Media Cultures and the Representation of Science in Korea and the United States: The BSE Case in 2008

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Abstract In 2008 the Korean government decided to resume importing US beef, leading to a nationwide controversy over the risk of bovine spongiform encephalopathy (BSE), or mad cow disease. Korean media coverage of BSE during this controversy demonstrates how media reporting on scientific matters interacts with political controversy over science-related risks. In Korea, where media organizations tend to be associated with particular political ideologies, the media emphasized the uncertainty of scientific accounts in the BSE case and reinforced the politicization of science by selectively mobilizing contrasting scientific claims and scientific authorities based on each media outlet’s political position. The distinctive role of such a media culture in the science-related political discourse is further highlighted when we consider US media coverage of BSE risk during the same period: in that coverage, the baseline technical risk-related issues were taken for granted and the BSE controversy in Korea was presented largely as a trade issue.

Keywords BSE · mad cow disease · media representation · politicization of science · science-related controversy · media culture

1 Introduction

In early April 2008, the government of South Korea decided to resume importing US beef, which had been banned because of the concern about bovine spongiform encephalopathy (BSE), or mad cow disease. This decision led to a nationwide controversy over the risk of BSE, which was also known in Korea as bovine spongiform encephalopathy (BSE). The media coverage of BSE during this controversy demonstrated how media reporting on scientific matters interacts with political controversy over science-related risks. In Korea, where media organizations tend to be associated with particular political ideologies, the media emphasized the uncertainty of scientific accounts in the BSE case and reinforced the politicization of science by selectively mobilizing contrasting scientific claims and scientific authorities based on each media outlet’s political position. The distinctive role of such a media culture in the science-related political discourse is further highlighted when we consider US media coverage of BSE risk during the same period: in that coverage, the baseline technical risk-related issues were taken for granted and the BSE controversy in Korea was presented largely as a trade issue.

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alopathy (BSE). BSE, commonly known as mad cow disease, is a neurodegenerative disease in cattle that is caused, scientists believe, by a specific type of protein called a prion. BSE has long been recognized as an infectious disease among cattle, but it was not until 1996 that the British government admitted that BSE could be transmitted to humans in the form of Creutzfeldt-Jakob disease (vCJD or nvCJD). Measures to stem the disease and its spread to humans continued through the beginning of the 2000s across Europe. In 2001, it became clear that the human form of mad cow disease had spread to East Asia. The United States documented its first case of BSE in 2003, and this development prompted many nations to ban US beef imports.¹

The importation of American beef into Korea was halted because of potential contamination with BSE; imports resumed and ceased sporadically beginning in 2003. In a trade agreement with the United States, Korea consented to reopen its market to US beef, except for cow parts especially vulnerable to BSE contamination. The decision prompted concern among the Korean public about the BSE risk and public resistance to the trade agreement. During the spring and summer of 2008, Korea witnessed massive nationwide protests against imports of US beef, and these protests probably constitute the highest-profile reaction to BSE outside the United Kingdom (Kim 2014; Lee 2012). By contrast, even in the midst of the ongoing controversy in Korea, virtually no controversy over the risk of BSE emerged in the United States.

There are no doubt many factors that could conceivably explain the sharply different public responses to the BSE risk in the two countries. These include differences between the two countries in their positions in the global trade of beef, distinct political cultures, and the relative level of public trust in the government and social institutions in Korea and in the United States. For example, because Korea was an importer of American beef, Koreans tended to perceive BSE exposure as a coerced and avoidable risk (Bak 2012); because America was exporting its beef, Americans might have focused on how the controversy would hamper their farm sector (see Leiss 2004 for the Canadian case). Noting that some observers viewed the BSE controversy in Korea as a media war (Ko, Lee, and Choi 2009; Lee, Kim, and Wainwright 2010; Lee and Koh 2009), however, this article attends to the national media cultures—the journalistic norms and principles prevailing in the media in a specific country—as a potential factor leading to the remarkable difference in the responses to the BSE risk.

In this article we examine Korean media coverage of BSE or mad cow disease during the period of Korean controversy, focusing on the influence of national media cultures on media presentation of the scientific accounts of the disease and related issues. Since the outbreak of BSE in the Britain in 1986, media coverage of BSE has attracted substantial scholarly interest (Adam 2000; Brookes 1999; Demko 1998; Dornbusch 1998; Leiss 2004; Lewis and Tyshenko 2009; Powell 2001; Washer 2006). Most of this work has discussed media coverage of the BSE controversy per se and stressed the failure of the media to adequately communicate the BSE risk, mainly because the BSE risk was framed as an economic issue about the costs to farmers and national economies (Adam 2000). By focusing on the media’s scientific

¹ Details of the basic history of the BSE controversy can be found in Timmons 2003; Wikipedia 2017a, 2017b. For statistics on BSE and vCJD, see World Health Organization 2012; National CJD Research and Surveillance Unit 2017.
accounts (which include new scientific findings, experts’ accounts in interviews with journalists, and the authority of the expertise), this article contributes to the scholarly literature on media coverage of political controversy over science.

While the central focus of our analysis is Korea, we bring US media coverage into our discussion to highlight the distinctive roles of Korean media culture in the science-related political controversy. Although we do not intend to make a full-scale comparative study, we believe that strategically using a comparative lens contributes to a better understanding of the role of Korean media culture, where scientific journalism is often used as a part of political discourse. Thus, we use the US case as a kind of methodological yardstick, and by doing so we gain analytical leverage on the Korea case. Also, despite the uneven media attention paid to BSE issues in Korea and the United States, an analysis of how the media of the two countries presented the same scientific issue in the same temporal context in different ways provides a valuable means of examining distinct features of media presentation of science. In particular, the two cases together may contribute to our understanding of the interaction between the ways the media report on science and the ways they report on political controversy over science-related risks.

We highlight how, in the midst of social controversy and protest, the Korean media questioned the safety of US beef, addressed the credibility of US food regulation, considered the range of animal parts that must be avoided, and discussed the unusually high susceptibility of Koreans to BSE due to a specific genotype they tend to have. We show that through individual media outlets’ framing of their BSE stories, the Korean media contributed to politicizing the science on BSE.

We also emphasize that media not only are sources of information or resources for opinion formation but also are sometimes active participants in the controversy themselves (Adam 2000; Gregory and Miller 1998; Nelkin 1987). This is particularly likely when media organizations are associated with specific political positions in the controversy. Korean newspapers have been known for reflecting the ideological positioning of their owners. As a result, they have become active players in political controversies, highlighting and utilizing potential political disputes to advance their own agendas (Lee, Kim, and Wainwright 2010; Lee and Koh 2009). We argue that in such a media culture, media accounts in Korea reinforced and reproduced the politicization of science in the BSE case. That is, coverage of Korean media contributed to making the scientific status of BSE controversial. Importantly, our assessment amounts to saying more than that the media outlets are biased. A single article or outlet might be biased or one-sided, but when an entire landscape is shaped by political commitments and coverage systematically reflects these political commitments, it seems reasonable to talk about active participation rather than mere media bias.

After providing analytic descriptions of media coverage of BSE in Korea and in a limited way for the United States, we discuss our findings’ implications for studies of the relations between science and the media. Our analysis focuses on which scientific accounts of BSE get reported and relates them to the distinctive cultures of the media in Korea and the United States and the (non)existence of the political controversy over the BSE risks of US beef. We also explore the implications of news coverage about BSE for citizen engagement in science-related political controversy.
2 Media Coverage of Scientific Accounts and Media Cultures

2.1 The Media and the Politicization of Science

Science communication scholars have asserted that media coverage of the political controversy over science is likely to reveal the contingency of scientific knowledge and the importance of political context in shaping science and in the media representation of science (Gregory and Miller 1998; Lewenstein 1995; Zehr 2010). However, the consequences of controversy over science in the political arena—the policy-making sphere—are more complicated because science becomes politicized: in any given dispute, scientific accounts may become the object of partisan political struggle and may be used selectively for political gain. It should be noted that the politicization of science does not necessarily undermine the conventional view of science as an objective mirror of nature. Each side in the political controversy presents one perspective from among disagreeing technical experts to bolster their positions. Even when they present the opposing scientific claims, while accusing the opposing groups of politicizing science, participants tend to justify their own claims and suggest that those claims reflect sound, objective scientific knowledge. Without making their value commitments or political interest explicit, they promote the image of pure science (Brown 2009; Pielke 2007; Sarewitz 2004).

In this context, how the media present (conflicting) scientific accounts has important implications for citizen engagement in science-related political controversy. Various patterns of media coverage of scientific accounts can develop in the context of policy-related disputes. Faced with conflicting scientific accounts of an issue, the media may take one side and discredit the competing scientific accounts as doubtful or even as driven by value commitments or interests. In this case, each media outlet, as an active participant in the controversy, reinforces and reproduces the politicization of science. By contrast, the media may present both scientific accounts seemingly neutrally, attempting to limit their role to serving as information sources. By giving equal weight to the competing scientific accounts without respect to scientific consensus, however, such reporting sometimes makes scientific accounts look more contentious than they actually are (Boykoff and Boykoff 2004; Corbett and Durfee 2004; Dixon and Clarke 2013; Kortenkamp and Basten 2015). The media may also emphasize the uncertainty of scientific accounts and the value judgments embedded in them, creating space to debate policy alternatives. To borrow Pielke’s term (2007), in such cases the media can work as an “honest broker” for citizens.

Despite the diverse yet critical roles of the media in political controversies over scientific issues, much of the research on media coverage of scientific controversies has remained essentially the study of political controversy. That is, this line of research has looked at the social groups involved in the controversy and focused on how political relationships among those groups influenced media coverage (Adam 2000; see also Lewenstein 1995). Significantly less attention has been given to the distinctive characteristics of the media covering the controversy—different media cultures, for instance—and to how these characteristics affect media presentation of scientific accounts (Stocking 2010).
2.2 Media Cultures and Representation of Science in Controversy

There is a growing literature that focuses on the ways that national cultures influence the relationship between science and society (for instance, Jasanoff 2005; Jasanoff and Kim 2009). In media studies, recent scholarship on media coverage of global environmental change has highlighted how national media cultures affect the media presentation of uncertainty in science and, in so doing, how the media can reinforce controversy (Boykoff and Boykoff 2004; Carvalho 2007; Corbett and Durfee 2004; Zehr 2000).

In our study, the phrase national media cultures refers to distinctive characteristics of the journalistic norms, principles, and practices that prevail in a given country. In particular, we focus on media organizations’ commitment to objectivity and neutrality versus their commitment to a political stance. Of course, in democratic societies, few media organizations solely embrace either political neutrality or partisanship.

Although some view the idea of journalistic objectivity or neutrality as a myth and are skeptical that political journalists adhere to these norms (Ludwig 2009; McQuail 2010; Peake 2007), science communication scholars have long observed that a broad array of science journalism expresses a consistent commitment to objectivity or political neutrality (Dunwoody 2008; Nelkin 1987). This is especially true in the United States, where (with some notable exceptions, like Fox News and MSNBC) maintaining independence from partisan views has been emphasized as an important principle of the mass media (Dunwoody 2008; Mindich 1998; Nelkin 1987; Schudson 1978; for recent discussion over journalistic norms and practices, see Kovach and Rosenstiels 2014; Puglisi and Snyder 2015). And while major mainstream newspapers in the United States are sometimes called liberal (the New York Times) or conservative (the Wall Street Journal), major US papers do not explicitly “own” their political ideology in the way that is common in many countries in Europe and in Korea.

Objectivity is closely related to “balanced reporting.” Balanced coverage of scientific accounts in disputes (i.e., presenting the both views of the conflicting sides with equal weight) is believed to provide objectivity for the media (Boykoff and Boykoff 2004). Since a journalist can rarely independently evaluate what is true in the scientific disputes, the objectivity norm also demands that she “go into ‘neutral transmitter’ mode,” in which the focus of coverage of scientific accounts involves accurately

2 Of course, we can always raise a question about the extent to which the US media follow journalistic objectivity and neutrality in practice. Indeed, the question of whether US media outlets tend to take a politically neutral position has been subject to intense debate in recent years (see Puglisi and Snyder 2015). Researchers who study political journalism tend to be skeptical about the journalistic norms in the United States, emphasizing many deviations from the ideal in practice (Ludwig 2009; Peake 2007). By contrast, researchers on science journalism generally hold that US media tend to emphasize the norms of objectivity and neutrality compared to their counterparts in many other countries (Boykoff and Boykoff 2004; Dunwoody 2008; Nelkin 1987). For example, noting that European newspapers tend to “have an explicitly partisan view,” Nelkin has claimed that objectivity in the media is “an American ideal.” “Contemporary science reporting” in particular, she writes, “reflects early efforts to adapt the norms of scientific objectivity to the practice of journalism. Journalists no longer believe that real objectivity is possible, but they are expected to approach the ideal of neutrality and unbiased reporting by balancing diverse points of view, by presenting all sides fairly, and by maintaining a clear distinction between news reporting and editorial opinion” (Nelkin 1987: 84).
representing the claims about which there is dispute rather than judging their validity or taking a position on them (Dunwoody 2008: 20).

Without political controversy over science-related issues in society, such a passive transmissional approach to science communication is not likely to raise questions about the scientific accounts or to present related issues as controversial. On the other hand, with a political controversy over science-related issues, the same journalistic norms may lead the media to amplify the disputes by giving substantial voice to minority positions (Boykoff and Boykoff 2004; Corbett and Durfee 2004; Kovach and Rosenstiel 2014; Zehr 2000).

The relative commitment to objectivity and balanced reporting varies by country. In many countries in Europe, newspapers have partisan affiliations and reflect a particular political ideology (Boykoff 2007; Carvalho 2007; Nelkin 1987). Korea’s media culture is similar to that of these European countries. Although they are not formally associated explicitly with political parties and their exact ideological positions have played out somewhat differently on concrete issues, major Korean newspaper organizations have been divided ideologically into conservative and liberal since around 1988, when a new liberal newspaper (Hankyoreh) was founded and the ownership of the other national newspapers went through major changes (Lee and Koh 2009). Noting the impact of the political orientation of media outlets on media coverage, studies on Korean media have routinely analyzed coverage of controversial issues by comparing conservative and liberal media (Bak 2011; Lee and Koh 2009; Yun et al. 2014).

In such a media culture, when a political controversy over a science-related issue emerges and the issue has ideological implications, the media are likely to amplify the dispute by being active participants in the political dispute. That is, instead of giving the same weight to each side in the dispute, media organs may present the scientific issues at stake in the political controversy in a way consistent with their partisan perspective. In so doing, media discourse and political ideology are mutually constituted and reinforced (Carvalho 2007).

Our study extends the scholarship of media presentation of scientific accounts by describing media coverage of BSE science in two countries, in which different media cultures as well as a different configuration of politico-economic interests dominate. Thus, our cases allow us to discuss how distinctive media cultures, interacting with political (non) controversy, may affect media presentations of scientific accounts. Also, given the absence of political controversy over BSE in the United States, our study provides an opportunity to consider how the journalistic norm of political neutrality may affect media coverage of science when there is no political controversy over the scientific issues.

3 Methods

In this section we provide a qualitative, textual analysis of media coverage of mad cow disease, or BSE, in Korea and the United States during the pivotal year 2008, when protest over contaminated beef shook the southern portion of the Korean peninsula. The comparison of Korean and US media coverage of scientific accounts of BSE in the same time period is important for two reasons. First, citizens in both countries eat US
beef, and questions of the safety of this beef generated controversy in Korea, but not in the United States. Second, our comparison allows us to explore how and why media coverage of scientific accounts can be different in different countries, even though both countries have access to the same scientific knowledge.

We amassed Korean news accounts from 18 April to 26 July 2008 using KINDS, the database for media content provided by Korea Press Foundation, and also the websites of Chosun Ilbo that are not included in KINDS, with the key word Gwang-u-byung (mad cow disease, or BSE, in English). Because of the strong ideological orientations of Korean newspapers, we intentionally chose two conservative newspapers (Chosun Ilbo and Dong-A Ilbo) and two liberal newspapers (Hankyoreh and Kyung Hyang) in database searches. We also collected news stories from two national television stations, KBS and MBC.

The initial search produced more than 2,000 stories, most of them about street protests against the importing of US beef during the period. We read all of them and selected for further analysis the 184 stories (102 stories from newspapers and 82 from television news programs) whose main focus was scientific accounts of BSE and the potential BSE risk of US beef. The criteria for selecting this dataset was (1) whether the main topic of the story included the scientific accounts of BSE risks and (2) whether the story cited scientific documents or experts. In terms of citations of scientific documents, we chose news stories that included direct and indirect reference to research that appeared in professional journals and to reports by technical agencies such as the OIE (Office International des Epizooties, or World Organization for Animal Health). In terms of citations of experts, we included stories that directly or indirectly referred to scientific experts’ accounts. The reportage demonstrates clearly the politicization of science in the Korean media. About two-thirds of the cases in the two conservative newspapers \((n = 50)\) portrayed BSE as controllable, BSE science as certain, and US beef as safe under current monitoring systems, while about 80 percent in two liberal newspapers \((n = 52)\) portrayed BSE as uncontrollable, BSE science as uncertain, and the monitoring systems of the United States and Korea as insufficient. Only about 10 percent of reportage cited conflicting experts’ views with equal weight in both conservative and liberal newspapers. News reporting from two national TV stations \((n = 82)\) was similar to coverage in liberal newspapers.\(^3\) The extent of media coverage of BSE by the mainstream media in Korea made it unnecessary to include in the Korean dataset coverage of BSE by nontraditional media such as individual blogs.

To use the United States as our comparative yardstick, we turned to LexisNexis, searching the keywords bovine spongiform encephalopathy, BSE, and mad cow disease, then gathered all stories on our topic that appeared in the New York Times in 2008 \((n = 54)\). Our US dataset is not comprehensive in the way our Korean dataset is, since we did not seek to undertake a full-scale comparison. In any case, since no widely read national-scope mainstream US newspapers are known to infuse partisan positions into their reporting, it would have been impossible to entirely mirror for the United States the media outlet selection we made for Korea. The New York Times, the Wall Street Journal, the Washington Post, and USA Today are the only US newspapers that...

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\(^3\) One of the authors and two graduate students read and categorized these news articles into three groups—emphasizing risks, emphasizing safety, and neutral/balanced. The intercoder reliability was 81.6 percent. Detailed criteria used for categorizing reportage can be found in Bak 2011.
arguably have a national reach. Because the *Times* is commonly viewed as the sole national “paper of record,” and there is no reason to believe that coverage would be significantly different in the *Post or Journal* on the matter of BSE coverage, for newspaper coverage we focused solely on the *Times*. In addition, we also used LexisNexis to locate all national television and radio coverage from 1 April 2008 through 31 December 2008 (*n* = 45).

This article emphasizes media texts where the main topic is the scientific accounts of BSE and related risks. We read each and every selected story with the following questions in mind: (1) Does the account suggest there is scientific controversy surrounding BSE? If so, how does it characterize and present the nature of the controversy? (2) Does the account suggest there is political controversy related to BSE? If so, how does it represent the controversy? (3) Are there significant differences in the coverage of scientific accounts across media organizations? If so, are they consistent with the political orientations of the media organizations? In so doing, we paid attention to differences not only in the extent of coverage but also in how the scientific accounts of BSE and related issues are represented.

### 4 Politics in Korea amid the Korean Controversy of BSE

In the wake of the new agreement on US beef imports made between Korea and the United States on 18 April 2008, the Korean media extensively covered the BSE issue and the safety of US beef. Over the summer of 2008, as street demonstrations grew nationwide, the focus of media coverage turned to the protests themselves; but attention in the Korean media, especially in the earlier stage of the BSE controversy, often included accounts of scientific matters related to BSE. However, the Korean media was by no means monolithic. *Conservative* media outlets tended to suggest that questions about the safety of the import of US beef were unambiguously *technical*. Such accounts echoed the claims made by the Korean government. *Liberal* media outlets, by contrast, tended to highlight contrasting scientific views on the safety of US beef, suggesting uncertainty instead of scientific consensus.

To understand different political positions on BSE issues, some explanation of Korean politics may be needed because the meanings of the terms *conservatism* and *liberalism* can differ across societies, reflecting their distinctive historical experiences. In Western European countries, for example, political parties have long represented class conflict, and class consciousness has underlain the concept of conservative and liberal political ideologies. However, this type of class conflict based on economic interests has not been salient in South Korean politics. Instead, what has long differentiated the political ideologies in South Korea is anti-communism or antagonism against communist North Korea. It was not until the twenty-first century that economic issues such as the welfare state emerged as an important axis in ideological conflict in Korean politics (Chae 2009; Cho 2009; Kang 2003). In particular, in 2008 President Myung-bak Lee attempted to implement neoliberal economic policies, which take a laissez-faire approach to economic development by transferring control of the economy from the state to the private sector. By the period of the BSE controversy, therefore, conservatism in Korea was characterized by strong antagonism against North Korea and the prioritization of economic growth through open market compe-
tition, while liberals preferred constructive engagement with North Korea and put more emphasis on distributional equality than on economic growth (Chae 2009; Cho 2009; Lee, Kim, and Wainwright 2010).

It should be also noted that in 2008 importing US beef was perceived as a precondition for the Korea-US free trade agreement. Since the United States has been the South’s most important ally against North Korea, conservatives tended to advocate the Korea-US free trade agreement and the importation of US beef not only for economic but also for political reasons. By contrast, liberals tended to oppose the free trade agreement with the United States, especially because they believed it would hurt small-scale farmers in Korea (Cho 2009; Ko, Lee, and Choi 2009).

5 Media Presentation of the Downer Cow Controversy and BSE Risks

Calling it “a media war,” some observers have argued that the Korean media triggered the 2008 controversy over BSE and US beef imports (Ko, Lee, and Choi 2009). In particular, *PD Notebook*—an hour-long news commentary TV program on MBC, a nationwide broadcasting company in South Korea—played an important role in making BSE a national issue.

On 29 April 2008, right after the new trade agreement was announced, *PD Notebook* broadcast a program titled “American Beef, Is It Safe from BSE?” (MBC 2008). The program had three components. First, it presented an undercover video clip of a downer cow released by the Humane Society, a US nongovernmental organization for animal rights. Downer cows are animals that cannot walk and are at elevated risk of disease, including mad cow disease (USDA 2008). *PD Notebook* showed US workers dragging downer cows to a slaughterhouse, implying that the sick cattle might be victims of BSE. Next, the program raised questions about the US food regulation system by quoting Michael Greger from the US Humane Society and Michael Hansen from the Consumers Union, both of whom indicated that slaughtering and consuming downer cows was common in the United States. Then the program stressed the dangers of BSE. It reported the death of Aretha Vincent, a twenty-two-year-old Virginia woman who was suspected of dying of vCJD at that time, and the alarming characteristics of the disease: “It [vCJD] cannot be prevented nor cured. . . . [People can be] infected by just 0.1 grams of risk materials. The risk materials do not disappear even if you boil or cook them and, once infected, the lethality is 100 percent” (MBC 2008). Finally, the program questioned the trade agreement with the United States. This agreement permitted the import of US beef into Korea, and *PD Notebook* asserted that under the new trade agreement some specific risk materials (SRM) could get into the Korean food system and that Koreans would thus be exposed to the risk of BSE: “While the [Korean] government argues that it will strengthen the certificate of beef origin, its effectiveness is questioned because components of beef are included in ramen soup, capsules of pills and even cosmetics, in addition to meat” (MBC 2008).

The program also asserted that Koreans are more susceptible to human mad cow disease (vCJD) due to their genotype. All humans and other mammals carry a prion protein gene, which has three types: methionine-methionine (MM), methionine-valine (MV), and valine-valine (VV). Almost all victims of human mad cow disease (vCJD) worldwide have had the MM genotype. Young-sun Kim, a medical science dean of
Hanlym University, Korea, and his colleagues published an article that reported that 94.3 percent of Koreans have the MM genotype—a significantly higher percentage than among Americans or Europeans. Based on this finding, they claimed that Koreans’ genetic makeup may make them more vulnerable to vCJD than other ethnic groups (Jeong et al. 2004). Discussing this study in detail, PD Notebook emphasized that Koreans have higher susceptibility to human mad cow disease than other races do, so beef infected with BSE is a greater threat to them (MBC 2008). This reportage was repeated in a subsequent evening television news program on MBC.

The content of the program, particularly the video clip of downer cows, spread quickly through the Internet. Many believed that by using the graphic video clips of downer cows and by emphasizing Koreans’ vulnerability to BSE, the program not only alerted Koreans to the danger of BSE but also spurred waves of protest against the importing of US beef (Ko, Lee, and Choi 2009). Some observers have criticized PD Notebook’s use of the downer cows case. The Korean government and conservative news organizations accused the PD Notebook of exaggeration and miscalculation of the risk associated with BSE. In an editorial titled “Amplification of BSE Risk on TV Went Too Far,” for instance, the conservative daily Chosun Ilbo (2 June 2008) denounced the TV program for exaggerating the BSE risk of US beef and unfairly criticizing the government.

How would the media report the downer cows cases if there were no underlying partisan politics among media? The US case can give us some insight here. US media coverage of downer cows in 2008 generally remained focused on whether adequate systems of safety monitoring were in place, while taking the scientific knowledge about BSE as settled. Since downer cows are believed to present elevated risk for diseases such as mad cow, the US government has banned them from the nation’s food supply (USDA 2008). A controversy erupted at the end of January 2008, when the Humane Society released the undercover video that was used by PD Notebook in Korea. This video raised questions about the safety of the meat at the facility in question.

The downer cow issue received ongoing coverage in the New York Times throughout February and March 2008. Initial follow-up coverage (Martin 2008) discussed possible lawsuits against the company that may have sold the beef from its downed and abused cows. Soon afterward, the focus of coverage turned to government criticism of the Humane Society for uncovering abuse and delaying release of its video. While coverage did not indicate dispute about the science of the risk for humans from this beef, a Humane Society spokesman was cited as critical of US government policy concerning downer cows, and in a congressional hearing prompted by the Humane Society’s video he apparently urged the government “to close the ‘loophole’ that allows veterinarians to approve downed cattle for slaughter” (Martin 2008).

While ongoing US coverage of the downer cow scandal does not indicate a dispute over the science concerning mad cow disease, an opinion piece by Times business journalist Joe Nocera published in the midst of the downer cow controversy subtly took issue with the established Times line on the science. In this piece, which was highly critical of the Humane Society, he wrote that downer cows are “said to have” an increased risk of BSE (Nocera 2008). This formulation subtly called into question the established science, at least as reported in national news coverage. Nocera concluded his explicitly opinion-oriented article with the following: “Really, when you get down to it, what happened at Westland/Hallmark was a horrible, anomalous case of animal...
abuse. The company deserves to be out of business, and the perpetrators should be prosecuted, as now appears likely. The Humane Society of the United States did a good thing in bringing the abuse to public light. But it had nothing to do with the food supply or mad cow disease” (Nocera 2008). The downer cow / Humane Society controversy was first covered in US broadcast media in June 2008. On 26 June 2008, on CNN’s American Morning, the story was portrayed as a matter of animal abuse, which was a theme throughout the Times coverage. While the February downer controversy exposed by the Humane Society was the focus of the coverage, the news peg was “another instance” of forcing downer cows to walk. In CNN’s coverage, a representative of the beef industry is given airtime, and a Humane Society representative is given space to say that the abuse of cows is “sickening.” The only mention of mad cow disease at all comes when the reporter says “downed cattle may carry mad cow disease and pose a risk to human health.” No dispute about the science surrounding BSE was discussed.

In sum, PD Notebook politicized the BSE issues not only by relating the downer cows controversy to the BSE issue but also by questioning scientific issues such as SRM and Koreans’ genotype, while in the US media, the matter of controversy was not, for example, the science underlying inspection regulations, but the quality of beef plant inspection, a question of regulatory policy. The distinctive ways of media presentation of BSE science become even more salient when we extend our analysis to news coverage of BSE among major media organizations in Korea characterized by strong ideological orientations.

6 Media Representation of BSE Issues and Reinforcing the Politicization of Science

Korean news coverage contributed to the politicization of BSE-related science because major media organizations in Korea portrayed the scientific issues at stake in the BSE controversy in ways consistent with their ideological orientation. Even when it showed that there was a scientific controversy on BSE-related issues, the coverage never thoroughly contrasted the different perspectives in the dispute; rather, each news item clearly promoted a position favoring its media organization’s ideological orientation, typically highlighting experts and technical evidence consistent with the ideological positions of the media.

Perhaps the best example is media coverage of whether Koreans are genetically more susceptible to the human form of mad cow disease than people of other nationalities. During the BSE controversy, this claim received substantial media attention but from contrasting perspectives: conservative media outlets downplayed the scientific claim as misleading, while the liberal news media portrayed it as sound science. Liberal media outlets reinforced the relationship between Koreans’ prion protein genotype and the susceptibility to vCJD as a scientific fact. An article in Hankyoreh on 9 May reported:

In a meeting of “BSE and the Safety of Beef” at the Korean Academy of Science and Technology at the Seoul Press Center on 8 May, Hee-Jong Wu, a professor in the College of Veterinary Science at Seoul National University, said “It is a
fact confirmed by world-wide scientific research that, among genotypes related to Creutzfeldt-Jakob disease or human mad cow disease, the MM (Methionine-Methionine) type is more susceptible to the disease than is the MV (Methionine-Valine) type or the VV (Valine-Valine) type.” (Y. Kim 2008)

Coverage by conservative media outlets posited a contrasting perspective of the role the MM type plays in susceptibility to vCJD infection. Dong-A Ilbo, a conservative newspaper, suggested that “a specific genotype does not determine the infection of the [human form of mad cow] disease” (Ju 2008). On May 7, Chosun Ilbo, another conservative newspaper, quoted Dr. Ermias Belay, an official from the US Centers for Disease Control and Prevention. He questioned the claim that Koreans’ genetic makeup may make them more vulnerable to vCJD than other people: “It is true that, as Dr. Yong-sun Kim of Hanlym University claims, almost all victims of human mad cow disease had the MM genotype. But there is no scientific evidence yet that those with the MM genotype have higher chance of getting the disease” (Choi 2008). The conservative newspapers even undermined the validity of Professor Yong-sun Kim’s research itself. On 8 May 2008, citing Mun-Il Kang, the head of the National Veterinary Research and Quarantine Service, Dong-A Ilbo claimed that the Professor Kim’s research had not been verified (Ko and Lee 2008). In an article on 9 May, Chosun Ilbo also reported:

Hee-sub Shin, Director of Center for Neuroscience and the best scientist on the brain in Korea said at a news conference at KIST on the afternoon of May 8 that the “papers of Prof. Kim are not about vCJD, human mad cow disease, but about sCJD about which the route of infection is not known with certainty.” . . . The Korea Center for Disease Control and Prevention also said that Prof. Kim’s paper has nothing to do with human forms of mad cow disease. (Kim and Choi 2008)

The case of the MM genotype suggests that science may look increasingly uncertain as the media cover specific details of a scientific issue, taking different perspectives. Even with a scientific consensus about what causes BSE, for instance, there may remain a number of scientific disputes over specific details that may accelerate or mitigate the activity of prions under specific conditions.

We see similar tensions in coverage about SRM (specific risk materials). SRM refers to cattle parts, which can be potentially contaminated with BSE agents. According to the US-Korean trade deal, Korea was to reopen its market to US beef except for seven SRMs for cattle over thirty months old and two SRMs for cattle under thirty months old.4 The conservative media tended to indicate that safety measures in place were based on science and adequate to protect Koreans from the risk of BSE. Chosun Ilbo (7 May 2008), for instance, reported that “in terms of the safety, there is no difference between [cattle] over 30 months old and [cattle] under 30 months old in so far as SRM are removed” (Lee and Kim 2008). By contrast, the liberal media tended to challenge the sufficiency of existing safety measures. For example, Kyung Hyang (6 May 2008) pointed out that the method to determine the age of cows in the United

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4 Cattle age has been considered important because almost all BSE-infected cows were over thirty months old. The OIE therefore determines the range of SRM differently according to the age of cattle.
States is unreliable because the United States, unlike Japan, does not have a system for following the life cycle of each cow—in most cases it merely presumes the age of cows by examining their teeth (Oh 2008a). The liberal media also emphasized Koreans’ unique meat consumption habits. Hankyoreh (15 May 2008) asserted that some SRMs from US beef “can be at our tables disguised as safe parts” because, while Westerners mostly eat only lean beef such as steak, Koreans use internal organs and the bones of cows in cooking popular traditional food (S. Kim 2008).

A related dispute was about whether meat is safe as long as SRM are removed. The US and Korean governments maintained that US beef poses little risk when SRM are removed from the meat. While the conservative media tended to support this claim, the liberal media questioned the certainty of the BSE science. An article from the conservative Chosun Ilbo (3 May 2008) cited a government source telling the public that “according to a report of European Research Council, there is no pathogen causing mad cow disease in meat or blood [when SRM are removed from the meat]” (Geum 2008a). Liberal newspapers provided scientific information contradicting that presented in the conservative media. For example, an article in the Kyung Hyang (6 May 2008) cited research results from Japan indicating that “prions, which may cause BSE, were found in a peripheral nerve in meat.” “Thus,” the article concluded, “[even though SRM are removed,] you cannot be 100 percent sure that you would not be infected with vCJD through meat” (Song and Yu 2008).

Finally, the political position of each media organization was also revealed clearly in its coverage of the Korean government’s response to public concern about BSE and the authority of the OIE. In 2008, Koreans’ concern about the BSE risk was amplified by the suspicion that the new Korean government, seeking support from the US Congress for the Korea-US free trade agreement, had placed political and economic concerns over safety in the matter of importing US beef. In particular, liberal Korean analysts and citizens questioned whether the US beef-import deal was a matter of technical judgment or a political decision. The Korean government tried to legitimize its policy decision by resting it on the OIE’s scientific capacity to determine the safety of cows from each country. The Korean government claimed that the trade deal strictly followed the rules of the OIE, which were based on worldwide scientific consensus.5

Coverage in the conservative media framed the Korean government’s response to public concern about BSE as a narrowly scientific and technical matter. Conservative newspapers described the OIE as having the best expertise in the area of veterinary science and portrayed the Korean government’s policy as based solely on the OIE’s scientific and technical rules. These papers asserted that the policy decision to import US beef and the Korea-US free trade agreement should be dealt with separately. For example, an article in Chosun Ilbo (3 May 2008) quoted an official from the Korean Department of Agriculture and Food as saying, “The OIE standard is, in fact, compulsory because no country can ask for a higher standard. . . . It is a matter of trust and honor in international relations to follow this standard.” The article continues: “There-

5 OIE standards are recognized by the World Trade Organization as international reference sanitary rules and used to prevent unjustified trade barriers due to sanitary concerns. In its Terrestrial Animal Health Code, the OIE specifies parts of cows that are more likely to be contaminated by BSE (SRM) and prohibits their trade.
fore, the government allowed the import [US beef] based upon the standard that the OIE applies to countries who can control BSE risk like the US” (Geum 2008b).

Coverage of the BSE controversy by some liberal media shows clearly the counter-efforts to challenge the very authority of the OIE. Kyung Hyang (6 May 2008), for instance, claimed that “the OIE standards are merely recommendations to member countries” but “the government is giving blind trust to it” (Oh 2008b). Challenging the government position, Hankyoreh (3 May 2008) also quoted Hee-Jong Wu, an expert on BSE and a professor of veterinary department at Seoul National University, saying, “The standard of the OIE is based upon the results of research conducted in 2002–2003,” and “the standard set 5 years ago is outdated since new research findings are coming continuously” (Kim and Kim 2008).

The descriptions of BSE science and the OIE demonstrate that the Korean media, influenced by their strong political orientations, reinforced and reproduced the politicization of BSE-related science by highlighting different interpretations of scientific matters and the OIE’s scientific authority. This is even clearer when coverage of the Korean beef import controversy and BSE science in the Korean media is set against the coverage in the US media.

The US media tended to report the controversy over BSE in Korea in terms of the US-Korea trade conflict and largely ignored the scientific issues surrounding BSE. In a fifteen-hundred-word story on 11 June (Choe 2008), the New York Times framed the dispute in terms of Korean “popular discontent over trade and economic issues.” The reporter did acknowledge that the dispute had its origins in worries about mad cow disease—“Stoked by farm groups and unions, as well as sensational media reports, protesters said they feared that American beef would expose the public to mad cow disease, and they accused the government of allowing new imports without insisting on rigorous inspections”—but largely dismissed those concerns. The article noted that the OIE had indicated as early as September 2007 that “American beef did not pose a health risk.” Unlike in some Korean media, the scientific authority of OIE tended to be assumed without any question in the US media. The article went on to say that more rigorous US government testing of beef cattle “suggested that the disease, if present at all in the American beef supply, was at very low levels.” Given the solid science on the matter, the article suggested that nationalist South Koreans were merely “exploiting the issue” of mad cow disease for other political ends (Choe 2008).

On the same day, PBS’s NewsHour ran an extended segment—perhaps fifteen minutes of the hour-long television show—similarly focused on the broader nature of the Korean protests. The NewsHour follows a discussion interview format in which one or several guests appear on the show. While the discussion of this controversy included sound bites from Korean protesters, the main guest was Victor Cha, a former director for Asian affairs at the US National Security Council who was at that time a professor at Georgetown University. The host began the discussion asking whether the dispute is “really about diseased beef.” Cha responded: “Well, I think initially it is about concerns that the Korean public has about American beef. Those concerns, in my opinion, are not well-placed. US beef is actually safe by international scientific standards.” Importantly, Cha is a political scientist. He may have an opinion on the safety of US beef, but this is not formally his area of expertise. He accepts “international scientific standards,” and, indeed, in selecting a political analyst as the show’s
guest, the *NewsHour*’s producers were essentially accepting that the dispute was not about BSE and that the safety of US beef was not in question.

This framing was echoed in many stories in print and broadcast media in the days around 10 June 2008. National Public Radio covered the Korean protests on 11 June. In that network’s reportage, the *Morning Edition* host, Renee Montagne, interviewed a BBC correspondent in Seoul. She introduced the segment by noting that the original Korean ban on American beef reflected concerns about mad cow disease. However, her initial question for the BBC reporter, John Sudworth, framed the controversy more broadly as a dispute about BSE: “This is not, though,” said Montagne, “just about U.S. beef imports, worried as South Koreans appear to be about mad cow disease. This involves a lot of other issues, doesn’t it?” (Montagne 2008). Interestingly, Sudworth did not simply accept Montagne’s framing and, in a story perhaps unique in US media coverage of the Korea-US beef trade controversy, mixed the issues of scientific certainty and broader protest issues in surprising ways:

Well, I think if you speak to the protestors, they say that first and foremost, this is a demonstration and a movement about food safety. Essentially, the focus of these protests has become the rather technical issue of whether cattle aged over thirty months—whether beef from these older cattle should be imported into Korea. Protestors want these older cattle excluded from the beef-import agreement—out of wild rumors circulating here, for example, that Americans don’t eat beef from older cattle.

Following this claim, Sudworth—a reporter, not a scientist—asserted that “all the evidence suggests, of course, that Americans do eat beef from cattle over the age of thirty months, have done for years. It’s considered perfectly safe.” This observation was relatively tangential to Sudworth’s reporting, but he used it to support his claim that the disputes are about more than BSE. They must be, the implication seems to have been, since older American cows are not likely carriers of BSE. *Everyone*, Sudworth suggests, knows that.

In sum, reflecting underlying partisan politics, Korean media presented sharply contrasting interpretations of the BSE-related science. Thus, in Korean media coverage BSE science became controversial and politicized. The media in Korea reproduced and reinforced the controversy. In US media, the relative danger of consuming downer cows and the relative safety of consuming young cows was almost universally portrayed as beyond concern. Despite the controversy over the BSE science associated with American beef in Korea, when we find controversy in US coverage, it is about the trade conflict or whether, given the established science, government inspection is adequate. Unlike Korean media coverage, US BSE coverage in 2008 is not an instance of the politicization of science.

7 Discussion

Focusing on media representation of *scientific accounts* of BSE risks, this study highlights divergent media coverage of the issue in Korea and the United States during 2008. While much of the research on media coverage of science in disputes has focused on political controversy per se or on how traditional news pegs—such as
timeliness, conflict, and novelty—influence news coverage (Adam 2000; Dunwoody 2008), this study points to the importance of national media cultures, especially the roles of strong political positions of media organs, in shaping press representations of scientific accounts.

Korean media culture is often characterized by the strong ideological orientations of media organs. Korean mass media tend to be divided between conservative and liberal news organizations. Deeply rooted ideological conflicts among the Korean mass media not only fuel existing social controversies but also generate controversies, since the conflicting media outlets tend to promote conflicting views—including scientific views—and attack each other when the issue has apparent ideological implications.

The Korean case shows how such a media culture, intertwined with political controversy, served to reinforce the uncertainty of BSE science. This occurred at two levels. First, consistent with its political position in the BSE controversy, the liberal media highlighted uncertainty by stressing the positions of scientists who said data on the matter was inconclusive. Second, uncertainty received greater emphasis because the divergent ideologies among Korean media led different outlets to represent the science surrounding BSE differently.

By mobilizing contrasting scientific claims and scientific authorities selectively in accordance with their political position, Korean media participated actively in the politicization of science. Although Korean media rarely revealed their own value commitments in coverage of the science in the dispute, Korean media coverage tended to make the science related to BSE look uncertain and controversial to many Koreans by providing conflicting scientific accounts. As recent studies have demonstrated, media presentation of two sides of a scientific issue in dispute tends to make scientific accounts of both sides look uncertain to readers, whether balanced reporting gives equal weight to each side or unbalanced reporting discredits one side as flawed (Dixon and Clarke 2013; Kortenkamp and Basten 2015).

In addition, Korean media outlets brought new, specific areas of BSE research, such as the role of the MM genotype, into the controversy. Such media attention to new research highlighted the uncertainty of BSE science even more because scientific accounts on the research frontier tend to be uncertain and open to question. Introducing new issues also suggested that there were many unanswered questions about BSE (Zehr 2000). Since each media organization probed subtle aspects of BSE issues that were largely ignored in US media coverage, one might interpret the Korean media as engaged in critical scientific inquiry. However, as the contrasting portrayal of the role of the MM genotype clearly shows, each Korean media organization highlighted scientific accounts favoring its own political standpoint. Overall, the BSE case suggests that the distinctive media culture in Korea reinforced the politicization of science, and the media became an important part of the controversy in Korea.

Attention to US media coverage of the BSE issue in the same temporal context may contribute to a better understanding of the distinctive role of Korean media culture plays in shaping journalist’s scientific accounts amid political controversy. US media, especially science journalism outlets, have often been viewed as not having strong ideological orientations compared to their counterparts in Europe. Research about science journalists has emphasized their relatively strong commitment to norms of objectivity, political neutrality, and balanced reporting (Boykoff and Boykoff 2004; Dunwoody 2008; Nelkin 1987). These journalistic norms can have varying effects on
news coverage, entwined with the (non)existence of a political controversy. Above all, the commitment to these norms may lead the media to present itself as a passive transmitter of information. Indeed, some scholars contend that objectivity and balanced reporting are particularly salient in media coverage of scientific accounts because these norms reflect a way of compensating for journalists’ inability to determine the validity of scientific accounts (Dunwoody 2008; Stocking 2010). That is, journalists use the norms of objectivity, neutrality, and balanced reporting as proxy for the validity check of a scientific claim, which they often lack time and expertise to undertake.

This situation can lead to different consequences, depending on whether political or scientific controversies over scientific issues exist. US media coverage of BSE in 2008 suggested that there was little dispute among scientists and little controversy about the science among citizens. Such a passive approach to reporting scientific accounts tends to make science look more certain than it actually is. By contrast, in US coverage of climate change, where there is political controversy over the meaning of data even though there is widespread scientific consensus, journalistic commitment to objectivity or neutrality can lead to coverage that seeks to balance divergent views, highlighting uncertainty in a way that, ironically, has much in common with how Korean media culture emphasizes uncertainty (Boykoff and Boykoff 2004; Corbett and Durfee 2004; Zehr 2010). Our study suggests, therefore, that journalistic norms of objectivity or neutrality may affect media coverage of science in contrasting ways, depending on whether there is political controversy at the center of the issue of concern. Our investigation also suggests that the media may present the scientific accounts of political concern differently depending on national media cultures. Note that Korean media, with their strong political orientations, highlighted the uncertainty of BSE science in much different ways than US media highlighted the uncertainty of climate change science.

Of course, the influence of national media cultures on the media coverage and framing of BSE science was interwoven with other factors. For example, in 2008, the Korean political situation was quite unstable, since the newly elected president from a conservative party was attempting to adopt neoliberal policies in many areas despite opposition from civil society (Lee, Kim, and Wainwright 2010). This context likely contributed to the exacerbation of any potential political dispute, and participants may have sought to fuel controversy however they were able, including by bringing the science underlying policy into question. Also, Korea and the United States have different economic interests, one as an importer of beef and one as an exporter. Finally, citizens of the two countries have different meat consumption habits, and according to some, the two countries have divergent national genetic profiles. These differences could certainly justify Korean media’s attention to any scientific disputes over BSE and could provide political players leverage to use any plausible scientific disputes to advance their causes and interests.

8 Conclusion

Our study has not captured all of the factors that affect media coverage of science and how and whether news media contributes to the politicization of science, and certainly, given the uneven media coverage of the BSE issue, our cross-national
comparison has limitations. However, our study clearly shows that scientific uncertainty in the media can emerge as a reflection of political controversy rather than the state of knowledge. It also shows that, interacting with political controversy, different media cultures lead to divergent media coverage of science. To understand media representation of science, therefore, it is crucial to identify the nature of a society’s media culture and explain how it interacts with political controversy to produce the (un)certainty of scientific accounts.

The findings of this study have important implications for the relationship between media coverage and citizen engagement in science-related political controversy. When science in news coverage is portrayed as unambiguous, citizens gain little space for entry into discussions about the matter at concern. What would have happened if the US coverage of the downer cow scandal and BSE-science-related issues had included in detail scientific disputes about the different range of SRM according to the age of cows and the reliability of measuring the age of cows by looking into their teeth? Might such reportage have encouraged American citizens to debate ways to improve the US food regulation system to better protect consumers from the risk of mad cow disease? Perhaps. However, given that the majority of Americans believe the US food system is safe (National Science Foundation 2007), even efforts to prompt disputes about the quality of inspection—efforts like those of the Humane Society, in this case—are unlikely to have much traction unless the media play up controversy.

At the same time, when media organizations become active participants in the science-related controversy by taking specific political positions—as Korean media did in the BSE dispute—media consumers may have little way to evaluate the issues in question. In this case, although they may foster citizens’ attention to the issues, the media tend to reinforce and exacerbate political conflicts instead of contributing to public deliberation and rational policy decisions. Portraying disputing parties as having equally good science on their side will not be a remedy for this problem, as we see in the literature on the case in US coverage of controversies over such matters as climate. On the one hand, while many have called for increasing citizen science literacy to improve citizen engagement in science-related political debates, such media conditions suggest that intelligent citizen engagement is likely to also require substantial media literacy (see Kellner 1995). Understanding each media organization’s political orientation, where applicable, and the way it is implemented might be the first step toward better media literacy. On the other hand, journalists may need to openly discuss the political implications embedded in the scientific claims when they report science-related controversies. In such controversies, each scientific account is often entangled with commitments to particular values and interests. By making these commitments explicit, instead of politicizing only one side or ignoring the commitments entirely, the media might be better able to encourage citizens to engage in the science-related political debates based on their own values and interests and enable them to judge which news coverage is more credible.6 The goal of the media in this

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6 Uncertainty resulting from juxtaposing mixed messages may lead to delayed actions from citizens (Friedman, Dunwoody, and Rogers 1999). However, even though increased citizen deliberation on scientific issues can sometimes delay actions, encouraging citizens’ engagement in science-related political debates would be an important goal of the media in this uncertain world.
complex and uncertain world should be “to provide citizens with the information they need to be free and self-governing” (Kovach and Rosenstiel 2014: 17).

Finally, this study suggests the value of further research on media coverage of scientific accounts among East Asian countries. Despite the similar position in the global trade of beef, Korea and Taiwan experienced fierce public protests against import of US beef, while Japan did not. How might the examinations of the national media culture and media representation of the scientific accounts of BSE-related issues in these countries help us understand these cross-national differences? Comparative study of East Asian countries could offer an excellent opportunity to further explore our claims about media cultures, science, and politics.

References


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