access to high quality scientific evidence which looked primarily to the concerns of consumers rather than producers, those scientists opposed to a precautionary approach to public health in principle would be unlikely to self-select to join these committees or gain entry.

The composition of the SCVPH sub group on growth promoters reflected this new approach to scientific evidence gathering. In contrast to the Lamming committee, this was not a microcosm of experts who had worked on the growth promoters issue for a long time. Toxicologists worked alongside veterinary public health experts and animal welfare scholars to examine the evidence on growth promoters' safety from all angles. This multi-disciplinarity may have been an incentive to scientists to join the group[15] however, the fact that committee of scientists knew little of each other's work and discipline meant that this group did

---

[15] Two senior sub group members commented that the lack of familiarity within the group opened up previously untapped networks to the individual scientists.

not have their own specific substantive research agenda to pursue. Rather, they were bound by a more general sociopolitical commitment to risk assessment as a task attributed to science from society.

Following the mandate laid down by DG Sanco, the scientists provided advice on 'the potential for adverse effects to human health arising from administration of the six hormones used individually or in combinations for animal growth promotion' (SCVPH, 1999) within the AB's time limits and overseen by the main SCVPH committee. The sub group concluded that all six hormones posed unacceptable risks to consumer health. The 'monolithic' (SCVPH, 1999) scientific evidence was characterized as incomplete – a rejection that was contextualized within hormone misuse and export control failures in the 'real world context' (SCVPH, 1999) where humans have different levels of susceptibility and also against the wider backdrop of increased hormone associated diseases in the post-war period. As a result of the precautionary socio-political interpretative adopted, the governmental epistemic community placed the onus upon the complainants to prove a negative – that unknown additional risks were not unacceptable.

The SCVPH committee has twice reaffirmed its advice to ban (in May 2000 and April 2002) in response to contrary scientific opinions from the UK Veterinary Products Committee (VPC) and the international Codex Alimentarius.

SECTION 4: ANALYSIS

This section discusses each of the hypotheses in turn. A reminder of the postulates and summary of results can be found in table 1 below.

Table 1: Summary of Hypotheses and Results

Hypothesis	Test result
H_{A1} *principals will achieve a higher degree of preference alignment with governmental epistemic communities whose membership they can engineer than with their evolutionary*	confirmed

counterparts whose membership is established before entry to the policy arena.	
H_{A2} *governmental epistemic communities' low RD from decision-makers will make them less resistant to principals' involvement in the production of knowledge that their evolutionary counterparts.*	confirmed
H_{B1} *evolutionary epistemic communities' higher RD and detachment from decision-makers will make them more likely to hold an independent line in the face of decision-maker pressure and so deliver policy credibility.*	disconfirmed
H_{B2} *high RD makes principal intercession in evolutionary epistemic communities' production of knowledge less possible than with their governmental counterparts. Such independence makes evolutionary communities more likely to offer advice which will be seen as time-consistent than governmental ones.*	disconfirmed

Results on Efficiency

H_{A1} **Efficient Selection:** The case study confirms that principals can achieve a higher degree of preference alignment with governmental epistemic communities than with evolutionary communities and in doing so increase the efficiency of the delegation.

Delegation to the Lamming committee was clearly a case of adverse selection. Inexperienced in dealing with politicised scientific issues and reluctant to delegate in the first place, DG Agriculture turned in-house to an established community of veterinary scientists whose belief system on the primacy of empirical evidence was entirely incompatible with the principal's policy preference to prohibit. Though selection error was the fundamental cause of inefficiency, it was the agent's 'type' that made it impossible for the principal to salvage anything from the delegation.

The fact that DG Agriculture could not resolve its conflict of interest with the Lamming committee illustrates to facets of evolutionary epistemic agents which can exacerbate adverse selection. First, the collective and entrenched nature of these agent's belief systems makes for opaque socio-political preferences. In this case, the DG Agriculture principal did not gain a clear view of its agent's

empiricist agenda until after the interim report was published by which time it was too late for the principal to shut down its work. Second, the Lamming case raises the prospect that as RD increases so may an agent's attachment to its belief system frustrating compromise between principal and agent.

By the time the SCVPH sub group was formed, macro-learning across the Commission regarding the substantive implications of 'who' delivers advice on trans-scientific issues ensured that DG Sanco exercised close control over agent selection. Through this social engineering, the political principal had created an agent whose preferences on growth promoters engaged with the real world context and non-scientific factors. This practically eliminated the risk that DG Sanco would receive advice which ran contrary to its policy agenda[16].

This community's type and low RD again exaggerated the efficiency yielded. The construction of an agent by vetting members as individuals as opposed to a ready-made collective reduced the extent of hidden information in the socio-political preferences of the resultant community. Allied to this, the group's lack of collective history and the heterogeneity its membership meant the absence of the high level of social capital which had ensured a deeply entrenched socio-political agenda in its evolutionary predecessor. Rather, this second group's members' broad socio-political commitment to consumer protection were given purpose and activated through their interaction with DG Sanco.

H$_{A2}$ Efficient Contracts: The hormones case confirms that governmental epistemic communities' low RD from decision-makers makes them less resistant to principals' involvement in the production of knowledge than their evolutionary counterparts. Findings suggest that efficiency is maximised further by the low levels of monitoring required for governmental epistemic communities.

---

[16] See Lipsky and Olson's (1977) classic study *Commission Politics* for more on decision-makers' attempts at consensus mobilization through the control committee composition.

DG Sanco's creation of the sub group enabled it to engage with an epistemic agent as a partner in knowledge production and in so doing boost their efficiency gains. While taking advice from its scientists on the research gaps which needed to be plugged, DG Sanco kept control over the direction of knowledge production binding the group to a high specified mandate. This assumption of a lead role owed much to the 'private information' (Maskin and Tirole, 1990) DG Sanco held on growth promoters – the result of a decade and a half of policy learning.

Through this enhanced understanding of the issue, DG Sanco was able to help navigate knowledge production because of the type of epistemic community to which it had created. The sub group's lack of collective history or fixed research focus made the mandate an expected and desirable piece of direction. An almost tailor-made knowledge product was the result.

Success in selection and the close alignment between principal and agent belief systems this implies had, as analysts predict, downgraded the importance of the monitoring method (Brehm and Gates, 1999). With slippage unlikely, DG Sanco took a backseat delegating oversight to a committee of the sub group's peers. Indeed, the membership overlap between the main committee and the hormones group meant that in effect the SCVPH's role was to act more as sounding board than manager[17]. This was a highly efficient move; simultaneously externalising monitoring costs, upholding scientific sovereignty and ensuring that group members experienced enough 'agency slack' to feel politically untainted.

In contrast, when Lamming and his committee members entered the policy arena they already had control of knowledge production. This dominance was in part a function of the open question which the group was set and lack of guidance on DG Agriculture's policy stance which enabled the scientists to pursue their own empirical veterinary agenda in the first place. More significantly, the committee's evolutionary character ensured that this agent perceived the process of

---

[17] Interview with sub-group and SCVPH member.

knowledge production as its own exclusive domain. Its research focus was fixed. As the long-established international experts on growth promoters, the group's role as policy adviser was 'by the way' of the business of paradigm building.

The 'existential stability' (Rhodes, 1997) of this evolutionary epistemic community and its research agenda left the principal shut out of knowledge production and the recipient of advice which was unfit for their purposes. The committee's substantive self-sufficiency also frustrated the principal's attempt to monitor, manage and close down its agent's work. This unwillingness to adapt to its principal's agenda was not a political strategy on the part of this group. Based upon this agent's loyalty to laboratory based empirical risk assessment, such resistance could be termed 'principled shirking'[18]. Intentions aside, what the working group's inability to compromise illustrates that, where the disjuncture between principal and agent is extreme, the risk of moral hazard posed by evolutionary epistemic communities can be such that the design effective *ex ante* control mechanisms or *ex post* sanctions impossible.

Results on Credibility

H$_{B1}$ Credible Selection: While the findings show that evolutionary epistemic communities' detachment from decision-makers makes them more likely to hold an independent line than their governmental counterparts, a corresponding increase in policy credibility was not the result. The findings suggest that, alone, the reputation and independent operating of the evolutionary epistemic community were insufficient to secure the confidence of wider society in the form of member states and the EP.

Both communities were composed of scientists in possession of the common 'vicarious selectors' (Campbell, 1974) of professional credibility and, with these, make claim to being essentially apolitical. As the creators of an international consensus and setters of a research agenda, the Lamming committee

---

[18] For more on the idea of 'principled agents' see Di Iulio, 1994 and Besley, 2006.

undoubtedly had greater independence from political bias. This did not, however, enable them to deliver greater policy credibility than their governmental successors. The prevailing preference to ban all hormones amongst the Commission's 'electorate' – i.e. the member states and EP – rendered the Lamming group's work incredible. It also left DG Agriculture open to charges from consumer groups and the EP in particular that it was not fully committed to consumer protection and the policy to ban.

The fact that it was the governmental epistemic community which won the confidence of the Community suggests that the social consensus dimension of policy credibility requires serious consideration by political scientists. The predominance of the precautionary norm in the Community in relation to food safety issues meant that the content of the epistemic agents' message trumped autonomy from decision-makers as the main driver of policy credibility. The monetary literature can be read in a similar way – Rogoff's central banker (1985) is selected not only by dint of their reputation but primarily because of their commitment to conservatism in monetary policy which matches the prevailing norm of the median voter.

If intersubjectivity between agent and society is a key dimension of policy credibility what role does RD between principal and agent play? In this case, the degree of autonomy between principal and agent actually exaggerated the credibility challenge faced. The extremity of the Lamming committee's disengagement from the ascending worldview in European society was a product of its ties to an alternative principal – the scientific world. With closer ties to its political principal, this evolutionary community might have been less strident and experienced a greater affinity with the social audience which makes judgements on policy credibility.

In the same vein, the governmental agent's close proximity to its political principal did not stir up the scepticism the orthodox view predicts. Indeed, DG

Sanco was able to keep this actor focussed upon the 'right' audience – i.e. the member states and EP whose confidence DG Sanco most wanted to secure. By taking firm control over composition of the epistemic community, DG Sanco was able to safeguard against its agent falling into a 'credibility trap' (Palley, 2000) where appeals are made to the 'wrong' audience – for example, to those in the international or professional arenas – resulting in the loss of their domestic constituents' confidence.

H$_{B2}$ Credible Contracts: Similar to the selection results, high RD frustrated principal intercession in the evolutionary epistemic community's production of knowledge. This independence, however, did not result in the resolution of the time inconsistency problem. Again the social consensus view of policy credibility comes to the fore. While both communities produced knowledge which conformed to professional norms – i.e. was externally consistent – this alone was not enough to secure the confidence of the EP or member states. The confidence secured by the governmental agent suggests that in this case, advice had to be internally consistent – i.e. conform to the prevailing social standards of 'rightness' in that context.

Given these findings, what impact does an agent's political independence in knowledge production have upon policy credibility? Neither of the agents' success or failure to deliver policy credibility was the direct result of their low or high RD from their principals. Rather, high or low confidence in the wider social audience was a function of the agent's attachment to a paradigm which either resonated or jarred with that held by the Community's representatives – the member states and EP. In this view, advice which appears time consistent is socially constructed and credibility socially conferred.

This primacy of the agent-society dynamic did not, however, render the relationship between principal and agent completely irrelevant. In both cases, the level of RD exaggerated the credibility challenge faced by the Commission. With

the Lamming committee this exaggeration was a negative one – confidence in DG Agriculture itself was lowered as it became clear that the agent was too remote for it to be guided by the principal. This provoked the extreme action of the principal disowning its agent in a bid to salvage its own credibility. DG Sanco's use of a tight mandate enabled it to control the focus of its agent. This 'commitment technology' (Blinder, 2000) locked both principal and agent in to the socially resonant position on growth promoters which continued to be defended. This of course had significance beyond growth promoters, as it represented a public investment by Community advisors in the precautionary principle to the post-BSE Community audience.

CONCLUSIONS

This article models principal-agent relationships between two types of epistemic communities and decision-makers in the EU. Agency analysis illuminates much about the role of RD and community 'type' in delegations delivered by epistemic communities. While the hypotheses remain provisional, this exploration of the impact of epistemic communities RD from the decision-makers they advise on efficiency and policy credibility suggests that in both objectives delegations to governmental epistemic communities promise more complete contracts than their evolutionary counterparts.

As expected, the findings confirm that epistemic agents created by political principals deliver a higher level of efficiency than their evolutionary counterparts. The results on efficiency provide a clear picture on the role played by RD. A delegation is not inefficient or efficient because of the level of RD between principal and agent. Each delegation was set on a path to inefficiency or efficiency as a result of how much the principal understood about their political preferences might be translated through knowledge. The Lamming committee's inefficiency was primarily the result adverse selection caused by DG Agriculture's ignorance in expert selection and epistemic interpretation. The high RD which

accompanies evolutionary epistemic communities served to exacerbate the mismatch further. Similarly, the success of DG Sanco's delegation was a result of policy learning: the principal had got to grips with how the method and focus of knowledge production was central to the delivery of its policy preference. Low RD in this case exaggerated the efficiency with the greater degree of transparency of governmental agents' socio-political agenda and their openness to guidance in knowledge production making the delegation Pareto-optimal.

It is not only this low likelihood of shirking which makes governmental epistemic agents a significant resource for decision-makers. Contrary to the orthodox hypotheses on policy credibility, governmental agents' considerable potential as a political resource may not dull their ability to deliver a greater level of policy credibility to their principals than their independent counterparts. As with efficiency, RD and epistemic community type did not of themselves increase or decrease credibility. Rather, the degree of alignment between society's view and that of the agent trumped autonomy from political bias as a proxy for policy credibility.

The Lamming delegation was not viewed as time consistent because these scientists' empiricist interpretation of growth promoters was not one that the EP and member states could unite around. The SCVPH sub group's success was in reflecting this dominant view. RD again sealed the path that the delegations were on. DG Agriculture's hands-off position in relation to the Lamming committee limited their ability to (re-)orient wayward advice toward society. Governmental epistemic communities present principals with the better chance to maximise policy credibility. Making the most of this opportunity depends, of course, upon the principal's ability both to read society accurately and to recruit likeminded experts.

It should be emphasised that while the extreme independence of Lamming exacerbated the disjuncture between its message and that of the citizens'

representatives, this does not mean that some level or perception of independence is not required for credibility. Certainly, the SCVPH could be construed to have some independence – as a result of its members' substantive expertise and the low level of monitoring it received. What this account suggests is that some perception of independence is still necessary for credibility as a good itself this takes many different forms.

The findings suggest a fruitful research agenda for further empirical research. The use of agency analysis also offers a new view of epistemic communities' relationships with decision-makers and how these actors might be created and deployed in the policy process. The success of the SCVPH sub group in policy setting illustrates that epistemic communities are not simply policy shapers, but can also be found 'downstream' at the delivery end of the policy process.

The proposition that decision-makers seeking either efficiency or credibility or both are more likely to achieve their objective by manufacturing their own epistemic agent than opting for the relative lottery of recruiting an evolutionary one is an important one for EU governance. Certainly, the volume and pivotal position of advisory committees in the EU will offer plenty of opportunities for further research. Work on both theses of policy credibility is especially necessary – to further empirically test the orthodox view and delineate the role of social consensus further and establish the scope conditions under which this rather than agent independence matters more.

REFERENCES

Adler, E. (1992) 'The emergence of co-operation: national epistemic communities and the international evolution of the idea of nuclear arms control' in *International Organization* 46: 1, 101-146.

Alchian, A.A. and Demsetz, H. (1972) 'Production, information costs and economic organization; *American Economic Review* 62, 777-795.

Ballman, A., Epstein, D. and O'Halloran, S. (2002) 'Delegation, comitology and the separation of powers in the European Union' *International Organization* 56: 3, 551-574.

Barro, R.J. and Gordon, D.B. (1983) 'A positive theory of monetary policy in a natural rate model' in *Journal of Political Economy* 91: 4, 589-610.

Bauer, M.W. (2002) 'Limitations to agency control in European Union policy-making: the Commission and the poverty programmes' in *Journal of Common Market Studies* 40: 3, 381-400.

Bawn, K. (1995) 'Political control versus expertise: congressional choices about administrative procedures' *American Political Science Review* 89: 1, 62-73.

Besley, T. (2006) *Principled Agents?* Oxford: Oxford University Press.

Blinder, A.S. (2000) 'Central bank credibility: why do we care? How do we build it?' in American Economic Review 90: 5, 1421-1431.

Bofinger, P. (1992) 'Reshaping monetary politics in Europe: discussion' in Canzoneri, M.B., Grilli, V. and Masson, P.R. (eds) *Establishing a central bank: issues in Europe and lessons from the US* Cambridge: Cambridge University Press.

Braun, D. and Guston, D. (2003) 'Special issue on principal-agent theory' *Science and Public Policy* 30: 5.

Brehms, J. and Gates, S. (1999) *Working, Shirking, and Sabotage* Ann Arbor, MI: University of Michigan Press.

Campbell, D.T. (1974) 'Evolutionary epistemology' in P.A. Schilpp (ed) *The Philosophy of Karl Popper* La Salle, IL: Open Court.

Christiansen, T. and Kirchner, E. (eds) (2000) *Committee Governance in the European Union* Manchester: Manchester University Press.

Commission of the European Communities (1999) SEC 1149

Da Haan, J. and van't Hag, G.J. (1995) 'Variation in central bank independence across countries' in *Public Choice* 85, 335-351.

Di Iulio, J. (1994) 'Principled agents: the cultural bases of behaviour in a federal government bureaucracy' in *Journal of Public Administration Research and Theory* 4: 3, 277-318.

Dunlop, C.A. (2000) 'Epistemic communities: a reply to Toke' in *Politics* 20: 3, 137-144.

Egan, M. (1998) 'Regulatory strategies, delegation and European market integration' in *Journal of European Public Policy* 5: 3, 485-506.

Elgie, R. (2002) 'The politics of the European Central Bank: principal-agent theory and the democratic deficit' *European Public Policy*, 9: 2, 186-200.

Epstein, D. and O'Halloran, S. (2006) 'A theory of efficient delegation' in D. Braun and F. Gilardi (eds) *Delegation in Contemporary Democracies* London: Routledge.

Forder, J. (1996) 'On the assessment and implementation of 'institutional' remedies' in *Oxford Economic Papers* 48, 39-51.

Franchino, F. (2002) 'Efficiency or credibility? Testing the two logics of delegation to the European Commission' in *Journal of European Public Policy* 9: 5, 677-694.

Gilardi, F. (2002) 'Policy credibility and delegation to independent regulatory agencies: a comparative empirical analysis' *Journal of European Public Policy* 9: 6, 873-893.

Haas, P.M. (1992a) 'Introduction: epistemic communities and international policy coordination' *International Organization* 46: 1, 1-36.

Haas, P.M. (1992b) 'Banning chloroflurorcarbons: epistemic community efforts to protect stratospheric ozone' in *International Organization* 46: 1, 187-224.

Hayo, B. (1998) 'Inflation culture, central bank independence and price stability' in *European Journal of Political Economy* 14, 241-263.

Holmström, B. (1979) 'Moral hazard and observability' in *Bell Journal of Economics* 10: 1, 74-91.

Hood, C., Scott, C., James, O., Jones, G. and Travers, T. (1999) *Regulation Inside Government* New York, NY: Oxford University Press.

Horn, M.J. (1995) *Political Economy of Public Administration: Institutional Choice in the Public Sector* New York: Cambridge University Press.

Kydland, F.E. and Prescott, E.C. (1977) 'Rules rather than discretion: the inconsistency of optimal plans' in *Journal of Political Economy* 85: 3, 473-91.

Lipsky and Olson (1977) *Commission Politics* New Brunswick, NJ: Transaction.

Majone, G. (2001) 'Two logics of delegation: agency and fiduciary relations in the EU' in *European Union Politics* 2: 1, 103-122.

Majone, G. (2005) *Dilemmas of European Integration* Oxford: Oxford University Press.

Maskin, E. and Tirole, J. (1990) 'The principal-agent relationship with an informed principal: the case of private values' in *Econometrica* 58: 2, 379-409.

McCallum, B. (1995) 'Two fallacies concerning central bank independence' *American Economic Review* 85, 473-491.

McCubbins, M.D. and Schwartz, T. (1984) 'Congressional oversight overlooked: police patrols versus fire alarms' in *American Journal of Political Science* 28, 165-179.

Palley, T. (2001) 'Escaping the 'policy credibility' trap: reshaping the debate over the international financial architecture' in *Problemas del Desarrollo* 32: 126, 111-124.

Pollack, M. (1997) 'Delegation, agency and agenda-setting in the European Community' in *International Organization* 5: 1, 99-134.

Radaelli, C.M. (1997) *The Politics of Corporate Taxation in the EU: Knowledge and International Policy Agendas* London: Routledge.

Radaelli, C.M. (1999) 'The public policy of the European Union: whither politics of expertise?' in *Journal of European Public Policy* 6: 5, 757-774.

Rhinard, M. (2002) 'The democratic legitimacy of the European Union committee system' in *Governance* 15: 2, 185-210.

Rhodes, R.A.W. (1997) *Understanding Governance* Open University Press.

Rogoff, K. (1985) 'The optimal degree of commitment to an intermediary monetary target' in *The Quarterly Journal of Economics* 100: 4, 1169-1189.

Sappington, D.E.M. (1991) 'Incentives in principal-agent relationships' in *the Journal of Economic Perspectives* 5: 2, 45-66

SCVPH (1999) *Scientific Committee on Veterinary Measures Relating to Public Health* – 'Assessment of Potential Risks to Human Health from Hormone Residues in Bovine Meat and Meat Products' 30 April, Brussels: DG XXIV.

Treutler, H-J. (1993) 'Five years to prepare the final stage of EMU: a German view' in Gebauer, W. (ed) *Foundations of European Central Bank Credibility* Heidelberg: Physica-Verlag.

Verdun, A. (1999) 'The role of the Delors committee and EMU' in *Journal of European Public Policy* 6: 2, 308-329.

Weinberg, A. (1972) 'Science and trans-science' *Minerva* 10, 209-222.

WTO/AB (1998) *EC Measures Concerning Meat and Meat Products (Hormones): Report of the Appellate Body* AB-997-4 16 January.

Zito, A. (2001) 'Epistemic communities, collective entrepreneurship and European integration' in *Journal of European Public Policy* 8: 4, 585-603.