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Auntie Knows Best?

Public Broadcasters and Current Affairs Knowledge *

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Abstract: Public service broadcasters (PSBs) are a central part of national news media landscapes. In many countries, PSBs are the first choice of citizens when it comes to news providers. And in perhaps more countries still, PSBs are thought of as specialists in provision of hard news. We test this proposition here using survey data from a large cross-national survey involving indicators of current affairs knowledge and media consumption. Specifically, we examine whether exposure to public versus commercial news influences the knowledge citizens possess about current affairs, both domestically and internationally. We also test, using propensity score analysis, whether there is variation across PSBs in this regard. Results indicate that compared to commercial news, watching PSB has a net positive influence on knowledge of hard news, though not all PSBs are equally effective in contributing to knowledge acquisition. This knowledge gap between PSB and commercial news media consumption appears to be mitigated by factors such as *de jure* independence, proportion of public financing, and audience share.

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The availability of news about current affairs, both domestic and international, is essential for fostering an informed and engaged citizenry. People rely on news about the world around them in order to participate in democratic governance, but also to make basic choices about how to live from one day to the next. Economic news can help us decide whether to save or spend; consumer news helps determine the scale of our purchases; environmental news can change not just our consumer behaviour but what we do at home as well.¹ In short, news matters.

The belief that easy access to news strengthens the democratic process has been a central justification for public service broadcasting (PSB). The argument is as follows. Commercial media need audiences and advertisers to survive; market incentives lead to the overproduction of content that is popular, and a lack of supply of the kind of information that meets the requirements above. Commercial broadcasters may be beholden to advertisers, and/or may show partisan biases. PSBs, funded largely if not entirely through public funds, are not vulnerable to market forces, and are required to be impartial and fair on political matters. (Though there is some variance here, which we discuss below.) In short, PSBs are intended to help citizens get more of the information they need, particularly information that commercial media cannot or will not provide.

Whether PSBs regularly achieve this objective is not clear. There are real differences in the funding, independence, and audience share of PSBs across countries to be sure.² And the funding crises that many PSBs have experienced in recent years suggest that politicians and publics are somewhat skeptical about the role these broadcasters can (and should) play in the future.³ Public broadcasters have also been subject to a range of negative stereotypes related to inefficiency, aloofness, and pretention. In the UK, the latter two sentiments are perhaps best captured by the tongue-in-cheek “Auntie” nickname, sometimes applied to the BBC. Indeed, the well know mantra of PSBs, to inform, educate and entertain, also comes across as somewhat antiquated in a modern digital media environment in which the ability to satisfy our information needs seems nearly limitless.

It is clear that the number of news sources competing for the consumer’s attention has increased dramatically. Today, the typical citizen in the developed world decides not just which medium(s) to use for news, but also decides between many different newsrooms offering coverage of daily events. There are so many sources that we cannot possibly attend to all of them; moreover, citizens are heavily constrained in the amount of time they can or want to spend acquiring current affairs information in the first place.⁴ Few citizens, then, get news from even a wide range of the available sources. Contemporary patterns of news consumption are thus highly specialised and increasingly non-random.

It is in this context that the current paper explores the impact of public versus commercial television news exposure on citizens’ knowledge of current affairs. More specifically, we investigate the proposition that public service broadcasters produce higher levels of knowledge about domestic and international affairs than do commercial broadcasters. We test this proposition across six countries with varying media landscapes, and in so doing are able to also examine the possibility of cross-national variance in the impact of PSB versus commercial broadcasters — heterogeneity based on factors related to the national media

systems, including the proportion of public financing, daily audience share, and independence of PSBs. In short, we seek to determine whether exposure to different models of news provision – market-driven versus public service-oriented – influences the stock of knowledge people have about current affairs. Are PSBs more efficient than commercial newsrooms at informing citizens? Are all PSBs equally effective? Answers to these questions matter not just for how we understand television news, but also speak to the future provision of public- versus commercial-funded news (on television and otherwise) more generally.

Testing the impact of public versus commercial broadcasters on current affairs knowledge is the substantive focus of the paper that follows, but we seek to make a methodological contribution as well. The media effects literature at which this article is aimed has waged a longstanding battle with the issue of selection effects — an issue which almost certainly worsens as the media environment diversifies and fragments.⁵ Particularly where cross-sectional survey research is involved, it is widely acknowledged that attempts to link media exposure with outcome variables such as beliefs, opinions, or any form of behaviour are vulnerable to reverse causality counterfactuals. In other words, it is difficult to figure out if media exposure drives knowledge ($X \rightarrow Y$) when it is also possible that knowledge leads to media exposure ($X \leftarrow Y$).

Recent work has demonstrated that, particularly in the current media environment, the two effects are occurring simultaneously. People do learn from media, but knowledge and interest also determine which media people are exposed to.⁶ We cannot completely resolve this issue, of course — at least not without long-term panel data. But we do discuss below (and further in the online appendix) the possibility that the technique of propensity score matching provides an appropriate strategy for producing somewhat more conservative estimates of media effects; that is, estimates of media effects that are *somewhat* less affected by endogeneity.

Results suggest that watching PSB news programs is related to higher levels of “hard” news knowledge than is watching commercial broadcasts for the same amount of time. In other words, controlling for the differences in the audiences for public versus commercial newscasts, it appears that people tend learn more about domestic and international affairs from following PSB news for a few hours a week than they do from following commercial media. Where “soft” news is concerned – knowledge of current sporting and entertainment headlines, for instance – there is no clear advantage to getting news from public or private media sources. Thus, results do not support the contention that while PSBs focus on hard news, commercial broadcasters are the specialists for knowledge on soft news.

This is the general tendency across countries, at least. For certain countries in our sample, however, the knowledge gap between PSB and commercial media is entirely absent. In general, knowledge gaps between PSBs and commercial broadcasters are widest in countries where public broadcasters attract significant daily viewership, where the share of PSB revenue derived from public monies is high, and where institutional rules of independence from national governments are strongest.

The first section of this article reviews the literature on the relationship between PSBs and citizen knowledge. Subsequent sections introduce our cross-national survey data, discuss the potential advantages of a propensity score analysis approach to studying media effects, and then implement that analysis. The results suggest differences across countries, and so we undertake a final analysis to make sense of these differences using cross-national media system variables. These results are discussed as they relate both to the justification for PSB, and to our understanding about the effects of media consumption more generally.

Public and Commercial Broadcasters Compared

The possibility of knowledge gaps resulting from exposure to primarily commercial or public newscasts presupposes that the newscasts are in fact markedly different. Where PSB news varies significantly from commercial news, the potential for knowledge effects is strong, all else being equal. If PSB and commercial news programs are quite similar, however, differential effects on knowledge are less plausible.⁷ When content is similar, evidence for more (or less) informed PSB audiences is quite likely an artefact of the audience being more (or less) informed to begin with. That said, the probability of selection effects should increase where public and commercial newscasts are substantively different — real (or perceived) differences between news providers is precisely what should lead well-informed citizens to consistently select into particular streams of news. In short, teasing out the impact of PSBs versus private broadcasters, controlling for selection effects, is difficult.

Several recent studies involving PSB and commercial media content have focused on coverage patterns related to the supply of current affairs information.⁸ Generally, results are consistent with respect to the issue of hard versus soft news content: PSBs tend to report more hard news on average than the commercial newscasts in their markets.⁹ Numerous case studies highlighted the well-known mantra of “informing, enlightening, and entertaining” that is widely associated with the institution of public broadcasting;¹⁰ and entertainment is typically cast third of the three objectives. What this means is that on a regular news day people are likely to encounter a greater proportion of foreign news, domestic and international politics, and public policy-oriented reports if they tune into a PSB newscast rather than a commercial newscast. Conversely, watching commercial newscasts increases the likelihood of exposure to what is typically regarded as soft news — e.g. crime, human-interest, celebrity, or entertainment-oriented stories.

In fact, research in this vein has pointed to heterogeneity not just across newscasts in terms of soft versus hard news, but also with respect to the placement and volume of current affairs programming airing on a typical day.¹¹ Practically speaking, the literature suggests that during prime time, when television audiences spike, citizens residing in the most commercialised media systems are least likely to encounter (hard) news programming on any free-to-air TV channel. Countries where public broadcasting plays a leading role in the media system are where (hard) news programming tends to flourish during prime time. In short, the aggregate provision of news versus entertainment programming varies according to the media system.

None of this necessarily means that living in highly commercial media contexts leaves citizens with less news to select from and promotes lower levels of news consumption, of course. It is entirely possible that other media – online, radio, or print – compensate for relatively low levels of prime time TV news in commercial media systems. Online media content is not restricted geographically, and thus there is little to prevent citizens in more commercialised systems to look elsewhere for news if they chose to do so.

The important point is this: the more commercialised the media system is, the more proactive citizens may need to be about seeking out meaningful news on a day-to-day basis. Inadvertent or incidental exposure to the news during prime time news programs occurs more frequently in countries where public broadcasting is a strong component of the national media system.¹² And where PSB and commercial newscasts are concerned, there is evidence that hard news tends to receive shorter shrift on commercial compared to public TV. In a nutshell, there is evidence that the quantity and quality of news varies systematically across public and private broadcasters. The potential exists, then, for a link between PSB and knowledge (driven by some combination of exposure and selection bias).

Current Affairs Knowledge and News Exposure

Much of the extant literature about news exposure and knowledge acquisition has questioned whether different media produce different effects. Until recently newspapers and television tended to dominate the debate, though a growing body of work now focuses on online news consumption. While many have found positive effects of newspaper consumption on knowledge and particularly factual information gain,¹³ others have pointed to comprehension benefits and longer term memory retention resulting from TV news exposure,¹⁴ and others still have cast a positive light on online media where integrated knowledge gain, political interest and participation is concerned.¹⁵ So clearly all media matter in one way or another. That said, most studies suggest that one's preferred news media form, or modality, is significantly related to their performance on a battery of current affairs questions.¹⁶

As noted above, previous research suggests that PSB news programming varies significantly from commercial TV newscasts. At the very least, PSBs cultivate a reputation (deservedly or not) for reporting current affairs in distinct ways from their commercial rivals. Thus, compared to people who regularly watch commercial news programming, it seems reasonable to expect that those who routinely consume PSB newscasts have higher levels of hard news knowledge; conversely, PSB viewers may be less knowledgeable about soft news.

Few studies have empirically addressed this possibility of knowledge gaps resulting from exposure to public and commercial TV, and within this small literature results are rather mixed. Consider some recent results from two panel studies. Using Norwegian election study participants, Jenssen finds no evidence that exposure to NRK news – from Norway's main (public) broadcaster – was more informative than following commercial news.¹⁷ Another panel study in the Netherlands and Denmark involving knowledge of European Union events and leaders finds positive effects for public broadcasting in certain contexts.¹⁸ Using cross-sectional Dutch Election Study data, Aarts and Semetko find strong evidence that not just

knowledge but also attitudes and engagement vary according to public versus private media consumption.¹⁹

While panel studies provide some real strengths in terms of causality, existing work is limited in its generalizability. To our knowledge, only three (non-panel) studies have addressed the knowledge question with data from more than two countries.²⁰ All are suggestive of modest knowledge gaps based on PSB viewership. Holtz-Bacha and Norris find significant knowledge effects for public TV preferences in 10 of 14 countries.²¹ Jenssen et al. find positive effects of PBS news exposure and mainly negative effects for commercial news – though most effects, but not all, are not significant when controlling for background characteristics and political interest. Popescu and Toka also report positive effects across 35 country cases, but only among those least informed to begin with, and the effect varies according to the broadcasting model.²² In each case, results are limited to European countries, and to specific knowledge of European political issues and/or party placement on ideological scales. Generally, results point to some important differences between public and commercial broadcast news on current affairs knowledge. And the Popescu and Toka paper is one of several recent studies to focus on the influence not just of specific media outlets, but media systems on various forms of citizen engagement in public life.²³

In a similar vein, Aalberg and colleagues' exhaustive 30-year, 6-country study suggests that the daily diet of news programming varies according to the (system-level) degree of media commercialisation.²⁴ Overall, the supply of prime time news programming is greatest in countries where public broadcasters dominate in terms of audience ratings (e.g. Norway and Sweden) and lowest in countries where commercial media control the market (e.g. United States).²⁵ Dual broadcasting models (e.g. United Kingdom) – in which public and private channels coexist on relatively equal footing – fall somewhere in between when it comes to prime time news availability.

The recurring message, in short, is that simply living in more commercially-oriented (or “liberal”) media systems makes an individual less likely to be politically engaged and broadly less aware of the events occurring in world around them.²⁶ As Aalberg and Curran report, for instance, citizens who are not interested in politics and choose not to pay attention to domestic news, still manage to be relatively well informed in European countries with strong PSBs. Yet within the US, those with little interest in politics tend to be highly uninformed about current affairs.²⁷ Put another way, where private companies dominate the news media landscape, citizens tend to be less aware of what and who is making news nationally, and also in others parts of the world. Moreover, it appears that knowledge gaps between traditionally advantaged and disadvantaged groups in society widen in more commercialised media settings.²⁸ What this all suggests is that people who are motivated to get informed are able to do so in spite of the media system in their country, but that current affairs awareness for those with fewer resources and/or weaker motivation is strongly tied to their national media context.

Ultimately, what remains unclear is not so much whether the media system plays a role in knowledge transmission (it clearly does), but to what degree PSB matters in each case. The fact is that PSBs exist in one form or another in virtually all developed countries, and they

operate in varying contexts of commercialisation. Yet PSBs differ widely in terms of audience share, levels and types of public funding, and the institutional independence from the political process. This raises the possibility that knowledge effects resulting from exposure to commercial or public news are not always consistent. Is exposure to public broadcasting related to increases in knowledge of current affairs? Under what conditions do public broadcasters best perform the educative and enlightenment function they all profess to fulfil? We turn now to these questions.

Methodology

The reference country for almost all media system and knowledge research is the United States. Widely acknowledged as the prototypical commercial (liberal) media system,²⁹ however, PSB news plays a marginal role in the news diet for the vast majority of Americans.³⁰ We accordingly do not examine the impact of PSB in the US below (given the very low number of regular PSB viewers, the US survey did not ask about PSB consumption), though we do look at US as well as Australian data to explore briefly the impact of television exposure versus newspaper readership on knowledge. Those results are included in the online appendix, and discussed briefly in the concluding section. Here, we focus on six countries for which we have comparable survey data, and in which the PSB receives a reasonable audience share: Canada, Italy, Japan, Norway, the UK and South Korea. Note that these six provide a good amount of variance where media system variables are concerned. (We discuss media systems in more detail in the sections that follow.)

Data for all countries was drawn from a unique survey on news exposure and political knowledge, fielded (nearly) simultaneously in 2010 across eleven countries.³¹ Surveys in each of the six (plus two) countries used here were conducted online by YouGov Polimetrix. Details of these surveys, including survey firms, field dates, and availability, are provided in the Appendix.

As noted above, a central issue in the study of media effects, particularly though not exclusively in cross-sectional data, is the problem of self-selection. PSB may well provide a greater amount of hard news information than commercial broadcasting. But it is almost certainly also true that people interested in news, and with higher levels of hard news knowledge to begin with, choose to watch PSB, while those with less interest are less likely to do so. We thus cannot easily tell which came first, the chicken (knowledge) or the egg (PSB exposure).

The result where statistical analysis is concerned is that the importance of media to political knowledge is, as a consequence of endogeneity, fairly easy to overestimate. Indeed, several studies, by controlling for self-selection, have rendered ostensibly positive effects for newspaper consumption on knowledge spurious because newspapers readers were knowledge, motivated, or better educated to begin with.³² Finding an appropriate way to control for the cognitive and demographic differences between media audiences is essential.

One potentially useful approach is propensity score analysis. The approach is designed to allow for more reliable causal inferences in observational studies in which randomisation was

not possible.³³ The crux of the method is as follows: based on a number of background characteristics, captured in the “propensity score,” those in a treatment group are “matched” to a group of similar others in a non-treatment group. The idea is to approximate randomisation in treatment — to produce two relatively similar groups, one exposed to a treatment and the other not. The difference in outcomes between these two groups is then the critical test of the impact of treatment.

Comparing means across two groups is of course relatively easy; producing the groups themselves is rather more difficult. Doing so relies on a propensity score, capturing similarities in individuals across n dimensions. That score is typically produced in a regression model of the binary treatment variable. So, in the current case, we first use a probit regression model to estimate the likelihood that different individuals are exposed to public television. The results (predicted likelihoods) from that regression are the propensity score. “Like” individuals who were exposed to public television, or not, where likeness is determined by their propensity score, are then selected into the treatment and non-treatment groups.³⁴ And the differences between the two groups in terms of outcomes (here, political knowledge) is the critical test of the impact of treatment (here, public broadcasting).

The central difficulties in employing matching methods lie in the production of the propensity score, and then the matching. In short, the estimation of a propensity score is subject to all the same problems as a regular OLS model. Using the correct set of covariates to produce propensity scores is critical. As with regular regression models, the exclusion of an important covariate opens up the possibility that estimated effects are a consequence not of treatment alone, but something else. That is, an inadequate propensity score model leaves open the possibility that the matching methods approach does not get around the problem of endogeneity.³⁵ To be clear, then: we do not claim here that matching necessarily removes the difficulties associated with endogeneity in the estimation of media effects. But a properly-specified propensity score model can yield somewhat more accurate (and often more conservative) estimates of treatment effects.³⁶ In this case, we view propensity score matching as a potentially useful way to remove some, though likely not all, of the problems associated with self-selection. It is in this way not unlike a similarly-specified regression model, though with some additional statistical advantages.³⁷

We estimate matching below using *pscore* in STATA.³⁸ There are a number of different matching algorithms available.³⁹ Here, we rely on radius matching;⁴⁰ though our results do not change fundamentally when other matching algorithms are used.⁴¹ The models for propensity scores are relatively simple, but also thorough. The “treatments” investigated below are as follows: (a) public television viewing, and (b) commercial television viewing. In each case, we produce a binary treatment variable that divides the sample roughly in half, where one group watches four days or less and the other watches five days or more.

Each of these treatment variables is regressed on a series of demographic and other variables likely to affect media exposure. We include the following:

Age: two dummy variables for 35-54 years and 55 and over, with 18-34 years as the residual category.⁴²

Education: an ordinal variable where 1 is primary education, 2 secondary education, and 3 tertiary education.

Political Interest: an index based on self-reported interest in national news, international news, and local news. In all countries, respondents are asked to rate their interest in each on a five-point scale. In each country, the index is used to produce an interest scale, recoded here to produce four categories (roughly, quartiles), and then split into dummy variables for the second, third and fourth categories, where the first tercile is the residual category.

Exposure to Other Media: a continuous index based on self-reported exposure to newspapers and radio.

Propensity scores are generated country by country, rather than on a pooled basis, in order to allow for the fact that the correlates of media exposure matter differently in each country.⁴³ The magnitude of individual coefficients varies, of course; so too does the proportion of variance explained by our model. Pseudo R-squareds for the binary probit estimations range from roughly .05 to .25, for instance, with an average of about .12. (Complete results are available in the online appendix.) And to review: the idea is to match respondents based on basic demographics, interest in politics, and exposure to other media; compare differences in political knowledge across two groups with similar propensities to watch public (or private) television, but where only one of those groups has actually been regularly exposed to public (private) television; and then use the estimated difference in means as the test of the impact of the treatment variables.

Political knowledge is measured using an index of between 10 and 16 knowledge questions, capturing knowledge of hard and soft news, both national and international. These knowledge questions are included in the online appendix; suffice it so say here that the questions tap a combination of hard and soft news knowledge, both domestic and international. The use of both hard and soft news items is relatively unique; as is the use of knowledge questions focused in part on events in the news at the time of the survey. International news knowledge questions were common across all surveys; domestic news stories obviously varied from country to country, but were designed to be similar in theme and difficulty. In each country, regardless of the total number of questions, the resulting cumulative knowledge index was rescaled to range from 0 to 1, where 1 reflects a correct score across all available questions. And in order to account for the possibility that, despite our best efforts, the difficulty of questions varies somewhat from one country to the other, we use knowledge measures below rescaled to standard units (standard deviations from the mean, within each country).

Results

Public or Private Broadcasters: Where Should You Get the News?

Does it matter which television channel you watch news on? The short answer is yes, but the leading public broadcaster is not the consistently better option, at least where learning about current affairs is concerned. In some countries PSB is the best option, in others countries there is little difference between public and private networks.

These points are evident in Figure 1, in which levels of overall, hard, and soft news are compared across public and private news exposure treatments. The figure shows knowledge effects by country based on consumption of PSB versus commercial news, controlling for age, education, and political interest and other media use. The y-axis shows the impact of treatments in standard deviations of knowledge. Statistical significance is not shown in this figure, but are included in Appendix Table 1, which shows (a) sample sizes for control and treatment groups, and (b) the estimated average treatment effect on the treated (ATTR), based on radius matching, alongside the associated standard error and t- ratio.

[Figure 1 about here]

In the top panel of Figure 1, it is clear that the type of television channel watched makes a difference for overall current affairs knowledge. In Norway, and to lesser extent in Canada and Japan, exposure to news from the public channel has a stronger positive effect on overall knowledge than exposure to commercial TV news. Note that in each of those three countries exposure to private TV also has a positive impact on knowledge – albeit to a lesser degree than public news exposure. That is not the case in the UK. Those who watched BBC news scored higher than those who did not, but those who regularly consumed news from the leading commercial channel ITV scored lower. Indeed, the UK knowledge gap between public and private news exposure is quite striking.

Perhaps the key point is that in all cases, save for Korea, TV viewing habits – i.e., getting news from public versus private newscasts – are strongly correlated with overall knowledge. That being said, the direction of effects does not *always* favour public broadcasters; and the impact is still not perfect when we isolate hard news knowledge, in the second panel of Figure 1. The story for soft news is similarly not exactly as we might expect. Recall that the literature suggests that heavy consumers of commercial media will score higher on our questions about celebrity entertainers, athletes, and general human-interest events. This expectation holds for Italians, and to lesser degree for Korean and Japanese respondents. Yet in Canada and Norway there is little difference between public and private news for soft news knowledge. Most intriguingly, for viewers of the BBC in the UK, public news exposure has a considerably larger impact on a person’s ability to correctly answer soft news questions than commercial media.

Private, Semiprivate, and Public News: The United Kingdom

For the UK only, we can incorporate semiprivate television news exposure, and we do so by adding Channel 4 news exposure to a separate country-specific analysis.⁴⁴ The analysis provides a unique opportunity to look at the relationship between market exposure and impacts on knowledge. Our expectation is that semiprivate news exposure will fall somewhere in between the BBC and ITV. Partial market exposure means there is some pressure to generate ad revenues through flashier (and perhaps less informative) content; that said, partial immunity from the market may lead to somewhat more substantive content as well.

[Figure 2 about here]

We anticipate that knowledge of current affairs, particularly one’s ability to correctly answer questions about foreign affairs or domestic political issues, is bolstered most by regular exposure to BBC news, followed by Channel 4 and then ITV news respectively. As depicted in Figure 2, this appears to be the case. (As above, detailed results are provided in Appendix Table 1.) For overall knowledge, BBC and to a lesser extent Channel 4 news viewing tend to be associated with Britons’ ability to answer the full battery of current affairs knowledge questions. As we have already seen, ITV news consumption is negatively associated with a person’s ability to correctly answer knowledge questions, all else being equal.⁴⁵ This pattern holds not just for overall and hard news knowledge, but also (somewhat unexpectedly) for soft news knowledge as well.

Explaining Variance Among Public Broadcasters

Forgoing analyses point to similarities but also differences in the relationship between exposure to public broadcasters and citizens’ current affairs knowledge across countries. It is not clear why, for instance, broadcasters such as the BBC, NHK (Japan), and NRK (Norway) appear to be superior to their private counterparts in this regard, when in other countries such as Italy and Korea there is very little to distinguish the public broadcaster from other media. We explore here three potential avenues for explaining these differences.

First, we consider whether differences in the financial architecture of the various broadcasters may be related to knowledge gaps. Results for the UK in Figure 2 already point in this direction — that is, they already point towards the possibility that there is a relationship between market exposure and informative-ness. So in the top panel of Figure 3 we plot the total amount of public income derived by each broadcaster as a proportion of total revenue (x-axis) against the knowledge gaps in each country produced by exposure to public versus private news content (y-axis).⁴⁶ In other words, the broadcasters’ degree of financial “public-ness” against its relative ability to increase knowledge. The logic is that as a public broadcaster becomes more exposed to market pressure – i.e. reliant on advertising revenue – its programming begins to resemble that of its commercial rivals.

[Figure 3 about here]

The top panel of Figure 3 suggests a modest relationship between the financial public-ness of the broadcaster and knowledge. Public broadcasters in countries where knowledge gaps are widest tend to also have most of their revenue derived from public monies. Countries like Canada, and particularly Italy and Korea, where the public broadcasters are most reliant on commercial revenue streams are also where knowledge gaps between public and commercial TV news are weakest.⁴⁷

The second panel of Figure 3 examines the relationship between audience share and knowledge gaps. Audience share is measured as the percent of total television viewership that the main public broadcaster receives, on average.⁴⁸ Here we are interested in whether public broadcasters that attract large daily viewership are also the most educative. One logic is that a high daily audience share for the public broadcaster should be indicative of a public service-oriented media system. Another is that in countries where the PSB shows the most popular entertainment programs (proxied by audience share), there is the greatest inadvertent exposure to news. Recent studies have demonstrated that relative to market-based systems, public service-oriented systems are indeed more likely to cultivate informed citizens.⁴⁹ We thus anticipate that the leading public broadcasters in this type of media environment are particularly successful at doing just that.

Results do suggest that audience share is related with knowledge. Norway and the UK, where the public broadcaster attracts high daily ratings, are also where the knowledge gap between commercial and public news exposure is widest. Knowledge gaps are somewhat lower in Canada and the Japan, but so to is the daily audience share for public broadcasting programs. The outlying case is clearly Korea where the leading public broadcaster typically draws ratings of about 25 percent of all viewers, yet there is virtually no difference between public and commercial news for current affairs knowledge.

Finally, the bottom panel of Figure 3 explores the possibility that the institutional framework of the public broadcaster influences its mandate to inform and enlighten. Specifically, we are interested in the degree of institutional independence the public broadcaster has from the political process. The logic is that autonomy from everyday politics should serve to enhance journalistic objectivity and to generally enable editors and journalists alike to pursue and report stories in manner most consistent with the goals of public broadcasting.

To gauge public broadcasting autonomy we rely on a measure of *de jure* independence (legal protection) adopted from the recent work of Hanretty.⁵⁰ *De jure* independence (x-axis) is scaled from 0-1 and includes 13 indicators ranging from the nature of executive appointments and dismissals to requirements for reporting to parliament and governments. As illustrated in the bottom panel of Figure 3, the relationship between *de jure* independence and knowledge gaps appears to be quite robust. The Italian public broadcaster is clearly the least independent of the broadcasters, and its impact on knowledge is less than that of the main commercial network.⁵¹ Indeed, as noted previously, watching news in Italian public television has a net negative impact on knowledge. At the other end of the spectrum, public broadcasters in the UK and Norway scored highest on *de jure* independence and were also responsible for the widest knowledge gaps.

Discussion and Conclusions

What do our results suggest about the relative success of public over commercial broadcasters in producing an informed citizenry? Public broadcasting, in some countries at least, clearly matters. Controlling for self-selection as best we can, it appears as though those exposed to public television news learn more about hard news (and in some cases soft news as well) than those exposed to private television news for the same amount of time per week. This effect is markedly greater, however, in countries where the public broadcasters are funded mainly if not exclusively by public funds, and where they also have de jure independence from government. Essentially, freedom from interference by market forces and government seems to lead to a form of public broadcasting that is markedly “better” than its commercial rivals.

Might something else fill the void if PSBs disappear from national media landscapes? We cannot rule out the possibility that in the absence of a strong public broadcaster, commercial stations will produce news more like PSBs. This seems doubtful, however. It is costly to generate hard news; and news gathering in foreign countries is particularly resource consuming. This is perhaps why one of the main commercial news broadcasts in the US, called “World News,” offers less than 2 minutes of international affairs coverage per day.⁵² Broadcasting requires good (expensive) journalists to produce current affairs programming, and for the most part advertisers are not very interested in hard news.⁵³ There is evidence that the quantity of public affairs news supplied by commercial broadcaster is not much affected by market conditions;⁵⁴ and there is also a growing sense that part-time citizen journalists, PR specialists, and bloggers simply can’t replace full time paid professional journalists.⁵⁵ Editing, fact-checking, job security are important parts of news production. So an independent, well-funded public broadcasting may really make a difference.

Another possibility is that news reading is more educative than news watching. If this were true, the absence of a strong public broadcaster might mean little to citizens’ knowledge of current affairs; people would either learn (or not) primarily from newspapers and news websites, and PSBs would not be missed either way. Our evidence for this proposition is scant, however. As presented in the online appendix, newspaper reading is not consistently more strongly associated with knowledge (hard or soft) than is television viewing. In short, our analyses do not support the view that newspaper reading has a stronger effect on citizen knowledge than viewing news on television. (In Norway and the UK, for instance, television viewing has about twice the impact of newspaper consumption on what people know about the world.)

None of this is to say that PSB is a magical elixir for countries with low levels of political knowledge. In some countries, including Japan and the US, the public service broadcaster is regarded (perhaps justifiably) as bureaucratic and intellectually aloof. Existing work also points to real problems with reliance on public broadcasters in post-authoritarian countries.⁵⁶ And work on media *systems* (rather than individual broadcasters) suggests that variation in political knowledge might be seen as a product of the larger media system, rather than the product of individual news outlets.

We have focused here, however, on the potential differences between public and private broadcasters in producing political knowledge, across a range of six developed countries. Analyses suggest that the more PSBs come to resemble their commercial counterparts in terms dependence on advertising revenue, the less distinguishable their effect on citizens becomes. Similarly, and perhaps most importantly, political independence appears a key prerequisite for PSBs ability to perform the educative task they are expected to fulfil.⁵⁷ Note these patterns are based on trends from a limited number of countries – trends which cannot be confirmed statistically, and may not be generalizable given our relatively small sample. That said, this is among the most detailed individual-level cross-national studies of the impact of public versus private broadcasters to date. We are inclined to see the results in Figure 3 as, at a minimum, strongly suggestive of a link between the funding and content of PSBs.

Thinking more broadly, this study clearly has implications for evaluating the role of public service broadcasting. It is often pointed out that the audience share of public broadcasters is declining as a consequence of the growth of channel competition.⁵⁸ Intensified competitive pressure has led, it is suggested, to a weakening of public purpose in some public channels' output.⁵⁹ This tradition records in effect 'the decline and fall of public broadcasting' – the title of a well-known book.⁶⁰

One response to this decline literature has been to question the speed and extent of decline. Thus, it has been argued in relation to some European and English-speaking countries that public broadcaster audience share has stabilised or increased where there are two or more public broadcasters; that survey evidence indicates a public willingness to pay more for public broadcasting (with the exception of Canada); and that some public broadcasters have launched successful websites.⁶¹ The implication is that public broadcasting is worth supporting because it remains popular.

Another response has been to reformulate the case for public service broadcasting within the framework of neo-liberal thought. Public broadcasting, it has been argued, is worth preserving because it constitutes a still valid way of compensating for continuing market failure (a tendency towards oligopoly) or as a way of reaping positive externalities that cannot be realised fully through the market process.⁶² Public broadcasting, in other words, has a legitimate place within a market system.

The implication of this study, in contrast, is that public broadcasting has an important role in supporting full citizenship. It suggests that the functioning and performance of public broadcasting should be evaluated not only in terms of customer satisfaction, or within the horizon of market thought, but in terms of what television can contribute to the functioning of democracy. In short, given that public affairs knowledge appears to be significantly improved through the publicly-funded provision of news (here, on television, but potentially online as well), then governments' decisions about funding for public broadcasters seem in many cases to be very much like decisions about just how well informed their citizens will be.

Notes

¹ See, e.g., R. Lance Holbert, Nojin Kwak, Dhavan V. Shah, 'Environmental Concern, Patterns of Television Viewing, and Pro-Environmental Behaviors: Integrating Models of Media Consumption and Effects,' *Journal of Broadcasting & Electronic Media*, 47 (2003), 177-197; Stuart Soroka, 'Good News and Bad News: Asymmetric Responses to Economic Information,' *The Journal of Politics*, 68 (2006), 372-385.

² See Chris Hanretty, 'Explaining the De Facto Independence of Public Broadcasters', *British Journal of Political Science*, 40 (2010), 75-89; Johannes Bardeol and Leen d'Haenens, 'Reinventing Public Service Broadcasting in Europe: Prospects, Promises and Problems', *Media, Culture & Society*, 30 (2008), 337-355; Sara Connolly and Shaun P. Hargreaves-Heap, 'Cross Country Differences in Trust in Television and the Governance of Public Broadcasters', *Kyklos*, 60 (2007), 3-14; Mijeong Baek, 'A Comparative Analysis of Political Communication Systems and Voter Turnout', *American Journal of Political Science*, 53 (2009), 376-393; Shanto Iyengar, James Curran, Anker Brink Lund, Inka Salovaara-Moring, Kyu S. Hahn and Sharon Coen, 'Cross-National versus Individual-Level Differences in Political Information: A Media Systems Perspective', *Journal of Elections, Public Opinion and Parties*, 20 (2010), 291-309.

³ E.g. Matthew Hibberd, 'Conflicts of Interest and Media Pluralism in Italian Broadcasting', *West European Politics*, 30 (2007), 881-902; Alessandro D'Arma, 'Broadcasting Policy in Italy's 'Second Republic': National Politics and European Influences', *Media, Culture and Society*, 31 (2009), 769-786; Terry Flew, 'The Special Broadcasting Service After 30 Years: Public Service Media and New Ways of Thinking About Media and Citizenship', *Media International Australia*, 133 (2009), 9-14; Bernie Grummell, 'The Educational Character of Public Service Broadcasting: From Cultural Enrichment to Knowledge Society', *European Journal of Communication*, 24 (2009), 267-285.

⁴ E.g., Annie Lang, 'The Information Processing of Mediated Messages: A Framework for Communication Research', *Journal of Communication*, 50 (2000), 46-70.

⁵ Lance W. Bennett and Shanto Iyengar, 'A New Era of Minimal Effects: The Changing Foundations of Political Communication', *Journal of Communication*, 58 (2008), 707-731; Sendhil Mullainathan and Andrei Shleifer, 'The Market for News', *American Economic Review*, 95 (2005), 1031-1053.

⁶ Pippa Norris, *A Virtuous Circle? Political Communications in Post-Industrial Democracies*, Cambridge: Cambridge University Press (2000); Jesper Strömbäck and Adam Shehata, 'Media Malaise or a Virtuous Circle? Exploring the Causal Relationships Between News Media Exposure, Political News Attention and Political Interest', *European Journal of Political Research*, 49 (2010), 575-597; James Avery, 'Videomalaise or Virtuous Circle?', *The International Journal of Press/Politics*, 14 (2009), 410-433; Silvia Knobloch-Westerwick and Jingbo Meng, 'Reinforcement of the Political Self Through Selective Exposure to Political Messages', *Journal of Communication*, 61 (2011), 349-368.

⁷ But not inconceivable, since news programming judged similar in content might still produce knowledge effects via presentation and/or framing differences from one newscast to another.

⁸ Jochen Peter, Edmund Lauf and Holli A. Semetko, 'Television Coverage of the 1999 European Parliamentary Elections', *Political Communication*, 21 (2004), 415-433; Toril Aalberg, Peter van Aelst and James Curran, 'Media Systems and the Political Information Environment: A Cross-National Comparison', *International Journal of Press/Politics*, 15 (2010), 255-271; Christian Kolmer and Holli A. Semetko, 'International Television News: Germany Compared', *Journalism Studies*, 11 (2010), 700-717.

⁹ Although it must be noted that various studies have reported strong similarities between PSB and commercial media content in terms of news frames, source selection, and audience integration among other factors. See, for example, Matthew R. Kerbel, Apee Sumaiya and Marc Howard Ross, 'PBS Ain't So Different: Public Broadcasting, Election Frames, and Democratic Empowerment', *Harvard International Journal of Press/Politics*, 5 (2000), 8-32; Claes H. de Vreese, 'Election Coverage – New Directions for Public Broadcasting – The Netherlands and Beyond', *European Journal of Communication*, 16 (2001), 155-180; William Hoynes, 'Political Discourse and the 'New PBS'', *Harvard International Journal of Press/Politics*, 7 (2002), 34-56; Peter Lunt, 'Television, Public Participation, and Public Service: From Value Consensus to the Politics of Identity', *The Annals of the American Academy of Political and Social Science*, 625 (2009), 128-138.

¹⁰ Mary Debrett, 'Riding the Wave: Public Service Television in the Multi-Platform Era', *Media, Culture and Society*, 31 (2009), 807-827; Håkon Larsen, 'Serving The Democracy: The Debate on Public Service Broadcasting in Norway and Sweden', *Tidsskrift For Samfunnsforskning*, 49(2008), 313-342; Håkon Larsen, 'Legitimation Strategies of Public Service Broadcasters: The Divergent Rhetoric in Norway and Sweden', *Media, Culture and Society*, 32 (2010), 267-283; Kees Brant, 'Auditing Public Broadcasting Performance: Its Theory and Practice', *Javnost*, 10 (2003), 5-11; Bardoel and d'Haenens, 'Reinventing Public Service Broadcasting in Europe: Prospects, Promises and Problems'; Grummell, 'The Educational Character of Public Service Broadcasting: From Cultural Enrichment to Knowledge Society'.

¹¹ Aalberg, Aelst and Curran, 'Media Systems and the Political Information Environment: A Cross-National Comparison.'

¹² On inadvertent exposure see Markus Prior, *Post-Broadcast Democracy: How Media Choice Increases Inequality in Political Involvement and Polarizes Elections* (New York: Cambridge University Press, 2007).

¹³ Michael X. Delli Carpini and Scott Keeter, *What Americans Know about Politics and Why it matters* (New Haven: Yale University Press, 1996); Stephen Earl Bennett, Richard S. Flickinger, John R. Baker, Staci L. Rhine and Linda M. Bennett, 'Citizen's Knowledge of Foreign Affairs', *Harvard International Journal of Press and Politics* 1 (1996), 1-29.

¹⁴ Doris A. Graber, *Processing Politics: Learning from Television in the Internet Age* (Chicago: University of Chicago Press, 2001).

¹⁵ Michael Xenos and Patricia Moy, 'Direct and Differential Effects of the Internet on Political and Civic Engagement', *Journal of Communication*, 57 (2007), 704-718; Kajsa E. Dalrymple and Dietram A. Scheufele, 'Finally Informing the Electorate? How the Internet Got People Thinking about Presidential Politics in 2004', *Harvard International Journal of Press/Politics*, 12 (2007), 96-111; Shelley Boulianne, 'Stimulating or Reinforcing Political Interest: Using Panel Data to Examine Reciprocal Effects Between News Media and Political Interest', *Political Communication*, 28 (2011), 147-162; Tom P. Bakker and Claes H. de Vreese, 'Good News for the Future? Young People, Internet Use, and Political Participation', *Communication Research*, 38 (2011), 451-470.

¹⁶ Of course, the impact of one medium versus another may have less to do with the medium itself than with the content of that medium. Knowledge effects resulting from selecting newspapers instead of TV newscasts are likely due to the tendency for newspapers to print more relevant news for the task of answering the knowledge indicators. In this way, findings on newspapers versus television may not be very different from research focused on differences between public and commercial news programs.

¹⁷ Anders Todal Jenssen, 'Does Public Broadcasting Made a Difference? Political Knowledge and Electoral Campaigns on Television', *Scandinavian Political Studies*, 32 (2009), 247-271.

- ¹⁸ Claes H. de Vreese and Hajo Boomgaarden, ‘News, Political Knowledge and Participation: The Differential Effects of News Media Exposure on Political Knowledge and Participation’, *Acta Politica*, 41 (2006), 317-341.
- ¹⁹ Kees Aarts and Holli A. Semetko, ‘The Dividend Electorate: Media Use and Political Involvement’, *Journal of Politics*, 65 (2003), 759-784.
- ²⁰ Christina Holtz-Bacha and Pippa Norris, ‘To Entertain, Inform, and Educate: Still the Role of Public Television’, *Political Communication*, 18 (2001), 123-140; Gabor Toka and Marina Popescu, ‘Public Television, Private Television and Citizens’ Political Knowledge’, EUI Working Papers RSCASS (2009), Andres Todal Janssen, Toril Aalberg and Kees Aarts, ‘Informed Citizens, Media Use, and Public Knowledge of Parties Policy Positions’, in Toril Aalberg and James Curran, eds, *How Media Inform Democracy. A Comparative Approach* (New York: Routledge, 2012), pp. 138-158.
- ²¹ Holtz-Bacha and Norris, ‘To Entertain, Inform, and Educate: Still the Role of Public Television’
- ²² Toka and Popescu, ‘Public Television, Private Television and Citizens’ Political Knowledge’
- ²³ See also: Mijeong Baek, ‘A Comparative Analysis of Political Communication Systems and Voter Turnout’; Shanto Iyengar, Kyu S. Hahn, Heinz Bonfadelli and Mirko Marr, ‘Dark Areas of Ignorance’ Revisited: Comparing International Affairs Knowledge in Switzerland and the United States’, *Communication Research*, 36 (2009), 341-358; James Curran, Shanto Iyengar, Anker Brink Lund and Inka Salovaara-Moring, ‘Media Systems, Public Knowledge and Democracy: A Comparative Study’, *European Journal of Communication*, 24 (2009), 5-26; James Curran, Inka Salovaara-Moring, Sharon Coen and Shanto Iyengar, ‘Crime Foreigners and Hard News: A Cross-National Comparison of Reporting and Public Perception’, *Journalism*, 11 (2010), 1-17.
- ²⁴ Aalberg, Aelst and Curran, ‘Media Systems and the Political Information Environment: A Cross-National Comparison’.
- ²⁵ It is important to note that the Aalberg *et al.* study does not find evidence of cross-national news supply convergence over the past thirty years. If anything the opposite trend is occurring: that is, the amount of news programming offered (and consumed) in commercialized versus publicly-oriented systems is diverging if we focus on peak viewing hours and audience share.
- ²⁶ Though note that we should be careful not to blend individual-level and country-level hypotheses. Within countries, exposure to public broadcasting may be associated with higher levels of current affairs knowledge. But across countries, the existence of PSBs may or may not be associated with the provision of (and knowledge of) current affairs news. A strong PSB may increase the volume of current affairs information available on its own; it may encourage private broadcasters in the same market to present similar types of information; and/or it may encourage private broadcasters to do exactly the opposite — to focus exclusively on soft news and entertainment since the PSB takes care of the rest. The “net” effect on the availability of hard news, in short, is not clear; nor is the connection between PSBs and aggregate-level knowledge across countries. (See also a related discussion in the conclusions.)
- ²⁷ Toril Aalberg and James Curran, ‘Main Conclusions’, in Toril Aalberg and James Curran, eds, *How Media Inform Democracy. A Comparative Approach* (New York: Routledge), pp. 189-199.
- ²⁸ Curran *et al.*, ‘Crime Foreigners and Hard News: A Cross-National Comparison of Reporting and Public Perception’; Curran *et al.* ‘News Content, Media Consumption, and Current Affairs Knowledge’, in Aalberg and Curran, *How Media Inform Democracy*.
- ²⁹ Daniel C. Hallin and Paolo Mancini, *Comparing Media Systems: Three Models of Media and Politics* (Cambridge: Cambridge University Press, 2004).

³⁰ Iyengar *et al.*, ‘Dark Areas of Ignorance’ Revisited: Comparing International Affairs Knowledge in Switzerland and the United States’.

³¹ Three of those countries — Greece, Columbia, and India — are not included here due to differences in survey methodology and data availability.

³² See, for instance, Russell W. Neuman, Marion R. Just and Ann N. Crigler, *Common Knowledge: News and the Construction of Political Meaning* (Chicago: University of Chicago Press, 1992).

³³ The classic explications are Donald B. Rubin, ‘Matching to Remove Bias in Observational Studies’, *Biometrics*, 29 (1973), 153-183; Donald B. Rubin, ‘Estimating Causal Effects to Treatments in Randomized and Nonrandomized Studies’, *Journal of Educational Psychology*, 66 (1974), 688-701; Paul R. Rosenbaum and Donald B. Rubin, ‘The Central Role of the Propensity Score in Observational Studies for Causal Effects’, *Biometrika*, 70 (1983), 41-50; Paul R. Rosenbaum and Donald B. Rubin, ‘The Bias due to Incomplete Matching’, *Biometrics*, 41 (1985), 103-116.

³⁴ Note, then, that unmatched individuals are dropped from matching analyses. This is of course one of the major differences between matching and more traditional approaches.

³⁵ For more thorough accounts of these issues, see, e.g., James J. Heckman, Hidehiko Ichimura and Petra E. Todd, ‘Matching as an Econometric Evaluation Estimator: Evidence from Evaluating a Job Training Programme’, *Review of Economic Studies*, 64 (1997), 605-654; Dan A. Black and Jeffrey A. Smith, ‘How Robust is the Evidence on the Effects of College Quality? Evidence from Matching’, *Journal of Econometrics*, 121 (2004), 9-124; Charles Michalopoulos, Howard S. Bloom, Carolyn J. Hill, ‘Can Propensity-Score Methods Match the Findings from a Random Assignment Evaluation of Mandatory Welfare-to-Work Programs?’ *The Review of Economics and Statistics*, 86 (2004), 156-179; Jeffrey Smith and Petra Todd, ‘Does Matching Overcome LaLonde’s Critique of Nonexperimental Methods?’ *Journal of Econometrics*, 125 (2005), 305-353; Kevin Arceneaux, Alan S. Gerber and Donald P. Green, ‘Comparing Experimental and Matching Methods Using a Large-Scale Voter Mobilization experiment’, *Political Analysis*, 14 (2006), 37-62.

³⁶ For a similar approach, see Matthew S. Levendusky, ‘Rethinking the Role of Political Information’, *Public Opinion Quarterly* 75 (2011), 42-64.

³⁷ Those advantages are discussed in some detail elsewhere; see notes #33 and #35, as well as the online appendix. And note that in this case, just to be sure, all the results reported below were replicated using a more traditional regression approach. Results are very similar, though with a somewhat larger effect for media exposure. This is in line with the expectation that proximity matching would yield somewhat more conservative estimates; but our focus here is not to test the relative merits of proximity matching, but rather the impact of public versus private broadcasting on knowledge, and in this regard the differences across media and across countries are very similar using either approach.

³⁸ Sascha O. Becker and Andrea Ichino, ‘Estimation of Average Treatment Effects Based on Propensity Scores’, *The Stata Journal* 2 (2002), 358-377.

³⁹ For a particularly useful discussion, see Marco Caliendo and Sabine Kopeinig, ‘Some Practical Guidance for the Implementation of Propensity Score Matching’, *IZA Discussion Paper No. 1588*. (2005).

⁴⁰ Dehejia, Rajeev H and Sadek Wahba, ‘Causal Effects in Nonexperimental Studies: Reevaluation of the Evaluation of Training Program’, *Journal of the American Statistical Association* 94 (1999), 1053-1062.

⁴¹ Additional results are available upon request.

⁴² Age is divided into groups, rather than used in its raw, interval-level form, in order to achieve balance for the matching procedure. That said, results do not change when the interval-level measure of age is used as a control in an OLS regression.

⁴³ Indeed, for recent work exploring variations across countries in the individual-level predictors of news consumption, see Adam Shehata and Jesper Strömbäck, ‘A Matter of Context: A Comparative Study of Media Environments and News Consumption Gaps in Europe’, *Political Communication* 28 (2011), 110-134; Arild Blekesaune, Eiri Elvestad and Toril Aalberg, ‘Tuning out the World of News and Current Affairs,’ *European Sociological Review* 28(2010), 110-126.

⁴⁴ Established in 1982, Channel 4 was the UK’s second commercial broadcaster, though it was not exclusively commercial — rather, it reflected (and continues to reflect) a compromise between public-service and commercial approaches. It is publicly owned, and largely commercially funded; at the same time, it has a remit of public service obligations and is regulated by the Office of Communications (Ofcom).

⁴⁵ Note that the negative coefficient for ITV news is a little peculiar. We might expect private news to not contribute to knowledge; to actually reduce knowledge is another matter. That said, the impact is not implausible: exposure to private television content may distract enough from current affairs information gleaned elsewhere that viewers know less about current affairs than they would had they not spent so much time on ITV. Of course, this may also be partly a product of self-selection — those who know less about current affairs continue to know less by watching ITV.

⁴⁶ All financial information applies to the 2010 fiscal year (ending March 31st, 2011) and is sourced from Annual Reports published online by each broadcaster.

⁴⁷ Note that we do not distinguish between public monies derived from license fees versus parliamentary appropriation. Though we might expect that those broadcasters reliant on compulsory, universal license fees would be most inclined to air content with broad appeal (i.e., something for everyone/audience-driven); and parliamentary appropriation may be the funding model best suited for public broadcasters to act as “market failure broadcasters” — filling gaps in programming created by entertainment-driven commercial media. This is purely conjecture at this stage, however.

⁴⁸ Here, audience share is proportion of total television viewership, on average, for each hour of prime time. Note that we include all channels available from the main public broadcaster in each country. Thus in the UK, for instance, audience share is the combined share for BBC One, BBC Two, BBC Three and so forth. Note also that the standard definition of prime time varies somewhat by country, but ranges from a minimum of 18:00 to a maximum of 23:00. Audience numbers are current (2010 and 2011), as reported in the Annual Report of each broadcaster and which frequently appear in press reports within in each country. Media use is typically measured by private, independent firms such as BBM Canada, Auditel Italy, BARD UK, and Gallup Norway.

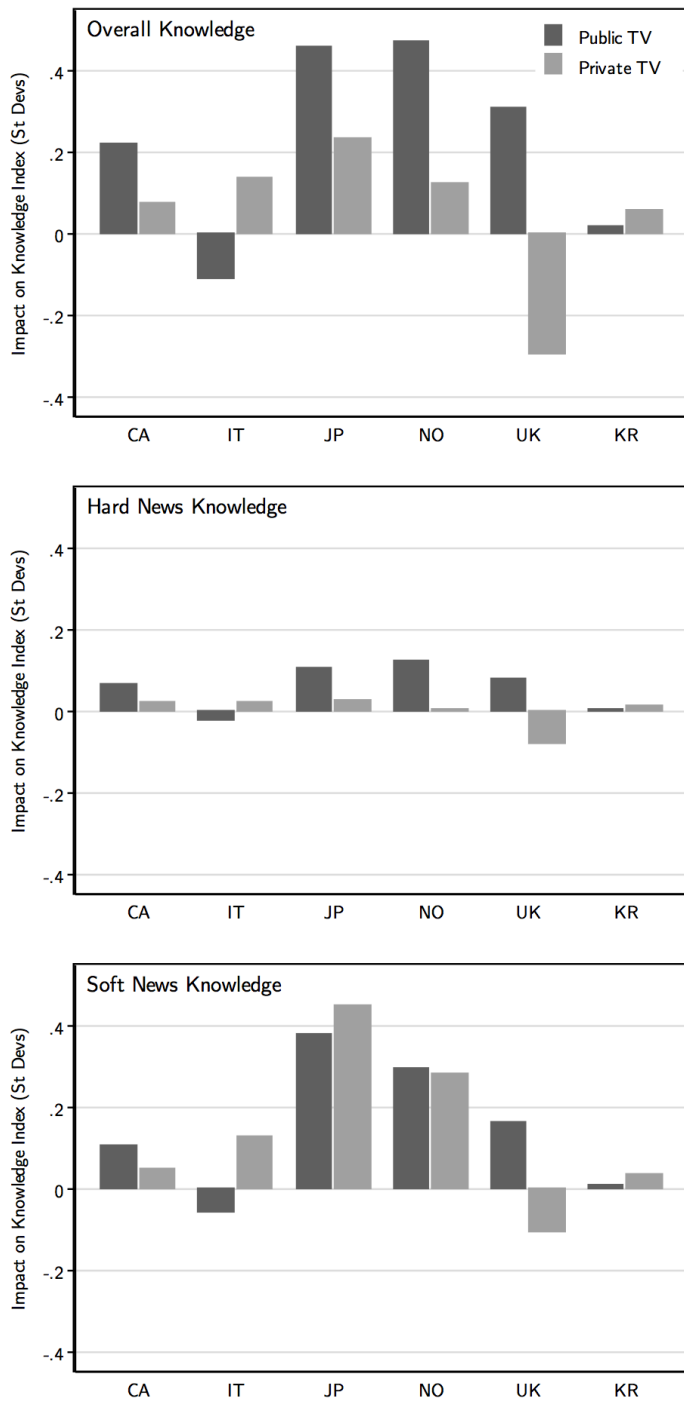
⁴⁹ Iyengar *et al.*, ‘Cross-National versus Individual-Level Differences in Political Information: A Media Systems Perspective’; Curran *et al.*, ‘Media Systems, Public Knowledge and Democracy: A Comparative Study.

⁵⁰ Note the *de jure* independence is unavailable for Korea. For the indicators of *de jure* independence see Hanretty, ‘Explaining the De Facto Independence of Public Broadcasters,’ and also Chris Hanretty, *Public Broadcasting and Political Interference* (London: Routledge, 2011).

⁵¹ Note, the *de jure* independence statistic for RAI corresponds with 2005 broadcasting legislation in Italy. It is possible that the impact of the Gasparri Law on RAI, enacted in the spring of 2004, is not fully captured by this statistic.

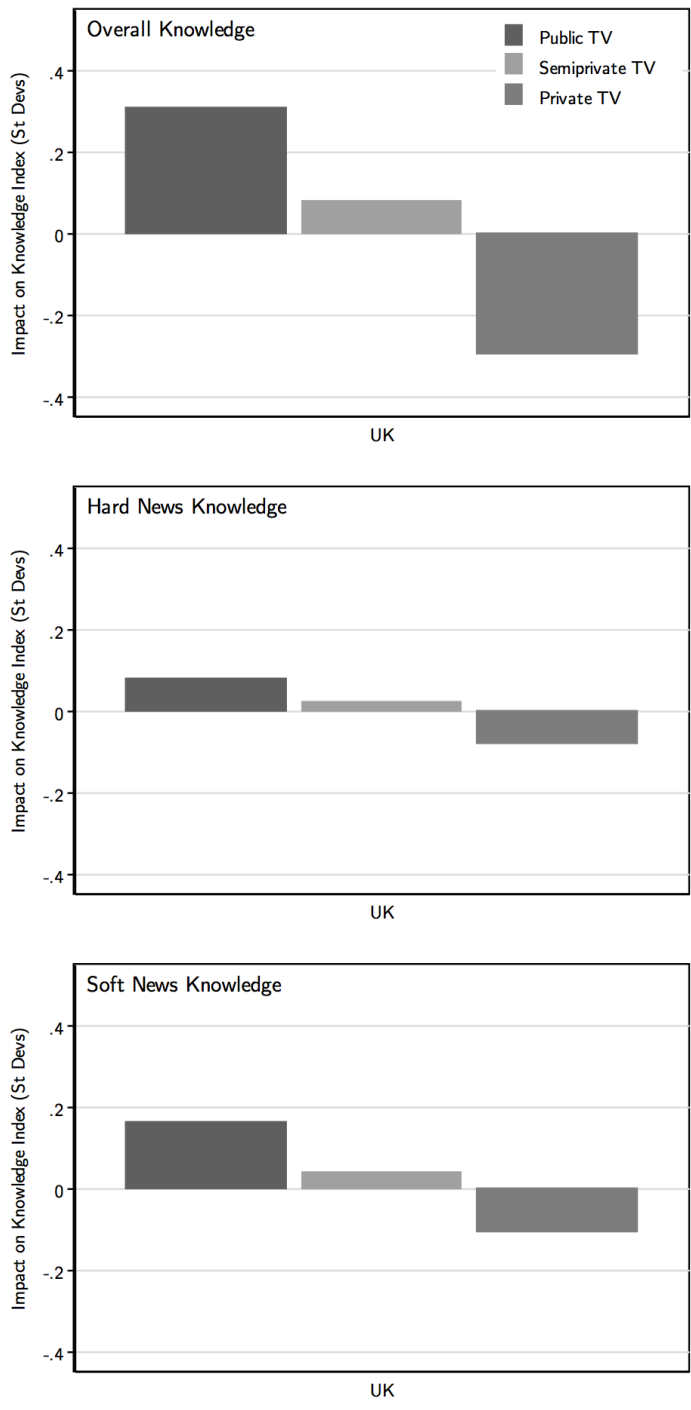
- ⁵² Tove Brekken, Kjersti Thorbjørnsrud and Toril Aalberg, 2012. ‘News Substance: The Relative Importance of Soft and De-contextualized News’, in Toril Aalberg and James Curran, eds, *How Media Inform Democracy: A Comparative Approach* (New York: Routledge, 2011), pp. 64-78.
- ⁵³ James T. Hamilton, ‘The (Many) Markets for International News: How News from Abroad Sells at Home’, *Journalism Studies*, 11 (2010), 650 – 666.
- ⁵⁴ Philip M. Napoli, ‘Market Conditions and Public Affairs Programming: Implications for Digital Television Policy’, *Harvard International Journal of Press/Politics* 6 (2001), 15-29.
- ⁵⁵ Robert W. McChesney and John Nichols, *The Death and Life of American Journalism: The Media Revolution That Will Begin the World Again* (Philadelphia: Nation Books, 2010).
- ⁵⁶ Devra C. Moehler and Naunihal Singh. ‘Whose News Do You Trust? Explaining Trust in Private versus Public Media in Africa’, *Political Research Quarterly* 64, 2 (2011): 276-292.
- ⁵⁷ Recall also that knowledge variance between disadvantaged and advantaged groups is directly related to the broadcasting model. Disadvantaged groups in US perform especially poorly on knowledge indicators which suggests that gaps between groups will grow as media systems become more commercialised and/or if PSBs weaken.
- ⁵⁸ E.g. Petros Iosifidis, *Public Television in Europe: Technological Challenges and New Strategies* (London: Palgrave Macmillan, 2007).
- ⁵⁹ Emily Seymour and Steven Barnett, *Factual International Programming on UK Public Service Television, 2005*, London: Communication Research Unit, University of Westminster, 2006; Brian Winston, ‘Towards Tabloidization? Glasgow Revisited, 1975-2001’, *Journalism Studies* 3, 1 (2002), 5-20.
- ⁶⁰ Michael Tracey, *The Decline and Fall of Public Service Broadcasting* (Oxford: Oxford University Press, 1998).
- ⁶¹ Chris Hanretty, *Public Broadcasting’s Continued Rude Health*, London: British Academy Report, April 2011
- ⁶² Gavyn Davies, ‘The BBC and Public Value’, in Dieter Helm, Damian Green, Mark Oliver, Simon Terrington, Andrew Graham, Bill Robinson, Gavyn Davies, Jeremy Mayhew and Luke Bradley-Jones, eds, *Can the Market Deliver? Funding Public Service Television in the Digital Age* (Eastleigh: John Libbey, 2005), pp. 129-50; Andrew Graham and Gavyn Davies, *Broadcasting, Society and Policy in the Multimedia Age* (Luton: University of Luton Press, 2001).

Figure 1. The Effect of Public versus Private Television



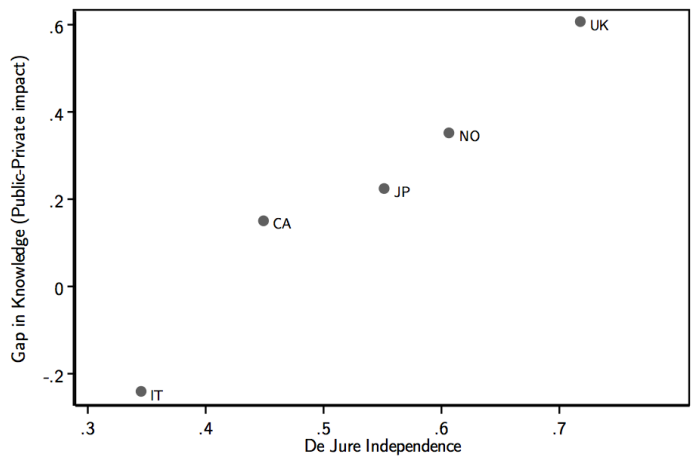
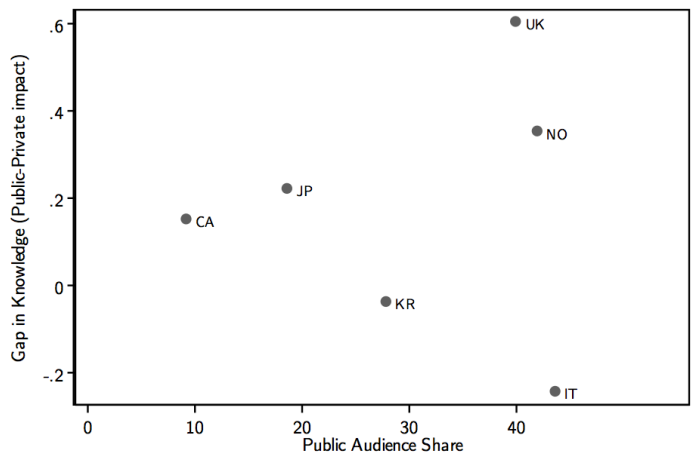
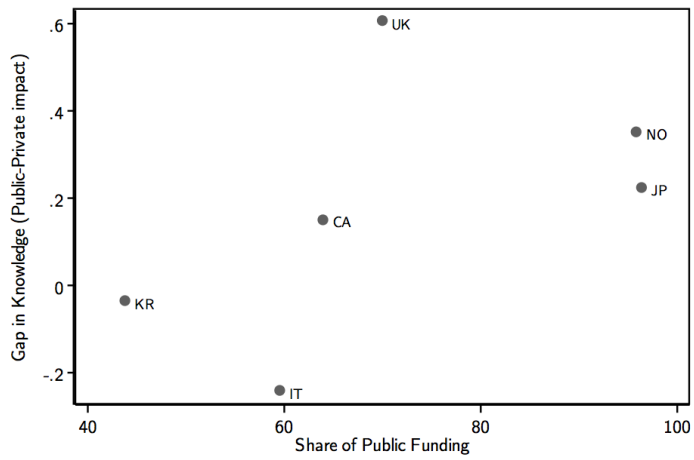
Based on propensity score analysis, controlling for age, education, political interest and media use.

Figure 2. The Effect of Semiprivate Television



Based on propensity score analysis, controlling for age, education, political interest and media use.

Figure 3. System Measures and the Knowledge Gap



Appendix Table 1. Proximity Matching Results

Public TV											
	N		All News			Hard News			Soft News		
	treat	control	ATTR	se	t-ratio	ATTR	se	t-ratio	ATTR	se	t-ratio
CA	302	457	0.221	0.074	2.975	0.067	0.020	3.265	0.106	0.075	1.422
IT	485	419	-0.109	0.070	-1.572	-0.024	0.014	-1.714	-0.060	0.069	-0.867
JP	549	377	0.455	0.070	6.544	0.103	0.017	6.132	0.376	0.074	5.112
NO	575	347	0.471	0.070	6.754	0.123	0.019	6.619	0.295	0.075	3.954
UK	664	233	0.307	0.084	3.643	0.078	0.021	3.670	0.165	0.089	1.857
KR	537	655	0.016	0.059	0.265	0.004	0.012	0.300	0.007	0.059	0.116

Private TV											
	N		All News			Hard News			Soft News		
	treat	control	ATTR	se	t-ratio	ATTR	se	t-ratio	ATTR	se	t-ratio
CA	401	351	0.072	0.077	0.929	0.020	0.022	0.919	0.049	0.078	0.624
IT	231	644	0.136	0.078	1.754	0.021	0.015	1.378	0.128	0.077	1.661
JP	768	151	0.235	0.111	2.105	0.026	0.026	0.976	0.449	0.113	3.968
NO	566	347	0.122	0.075	1.624	0.005	0.020	0.241	0.281	0.076	3.686
UK	328	549	-0.295	0.070	-4.213	-0.080	0.018	-4.560	-0.105	0.070	-1.506
KR	439	753	0.055	0.062	0.896	0.012	0.012	0.928	0.033	0.061	0.535

Semi-Private TV											
	N		All News			Hard News			Soft News		
	treat	control	ATTR	se	t-ratio	ATTR	se	t-ratio	ATTR	se	t-ratio
UK	141	726	0.078	0.096	0.813	0.020	0.023	0.868	0.037	0.100	0.372

Propensity scores are based on probit models with age, education, political interest and other media use as IVs. Results are estimated using radius matching method.

Auntie Knows Best?

Public Broadcasters and Current Affairs Knowledge

Online Appendix

Survey Details

Surveys in the US, UK, Canada, Australia, Italy, Japan and Norway were conducted by YouGov-PMX. YouGov uses a matching methodology for delivering online samples that mirror target populations on key demographics. The approach is described in some detail in Shanto Iyengar and Lynn Vavreck, 'Online Panels and the Future of Political Communication Research', in Holli A. Semetko and Margaret Scammell, eds, Sage Handbook of Political Communication (Beverly Hills: Sage, 2011).

The samples for the US and UK are in this case based directly on existing YouGov panels. In other countries, YouGov applied their sampling techniques to panels maintained by Research Now (Canada, Norway, Japan, Australia) and Zapera (Norway).

The Korean survey was conducted by Nielsen KoreanClick, where respondents were drawn from a panel of 12,000 Internet users, with matching implemented on gender, age and education.

Principle investigators are included as authors for the paper; funding sources are acknowledged in the paper as well.

Appendix Tables

Table 1 includes the the full matching models that precede the propensity score analyses in the main body of the paper.

Table 2 includes a sample battery of knowledge questions used to capture hard and soft news knowledge. Questions vary slightly across countries; specific questions are available in the country-level survey data files, from the principle investigators listed above.

Table 3 shows results of a comparison of television versus newspaper exposure on political knowledge. The models are estimated in exactly the same way as for the analyses of public versus private broadcasters in the text, with two minor changes: (1) the television viewing variable capture television viewing generally rather than public or private viewing, and (2) the "other media exposure" variable used in the estimation of propensity scores uses radio and newspaper reading in models of television viewing, and radio and television viewing in models of newspaper reading. Note that using just general television viewing allows us to include both US and Australian data as well. There is of course much more than can be done with these data, but for our purposes (see the Conclusions above) what is most critical

is that the estimated impact of newspapers on knowledge is not consistently higher than the estimated impact of television viewing.

Tables 4 through 6 include results for the impact of public and private television viewing replicated using OLS. Those results are discussed in some detail below.

Matching vs. OLS Estimates of Media Effects

We have discussed in the main body of the paper the potential advantages of using propensity score matching to produce estimates of media effects. There are both advantages and disadvantages to that approach, however, and we discuss those in somewhat more detail here. That said, the most critical implication of the findings in Tables 4 through 6 is that they are not substantially different from those in the text — that is, media effects estimated by OLS are very similar to those estimated using matching methods above. Our results are robust to changes in estimation.

We have already noted the issue of endogeneity in the evaluation of media effects. In the present case, PSB may provide a greater amount of hard news information than commercial broadcasting, but it is also the case that people interested in, and with higher levels of hard news knowledge to begin with, choose to watch PSB. Statistical analyses must try to capture which comes first, knowledge or exposure.

There are several different possible approaches to this issue. The more common approach is to use a regular (e.g., OLS) regression model, including the other variables related to the likelihood of exposure. By including education and income, for instance, the media exposure variable is assumed to capture the impact of exposure above and beyond the impact of education and income. The coefficient is intended to capture the impact of exposure *ceteris paribus*, that is, holding other things equal.

There are serious weaknesses to this approach, however. First and foremost is the fact that the impact of exposure is only exposure *per se* to the extent that all other possible factors driving exposure (self-selection) are included in the model. Missing any of these factors leads to omitted variable bias, and an over-estimate of the coefficient for exposure. It is likely that most if not all existing work relying on standard regression models to estimate the impact of media exposure on knowledge makes this error.

Matching methods may provide more realistic estimates - realistic in the sense that they may capture the impact of exposure, more independent of the various factors that lead respondents to self-select into high- or low-exposure groups. As discussed in the text, whether this is the case is a function of the model which produces the propensity score. If that model includes the variables that account for self-selection, then matching methods will produce good estimates. If that model does not include the variables accounting for self-selection, however, all the problems associated with missing variable bias still apply. The impact of exposure may include the impact of other factors related to self-selection.

That said, the problems resulting from missing variable bias may be somewhat smaller in a propensity score analysis. First, the impact of missing variables, to the extent that they are

correlated to variables included in the model of the propensity score, may be subsumed in part by the coefficients for those included variables. The result is an inaccurate (overstated) estimate of coefficients in the model of the propensity score; but, as a consequence, an estimated propensity score that takes into account, at least in part, these missing variables. The coefficient estimates in the propensity score model are of course of little interest — what matters is the estimated treatment effect, which in this case may be somewhat more accurate as a consequence of shifting (some of) the impact of missing variables into the estimation of the propensity score (rather than leaving it in the estimate of treatment effects).

It is still the case that estimating propensity scores likely does not remove the bias produced by missing variables; put differently, matching cannot completely solve the problem of self-selection in the kinds of models explored above. Indeed, some work suggests that estimates resulting from matching may be no more reliable than those resulting from more traditional regressions. (For a particularly useful discussion, see Arceneaux et al. 2006.) It is, in sum, sensible to think of a propensity score analysis *not* as a method of solving the endogeneity problem, but rather as a method that may in the right circumstances reduce bias in the estimated treatment effect, in this case, news exposure.

There are some other advantages and disadvantages of matching methods and OLS, but those have been discussed in some detail elsewhere (see citations in the text). Here, the goal is mainly to confirm that results shown in the text are not driven by our choice of estimation strategy. To do this, we have both re-estimated results using a number of different matching algorithms, and re-estimated results using simple OLS models. We show the latter here.

OLS models rely on the same variables as the propensity score analysis, though here obviously we include all variables in a single model, predicting knowledge as a function of television viewing alongside the other controls. Note that while the matching models require that we run separate analyses for our two treatments — public and private television viewing — we can include both simultaneously in OLS models; and since doing so does not produce coefficients that are vastly different from OLS models that examine the two treatments separately, we just show just the combined models here.

There are some minor differences between the matching and OLS results, to be sure. OLS reveals no significant impact of television viewing on knowledge in Canada; and the ratio of the impact of public versus private television varies somewhat in certain countries from the matching to the OLS results. But these are relatively minor differences; and the general findings hold. That is, it is still the case that (a) in most countries, public television viewing has a significant positive impact on knowledge, while private television viewing does not, (b) this is particularly true for hard news knowledge, while for soft news knowledge private television viewing, particularly in Japan and Norway, (c) by far the largest gap in impact between public and private broadcasters is in the UK, followed by, depending on whether it is combined, hard, or soft news knowledge, some combination of Norway and Japan.

In sum, these results make clear that analyses in the text are not a peculiar product of propensity score matching. That said, they do make clear that the advantages of propensity score matching may be rather limited where eliminating endogeneity is concerned. The magnitude of the effect as estimated using OLS is not consistently lower than the effect estimated using matching, for instance. (This is true in some but not all cases.) Endogeneity remains a concern, clearly, and panel data (in which respondents actually change their sources of news) may be the only way to solve that problem definitively. In the meantime, we suggest that our results come as close as they can with cross-sectional data; and while the overall impact of television news may be slightly over-stated overall, the differences between public and private television are both robust to changes in specification, and meaningful.

Online Appendix Table 1. Propensity Score Models, Public, Private and Semi-Private Television Viewing

	DV: Public TV Viewing						Semi(private)
	CA	IT	JP	NO	UK	KR	UK
Age: 35(54)	.076 (.130)	.121 (.127)	.315** (.152)	.526** (.121)	.350** (.112)	.351** (.089)	.061 (.127)
Age: 55+	.173 (.129)	.450** (.136)	.882** (.167)	1.225** (.156)	.662** (.138)	.819** (.132)	.038 (.150)
Education	.026 (.091)	.055 (.076)	.333** (.131)	.102 (.088)	.114 (.082)	.033 (.049)	.057 (.101)
Interest, cat1	-1.182** (.182)	.038 (.151)	.707** (.231)	.486** (.223)	.523** (.177)	.352** (.163)	.212 (.187)
Interest, cat2	-1.049** (.149)	.227* (.126)	-.290 (.214)	.587** (.171)	.393** (.164)	.169 (.138)	.491** (.167)
Interest, cat3	-.616** (.137)	.318** (.121)	-.024 (.214)	.063 (.166)	.104 (.167)	.125 (.139)	.138 (.154)
Media Use	.300** (.067)	.265** (.054)	.223** (.076)	.350** (.072)	.298** (.067)	.286** (.055)	.358** (.070)
Constant	-.241 (.279)	.941** (.246)	-1.026** (.445)	-.963** (.319)	.360 (.276)	-.633** (.192)	-1.540** (.314)
N	759	904	926	922	867	1192	878

	DV: Private TV Viewing					
	CA	IT	JP	NO	UK	KR
Age: 35(54)	.322** (.123)	.065 (.140)	.355** (.167)	.388** (.117)	.247** (.110)	.386** (.092)
Age: 55+	.693** (.124)	.026 (.151)	.701** (.171)	.723** (.147)	.242* (.126)	.601** (.132)
Education	.046 (.094)	.070 (.085)	.042 (.134)	.081 (.089)	.420** (.079)	.055 (.050)
Interest, cat1	.758** (.175)	.300* (.169)	.257 (.280)	.242 (.210)	.122 (.165)	.370** (.164)
Interest, cat2	.658** (.150)	.180 (.135)	.100 (.263)	.245 (.157)	.133 (.147)	.344** (.140)
Interest, cat3	.324** (.142)	.208 (.127)	.161 (.255)	.239 (.157)	.016 (.145)	.191 (.139)
Media Use	.312** (.067)	.359** (.060)	.248** (.085)	.115** (.020)	.243** (.062)	.263** (.056)
_cons	.285 (.283)	1.386** (.271)	.348 (.515)	.913** (.319)	.054 (.262)	.942** (.194)
N	752	875	919	913	877	1192

* p < .10; ** p < .05. Cells contain probit regression coefficients with standard errors in parentheses.

Online Appendix Table 2. Knowledge Questions: Cross-National and UK Domestic

As noted in the text, hard and soft news knowledge is based on a battery of knowledge questions asked in each country. Some questions were the same from country to country; others were country-specific (the goal being to capture a combination of national and international affairs knowledge). We list below the knowledge questions asked in the Canadian survey, indicating whether they were common to all surveys or specific to the Canada. Other country-specific questions are available in the the datafiles and codebooks for each country; these are available from the Principle Investigators for each survey.

Hard News

Common

<p>Angela Merkel holds what position?</p> <ul style="list-style-type: none"> •Chancellor of Germany •US Attorney General •European Union chairman •Austrian Prime Minister •Can't say <p>In Thailand the 'red shirts' are:</p> <ul style="list-style-type: none"> •Demonstrators sympathetic to ousted prime minister, Thaksin Shinawatra •Buddhist social movement •Pro-communist demonstrators •A section of the armed forces violently suppressing dissent •Can't say <p>The Copenhagen Summit refers to a:</p> <ul style="list-style-type: none"> •Conference on climate change •Meeting of EU Heads of State •Free Trade Treaty •Agreement to increase foreign aid for developing nations •Can't say <p>Please identify the UN secretary General:</p> <ul style="list-style-type: none"> •Ban Ki-Moon •Hu Jintao •Wen Jiabao •Pratibha Patil •Can't say 	<p>Vladimir Putin serves as:</p> <ul style="list-style-type: none"> •Prime Minister of Russia •Coach of the Edmonton Oilers •Owner of the Yokos Oil Company •Russia's UN ambassador •Can't say <p>Angela Merkel holds what position?</p> <ul style="list-style-type: none"> •Chancellor of Germany •US Attorney General •European Union chairman •Austrian Prime Minister •Can't say <p>The term Taliban refers to:</p> <ul style="list-style-type: none"> •The Rulers of Afghanistan 1996-2001 •An Iranian political party •A Province in the disputed Kashmir region •Supporters of the former dictator of Iraq •Can't say <p>The national unemployment rate at the moment is around:</p> <ul style="list-style-type: none"> •10 percent •15 percent •5 percent •20 percent •Can't say
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Canada Only

<p>The Speaker of the House of Commons recently issued a ruling related to what issue?</p> <ul style="list-style-type: none"> •Afghan detainees •Illegal immigration •Private healthcare •Unemployment •Can't say 	<p>The current Secretary of State of the United States is</p> <ul style="list-style-type: none"> •Hillary Clinton •Barak Obama •Joe Biden •John McCain •Can't say
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Former Conservative MP Rahim Jaffer is involved in a parliamentary investigation about what?

- Lobbying activities and parliamentary ethics
- Using undisclosed personal finances to pay for his campaign
- Unauthorized publication of government documents
- Human rights violations
- Can't say

Soft News

Common

The 2010 World Exposition is taking place in:

- Shanghai
- Paris
- Mumbai
- Vancouver
- Can't say

American golfer Tiger Woods recently took a break from the professional tour. Why did he stop taking part in tournaments?

- He was undergoing marital counseling
- Other commercial interests took precedence over golf
- He was recovering from back surgery
- His was working on his technique with his golf coach
- Can't say

Canada Only

Who was voted "best actress" at the last Academy Awards ceremony?

- Sandra Bullock
- Helen Mirren
- Meryl Streep
- Jodie Foster
- Can't say

Sidney Crosby is a member of which professional sports team?

- Pittsburg Penguins
- Toronto Maple Leafs
- Saskatchewan Rough Riders
- Vancouver Whitecaps
- Can't say

Online Appendix Table 3. The Effect of Television versus Newspapers

TV											
	N		All News			Hard News			Soft News		
	treat	control	ATTR	se	t-ratio	ATTR	se	t-ratio	ATTR	se	t-ratio
AS	711	228	0.276	0.083	3.331	0.057	0.019	2.981	0.276	0.088	3.136
CA	469	299	0.157	0.084	1.876	0.034	0.024	1.440	0.173	0.086	2.017
IT	778	140	0.307	0.120	2.568	0.028	0.024	1.167	0.426	0.120	3.554
JP	771	155	0.298	0.114	2.625	0.049	0.027	1.803	0.420	0.117	3.593
NO	606	323	0.464	0.074	6.243	0.114	0.020	5.807	0.347	0.079	4.400
UK	662	240	0.300	0.085	3.517	0.061	0.022	2.843	0.311	0.089	3.488
US	606	312	0.084	0.082	1.030	-0.003	0.020	-0.133	0.219	0.082	2.673
KR	707	485	0.387	0.061	6.354	0.070	0.012	5.794	0.326	0.063	5.174

Newspapers											
	N		All News			Hard News			Soft News		
	treat	control	ATTR	se	t-ratio	ATTR	se	t-ratio	ATTR	se	t-ratio
AS	426	513	0.172	0.068	2.537	0.037	0.016	2.355	0.145	0.068	2.141
CA	385	383	0.205	0.078	2.616	0.056	0.022	2.556	0.143	0.080	1.796
IT	551	367	0.176	0.074	2.369	0.029	0.015	2.014	0.153	0.075	2.036
JP	579	347	0.216	0.077	2.817	0.038	0.019	2.014	0.283	0.077	3.651
NO	727	202	0.252	0.093	2.709	0.050	0.024	2.146	0.273	0.103	2.660
UK	451	451	0.160	0.069	2.325	0.030	0.017	1.772	0.186	0.069	2.680
US	413	505	0.169	0.068	2.475	0.028	0.017	1.694	0.185	0.069	2.677
KR	567	625	0.472	0.058	8.118	0.094	0.012	8.100	0.320	0.059	5.391

Propensity scores are based on probit models with age, education, political interest and other media use as IVs. Results are estimated using radius matching method.

Online Appendix Table 4. All Knowledge, OLS estimates

	DV: All Knowledge					
	CA	IT	JP	NO	UK	KR
Public	-.092 (.076)	-.165* (.066)	.339** (.076)	.213** (.078)	.375** (.077)	-.086 (.061)
Private	-.007 (.075)	.045 (.074)	.137 (.098)	-.028 (.074)	-.383** (.066)	-.038 (.063)
Age: 35-54	.359** (.080)	.099 (.096)	.056 (.096)	.158* (.079)	.384** (.078)	.256** (.066)
Age: 55+	.784** (.081)	.227* (.103)	.160 (.099)	.470** (.093)	.422** (.084)	.196 (.100)
Education	.390** (.060)	.307** (.059)	.465** (.069)	.308** (.058)	.169** (.054)	.027 (.034)
Interest, cat1	-.915** (.116)	-.639** (.116)	-.832** (.128)	-.848** (.131)	-.849** (.114)	-.631** (.126)
Interest, cat2	-.607** (.103)	-.327** (.096)	-.490** (.118)	-.511** (.098)	-.513** (.097)	-.355** (.115)
Interest, cat3	-.183 (.096)	-.145 (.087)	-.296** (.112)	-.087 (.087)	-.223* (.091)	-.079 (.115)
Media Use	.097* (.044)	.212** (.042)	.174** (.046)	.279** (.050)	.263** (.040)	.346** (.039)
Constant	-.929** (.197)	-.844** (.195)	-1.367** (.248)	-1.432** (.199)	-.865** (.187)	-.487** (.151)
N	752	875	919	913	877	1192
Rsqr	.278	.137	.330	.329	.276	.155

* p < .05; ** p < .01. Cells contain OLS regression coefficients with standard errors in parentheses

Online Appendix Table 5. Hard News Knowledge, OLS estimates

	DV: Hard Knowledge					
	CA	IT	JP	NO	UK	KR
Public	-.018 (.022)	-.034* (.013)	.075** (.017)	.070** (.021)	.097** (.019)	-.018 (.012)
Private	-.005 (.021)	.005 (.015)	.008 (.020)	-.041* (.020)	-.102** (.016)	-.008 (.013)
Age: 35-54	.097** (.022)	.042* (.019)	.027 (.020)	.044* (.020)	.102** (.019)	.053** (.013)
Age: 55+	.185** (.022)	.075** (.021)	.060** (.023)	.138** (.024)	.123** (.021)	.049* (.020)
Education	.105** (.017)	.062** (.012)	.108** (.015)	.096** (.015)	.060** (.013)	.003 (.007)
Interest, cat1	-.259** (.033)	-.102** (.023)	-.216** (.029)	-.244** (.033)	-.199** (.028)	-.132** (.025)
Interest, cat2	-.182** (.029)	-.059** (.019)	-.126** (.028)	-.153** (.026)	-.119** (.024)	-.087** (.023)
Interest, cat3	-.047 (.027)	-.024 (.018)	-.077** (.027)	-.038 (.024)	-.050* (.023)	-.035 (.023)
Media Use	.025* (.012)	.034** (.008)	.035** (.011)	.056** (.012)	.061** (.010)	.067** (.008)
Constant	-.235** (.055)	-.182** (.038)	-.286** (.053)	-.355** (.051)	-.263** (.047)	-.076* (.030)
N	752	875	919	913	877	1192
Rsqr	.261	.117	.316	.334	.283	.148

* p < .05; ** p < .01. Cells contain OLS regression coefficients with standard errors in parentheses

Online Appendix Table 6. Soft News Knowledge, OLS estimates

	DV: Soft Knowledge					
	CA	IT	JP	NO	UK	KR
Public	-.111 (.081)	-.104 (.067)	.302** (.105)	.022 (.085)	.183* (.087)	-.055 (.064)
Private	.015 (.078)	.056 (.075)	.326* (.143)	.237** (.079)	-.154* (.071)	-.025 (.065)
Age: 35-54	.252** (.091)	-.079 (.095)	-.081 (.137)	.078 (.095)	.160 (.089)	.157* (.070)
Age: 55+	.743** (.090)	-.046 (.103)	-.084 (.136)	.177 (.106)	.061 (.095)	.040 (.097)
Education	.278** (.065)	.193** (.061)	.365** (.104)	.075 (.061)	-.084 (.058)	.040 (.036)
Interest, cat1	-.563** (.123)	-.584** (.116)	-.444* (.188)	-.360* (.164)	-.615** (.126)	-.374** (.124)
Interest, cat2	-.304** (.104)	-.254** (.096)	-.268 (.164)	-.167 (.099)	-.384** (.107)	-.090 (.105)
Interest, cat3	-.142 (.097)	-.125 (.088)	-.152 (.155)	.063 (.085)	-.184 (.098)	.122 (.103)
Media Use	.074 (.047)	.192** (.043)	.185** (.060)	.301** (.054)	.195** (.046)	.254** (.038)
Constant	-.772** (.199)	-.460* (.200)	-1.356** (.393)	-1.042** (.215)	-.020 (.203)	-.524** (.146)
N	752	875	919	913	877	1192
Rsqr	.161	.091	.190	.158	.101	.085

* $p < .05$; ** $p < .01$. Cells contain OLS regression coefficients with standard errors in parentheses.