

Does Exposure to Media Shape Perceptions of Corruption?

Evidence from Post-Socialist Countries^{*}

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Abstract

This paper empirically assesses the effect of exposure to media on individuals' perceptions of corruption, taking into account the heterogeneous effects of the extent of state control of media. Perceptions of corruption serve as the traditional basis for the corruption indices that drive both policy decisions and academic research. However, perceptions of corruption differ from actual corruption in many ways; to elucidate the disconnect, this paper investigates media exposure as a driver of individuals' corruption perceptions. Data from the European Bank for Reconstruction and Development's Life in Transition Survey is employed to study this relationship in post-socialist nations. The empirical results reveal that increased media exposure is associated with decreased perceptions of corruption in post-socialist countries. While the relationship between media exposure and perceptions of corruption changes little across different sectors, it varies greatly based on different definitions of "news media" and when taking state control of media into account. This empirical study makes clear that news media as a whole, and particularly emerging modern media sources, have a greater influence than traditional media sources (e.g. newspapers) on individuals' perceptions of corruption.

Keywords: Perceptions of Corruption, Media, Post-Socialist Countries, European Union, Instrumental variables

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I. Introduction

Corruption is an endemic issue that has far-reaching effects on governmental, societal, and economic functionality. However, corruption is by nature difficult to measure objectively; as a result, both policy decisions and the vast academic literature on the subject rely heavily on country-level indices of corruption perceptions. Because perceived corruption frequently misrepresents actual corruption, policymakers and researchers – who make their decisions based on perceived corruption – risk reaching ill-informed conclusions. A recent body of literature highlights such shortcomings in popular corruption perceptions indices (see, e.g., Thompson & Shah, 2005; Andersson & Heywood, 2009; d’Agostino & Pieroni, 2019). Accordingly, there exists a corner of the literature which investigates the roots of the inaccuracy in individuals’ corruption perceptions. Research into the drivers of perceptions of corruption is needed in order to elucidate how perceived corruption relates to actual corruption, which in turn informs how the aforementioned indices may be intelligently employed when studying corruption. This paper extends that research by empirically assessing media as a driver of individuals’ perceptions of corruption in post-socialist countries.

Given the evolution and increased prevalence of media in the 21st century, media – particularly the specific sources that individuals have access to and the freedom of those sources – emerges as an important influence on individuals’ perceptions of corruption. Media has previously been explored as a determinant of individuals’ perceptions of street-level corruption by Mishler & Rose (2008). I likewise explore how media influences individuals’ perceptions of corruption, but I take a unique approach by studying aggregate, institutional corruption – rather than street-level corruption – as my dependent variable. Because individuals often fail to differentiate between the varying levels of corruption across sectors, forming aggregate perceptions which overestimate the true corruption of certain institutions, I study these perceptions both by sector and on aggregate (Mishler & Rose, 2008). This nuanced view reveals differing perceptions of corruption by sector. Because the media sphere is incredibly multifaceted, I restrict my scope to specifically studying how news media sources drive perceptions of corruption. I employ three different definitions of “news media” – newspapers, reports on radio/television, and an aggregate measure – in order to compare the effects of traditional and emerging news sources. This decision to include television news reports as a

measure of media exposure reflects the increasing prevalence of such media in the 21st century and is a departure from prior studies (e.g. Mishler & Rose, 2008).

My conceptual framework outlines how exposure to news media can alter individuals' perceptions of institutional corruption. Increased exposure to media can increase perceptions of corruption if one consumes media that is transparent, accurate, and/or represents a variety of viewpoints. Conversely, increased exposure to media can decrease perceptions of corruption if one consumes media that seeks to promote the government and/or other authorities. This theoretical ambiguity necessitates the empirical analysis presented in this paper. I also extend this theory to explore how nations' institutional tendencies can change how exposure to media shapes perceptions of corruption via their impact on media messaging. As outlined in detail in Section II, the theory suggests that individuals living in EU member nations, which are democratic in nature, experience increased perceptions of corruption compared to the average perceptions of individuals living in post-socialist nations.

The post-socialist countries of Eastern Europe, Central Europe, and Central Asia, which have a shared history yet have evolved divergently in recent years, serve as the subject of my empirical analysis. This choice of countries is particularly salient because developing and transition countries, particularly those recently governed by socialist regimes, tend to have the highest levels of actual corruption, which in turn should heavily influence corruption perceptions (Svensson, 2005). Additionally, the shared history of state control implies that regime messaging likely plays a role in media consumption, but media freedom still differs across the nations in the sample. I employ the Life in Transition Survey to create a dataset of the post-socialist nations in this region. Specifically, I draw upon the most recent (2016) survey wave in order to assess how both traditional and modern news media sources impact individuals' perceptions of corruption.

Ordinary least squares (OLS) models with individual-level controls and country fixed effects suggest that increased exposure to news media decreases individuals' perceptions of corruption. This negative effect is consistently statistically significant when radio/television reports and the news media index are used as measures of media exposure. These OLS findings support the theory that government/authority-promoting media can decrease perceptions of corruption. However, they cannot be taken with confidence because of endogeneity concerns: there exists likely reverse causality, wherein individuals' perceptions of corruption impact their extent of media consumption. To address this endogeneity, I employ an instrumental variables strategy

using individuals' primary language spoken as an instrument. These results are noisy and reveal no significant effect of media exposure on perceptions of corruption. In sum, I find evidence that in post-socialist countries, increased exposure to news media tends to decrease individuals' perceptions of institutional corruption. Although insignificant estimates when accounting for endogeneity mean that this finding must be taken cautiously, it still suggests an avenue through which individuals' perceptions of corruption diverge from actual corruption in their society.

The remainder of this paper is organized accordingly. Section II discusses background material and presents theories on how media exposure and state control of media influence perceptions of corruption. Section III describes the construction of the specific variables employed in the empirical analysis. Section IV outlines both Ordinary Least Squares and Two-Stage Least Squares models. Section V presents and discusses the empirical results from these models. Finally, Section VI concludes.

II. Conceptual Framework

A. Background

Because corruption is inherently difficult to measure, corruption studies and policymakers largely employ country-level indices of corruption perceptions. Corruption perceptions, rather than actual corruption, thus serve as the basis of policy and leadership decisions. However, the implementation of these indices is marred by the disconnect between the true extent of corruption, individuals' experiences with corruption, and individuals' perceptions of corruption. While firms and individuals often under-report corruption out of a fear of being caught, it is surprising that individuals can be willing to talk specifically about their experiences paying bribes, and it is equally common for individuals to over-report perceptions of corruption (Kraay & Murrell, 2016; Mishler & Rose, 2008). Individuals' perceptions of corruption are prejudiced largely by the extent of their direct experiences with corruption, as well as by cultural attitudes towards corruption (Charron, 2015; Mishler & Rose, 2008). In addition, perceptions of corruption are also often shaped by such factors as gender, political affiliation, socioeconomic status, education, occupation, and media influences (Tverdova, 2011). Given these conflicting tendencies, in-depth research of the drivers of perceptions of corruption is necessary to clarify the relationship between perceived and actual corruption.

Recent literature highlights shortcomings in these popular corruption perceptions indices. Transparency International's Corruption Perceptions Index (CPI) is a favored country-level index which has been criticized for its definition of corruption, aggregation of sources with inconsistent reporting, potential for misuse, and the disconnect between perceptions and reality (Thompson & Shah, 2005; Andersson & Heywood, 2009; d'Agostino & Pieroni, 2019). In general, its critics warn that aggregate corruption indices merely approximate, and do not accurately reflect, true corruption. However, indices built largely upon perceptions of corruption, such as the CPI and the World Bank's World Governance Index (WGI), are used widely as measures of corrupt activity (Olken, 2009).

Perceptions of corruption have become a more tangible phenomenon since the advent of the internet due to the heightened ability of modern media, driven by increased electronic accessibility and a growing number of sources, to disseminate opinions to wide swaths of the population and to influence national policy. The media has not only facilitated the spread of perceptions of corruption, but has shaped these perceptions as well. Media continues to evolve at a rapid pace and new media sources (e.g. television, the internet, and social media) increasingly come to serve as individuals' primary sources of information. The variety of media sources available to individuals is also increasing, meaning that individuals are able to consume from this multifarious array in the manner that best suits their preferences (Prior, 2005). Additionally, news outlets are fueling increasingly partisan perspectives and prioritize reinforcing social narratives over presenting facts (Iyengar & Hahn, 2009). As a greater proportion of the population develops strong beliefs and disseminates them through social groups, these beliefs become reified as popular sentiment and exert a meaningful influence on public policy. Thus, popular perceptions of corruption developed in this manner regularly guide public policy and government action, particularly through corruption indices.

In seeking to explore the role of news media in determining individuals' corruption perceptions, I draw upon the literature on the influence of corruption perceptions on individuals' political behavior. On one hand, low perceptions and a general unawareness of corruption can make it easier for officials, parties, and firms to get away with corrupt activities; on the other hand, artificially high perceptions can erode faith in democracy and suppress voting, or increase civilian desires for government accountability and encourage voting (Kostadinova, 2009; Sundstrom & Stockemer, 2015). It is unclear which of these opposing trends is more prevalent,

as different levels of data aggregation yield differing results. I see similarly competing effects when studying the influence of media on corruption perceptions, driven by the extent of state control of media and by the type of media to which an individual has access. The media has the power to shape popular sentiment through both topic coverage and overt messaging; state-controlled media is likely to induce lower corruption perceptions, while freer media is likely to induce higher perceptions (Mishler & Rose, 2008). The role of regime messaging thus makes it particularly informative to study the relationship between media exposure and perceptions of corruption in post-socialist nations.

B. Theory

Media messaging, particularly given the varied content and intentions of different media sources, can influence perceptions of corruption in several competing ways. All else equal, decreased exposure to media might decrease individuals' perceptions of corruption. Media is an important avenue for gaining knowledge of events outside one's own sphere of existence and for developing political independence (Conroy-Krutz, 2018). Given decreased intake of media, one should be less aware of corruption scandals occurring in their community and nation, which should decrease one's overall perceptions of corruption. Accordingly, increased exposure to media can cause the inverse effect: increased perceptions of corruption. If a media source is assumed to be transparent and accurate, then it ought to both report and unearth corrupt activities. Similarly, the consumption of media sources representing a variety of viewpoints should endow an individual with well-rounded perspectives of corruption. In this case, Theory 1 applies:

Theory 1: increased intake of media ought to increase one's awareness of corruption, which should in turn increase one's overall perceptions of corruption.

However, increased exposure to media can also decrease perceptions of corruption. If a media source is instead serving as propaganda for the government or otherwise has an incentive to paint the authorities in a rosy light, then it is likely to underreport or even attempt to justify corrupt activities. In this case, Theory 2 applies:

Theory 2: increased intake of media ought to decrease one's awareness (or opinion of the severity) of corruption, which in turn should lead to decreased perceptions of corruption.

These seemingly contradictory theories necessitate the empirical investigation in Section V.

Nations' institutional tendencies can also influence individuals' perceptions of corruption through the impact of state control on media messaging. Democratic nations generally support independent media reporting, meaning that individual organizations are free to disseminate the content they see fit through their media channels (Center for Democracy and Governance, 1999). While reporting at individual media outlets may be skewed, the wide variety of perspectives means that holistic media intake should be relatively reflective of reality. Compared to baseline perceptions of corruption, increased exposure to the media of democratic nations should further increase individuals' perceptions of corruption, following Theory 1 from above. Thus, in democratic nations such as the EU member nations, increased exposure to media should further increase one's perceptions of corruption. By contrast, autocratic and less-democratic nations generally maintain state control of media, meaning that either media outlets are under official state control or the messaging of nominally "independent" media outlets is regulated by the state (Linz & Stepan, 1996). Although both democratic and autocratic nations in Europe regularly maintain state-owned media channels, there is an important distinction in the extent of control that the state exerts. In autocratic nations, this content is typically cultivated to display the state and its authorities in a positive light. As a result, increased exposure to the media of less-democratic nations should further decrease individuals' perceptions of corruption, in line with Theory 2 from above (Linz & Stepan, 1996). Given that many nations are not fully democratic, this contributes to the expectation that the baseline effect of increased exposure to media is a decrease in individuals' perceptions of corruption.

Eastern Europe, Central Europe, and Central Asia present a particularly fascinating arena in which to study these opposing effects because they contain countries at different stages of "transition" from socialist regimes. Most countries in this region are considered "transition countries" because they have shifted from Cold War-era communism and socialism towards more democratic forms of government, but still feel the legacy of prior regimes (Aksoy & Dalla Pozza, 2016). This transition is not occurring at a steady pace within the region; some countries demonstrate relatively more democratic tendencies, and others more autocratic tendencies, in the present day. In my empirical approach, this allows me to exploit how democratic tendencies, as indicated by EU membership, can alter the impact of media exposure on perceptions of corruption. Nonetheless, the shared histories of these modern nations provide a common background upon which to study the impacts of media exposure on perceptions of corruption.

Because transition countries tend to experience high levels of corruption, individuals living in Eastern Europe ought to have more ground-level evidence on which to base their perceptions of corruption (Svensson, 2005). However, state-controlled media also means that these perceptions may be heavily skewed by partisan media sources. Perceptions of corruption also tend to be similar among those with and without personal experiences of corruption, suggesting that experiences are a secondary driver of perceptions (Charron, 2015). Thus, I contend that perceptions of corruption are driven to a greater extent by exposure to media, taking into account the extent of state influence, than by actual experiences with corruption.

It must also be noted that there exists likely reverse causality in this relationship, wherein perceptions of corruption influence individuals' media consumption. For example, individuals who perceive their nation to be more corrupt are likely to become frustrated and choose to decrease their media engagement. This has important repercussions for the empirical assessment of the causal impact of media exposure on perceptions of corruption. To address this concern, I outline an instrumental variables strategy in Section IV of this paper.

III. Data

I employ the Life in Transition survey (LiTS) data from the European Bank for Reconstruction and Development (EBRD) as my data source. This survey polls individuals in 34 “transition countries” in Eastern Europe and Central Asia and assesses their experiences living through times of transition, focusing particularly on their perceptions of how their lives and their country's norms have changed. The LiTS data is collected at the individual level and includes demographic information, several questions targeting corruption perceptions, media usage data differentiated by source, and language spoken by interviewees at home. The EBRD has conducted three waves of this survey, in 2006, 2010, and 2016. I use the latest (2016) cross-section for my analysis because it provides the most up-to-date data for an analysis of the differential effects of older versus newer forms of media on perceptions of corruption.

I retain 25 countries from the 2016 cross-section to constitute my sample (see Table 3 for this list of countries). This sample excludes Western and Southern European “reference” countries surveyed by the EBRD, as well as countries lacking documented coding information for the “main language” question. The remaining countries represent the majority of Eastern Europe and a few adjacent Central Asian countries.

To measure media exposure, I employ question 9.04, which states “people use different sources to learn what is going on in their country and the world. For each of the following sources, please indicate how often you use it” (see Table 1 for descriptive statistics on media exposure). The source options given are:

- (a) “newspaper”;
- (b) “news broadcasts on radio or TV”;
- (c) “printed magazines”;
- (d) “in-depth reports on radio or TV”;
- (e) “internet, email”;
- (f) “talk with family, friends or colleagues”;
- (g) “social media”.

For each option, the respondent ranks their frequency of use on a 1-7 scale (1 = “never” and 7 = “daily”). Given that news sources ought to have the strongest impact on perceptions of corruption, I employ options (a) and (b) for my analysis, retaining the ordinal scale coding. I also construct a news media index, defined as the average of an individual’s usage of “newspaper” and “news broadcasts on radio or TV”.

To measure corruption perceptions, I employ question 8.14, which allows for the assessment of perceptions of corruption across different sectors (see Table 2 for descriptive statistics on corruption perceptions). This question asks “how many of the following people do you think are involved in corruption, or haven’t you heard enough about them to say?”; the “following people” are:

- (a) “the president/prime minister and officials in his office”;
- (b) “members of parliament”;
- (c) “government officials”;
- (d) “local government representatives”;
- (e) “tax officials, like ministry of finance officials or local government tax collectors”;
- (f) “police”;
- (g) “judges and magistrates”;
- (h) “business executives”;
- (i) “religious leaders”.

Respondents rank their thoughts on a 1-4 scale, where 1 represents “none” and 4 represents “all of them”. I employ all nine sectors for my analysis, again retaining the ordinal scale coding. As before, I also construct an index for perceptions of corruption, defined as the average of an individual’s perceptions of corruption across the nine sectors.

To measure language spoken by interviewees at home, I employ question 1.06, which asks “what is the main language [name] speaks?”. The official questionnaire lists the response options merely as “option 1”, “option 2”, “option 3”, “mute/disabled”, and “other”, but I was able to obtain additional information on how each option was defined in each country from the EBRD¹. I then employ this information to create a dummy variable which asks whether an individual’s main language (as reported in question 1.06) matches (one of) their nation’s official language(s) (see Table 3 for descriptive statistics on the primary language dummy). The list of official national languages was sourced from the CIA World Factbook². The resulting “primary language” dummy variable is used as an instrument for an individual’s consumption of media.

To address state control of media, I employ membership in the European Union as a measure of attained democratization. Political regime messaging and state control of the media available to individuals ought to impact individuals’ perceptions of corruption; the literature also finds a negative correlation between press freedom and levels of experienced corruption (Aksoy & Dalla Pozza, 2016). Because democracy is a condition for membership, nations in the EU are likely to have more-democratic governments that exert less control over the media. I code an “EU” dummy variable based on countries’ membership in the EU³ as of 2013, which had not changed as of 2016. Of the 25 countries in my sample, 10 are EU members and 15 are not⁴.

I also construct control variables for gender, age, education, socioeconomic status, rural-urban status, frequent conversation with family & friends, and frequent social media use (see Table 4 for descriptive statistics on control variables). I code a dummy variable for gender⁵ and a series of eight dummies for age⁶, based on decade. A series of dummies for education encompass

¹ I thank Zsoka Koczan of the EBRD for compiling this information.

² <https://www.cia.gov/the-world-factbook/countries/>

³ Derived from the EU’s website: https://europa.eu/european-union/about-eu/countries_en

⁴ The EU member countries are Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, and the Slovak Republic. The countries which are not members of the EU are Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, FYR Macedonia, Georgia, Kazakhstan, the Kyrgyz Republic, Moldova, Mongolia, Montenegro, Russia, Serbia, and Ukraine.

⁵ This is based on question 1.03, which asks “is [name] male or female?”

⁶ This is based on question 1.05, which asks “what is [name]’s age?” and reports the value in years.

the categories “no education”, “less than high school education”, “high school education”, “more than high school education”, “college graduate”, and “masters or PhD graduate”.⁷ A series of ten dummies for socio-economic status are coded based on an individual’s perception of where they stand on a 10-step ladder of wealth.⁸ I also construct a dummy variable for living in a rural setting.⁹ Finally, I construct dummies for frequent “talk with family, friends or colleagues” and “social media” usage based on parts (f) and (g) from question 9.04 (discussed above). I define “frequent” as a response of “several times a week” or “daily”. While these are not strictly forms of news media, they are avenues through which individuals are regularly exposed to information and news about the world around them.

IV. Empirical Approach

A. The Baseline

The goal of this paper is to explore how exposure to media shapes perceptions of corruption. I begin with an Ordinary Least Squares (OLS) model to measure the impact of media consumption on perceptions of corruption at the individual level. To address confounding variables in this relationship, I incorporate a set of controls into the model. This model is given by equation (1):

$$(1) PC_i = \beta_0 + \beta_1 ME_i + \beta_2 FT_i + \beta_3 FSM_i + \beta_4 X_i + \mu_c + \varepsilon_i$$

Here, PC_i represents perceptions of corruption and ME_i represents media exposure. With regards to controls, FT_i represents frequency of conversation with family, friends, or colleagues; FSM_i represents frequency of social media usage; and X_i represents a vector of socio-economic controls including gender, age, education, socio-economic status, and rural-urban status. Additionally, μ_c represents country fixed effects and ε_i represents the error term. I run separate regressions for different definitions of PC_i : this is done for each of the nine sectors given by question 8.14, as well as for the corruption perceptions index. I also run separate regressions for three different definitions of ME_i : “newspaper” use, “news broadcasts on radio or TV” use, and the news media index.

⁷ This is based on question 1.09, which asks “what is the highest education level [name] has completed?”

⁸ This is based on question 3.15, which asks “please imagine a ten-step ladder where on the bottom, the first step, stand the poorest 10% of people in our country; and on the highest step, the tenth, stand the richest 10% people in our country. On which step of the ten is your household today?”; I code dummies for each of the ten “steps”.

⁹ Region and urbanity status are not asked by the interviewer, but are coded for each respondent.

I choose to focus explicitly on news sources because the media disseminates information on everything from popular culture to politics to scientific advancements, but news sources ought to have the strongest influence on perceptions of corruption. Historically, newspapers were the primary source of information for the general public and as such have been the basis of numerous studies (e.g. Mishler & Rose, 2008). I include newspapers as a media source because of the high proportion of relevant content and as a point of comparison to the existing literature. By contrast, radio and television are much newer, but much more popular, forms of media which have been studied far less in this context. I include news broadcasts on radio or television as a media source in order to best reflect the consumption habits of modern individuals. Finally, constructing a news media index allows me to bridge the gap between these “old” and “new” forms of media and assess the impact of news media as a whole.

The vector of controls X_i represents the traditional set of controls for individual-level applied regression. These controls demonstrably address a variety of confounders of the relationship between exposure to media and perceptions of corruption. With regards to age, younger individuals are more likely to engage with television, while older individuals are more likely to engage with newspapers. Furthermore, older individuals have had more time to experience more corruption in their lives and as a result likely have higher perceptions of corruption. Education impacts both the amount of media reporting that individuals are able to understand at a high level and individuals’ newspaper consumption; higher educational attainment is correlated with increases in both of these areas. Socioeconomic status regularly impacts individuals’ ability to access media, as those of a lower socioeconomic status are often unable to afford televisions, radios, and newspaper subscriptions. Finally, individuals living in urban areas are likely to have more exposure to corrupt activities (especially in the government) and likely have access to a wider variety of media outlets (Mocan, 2008).¹⁰

I include controls for frequent “talk with family, friends, or colleagues” and frequent “social media” usage to address exposure to news through sources other than official news media outlets. As in the past, word of mouth is still a powerful avenue for the spread of information. Politics and corruption are likely topics of conversation, so increased conversation is likely to influence perceptions of corruption; likewise, increased conversation may either expand one’s

¹⁰ Indeed, my data shows a greater conditional mean of aggregate news media exposure for urban-dwellers than for rural individuals. However, it must be noted that this metric cannot account for the *number* of media outlets to which one is exposed. These results are not reported, but are available upon request.

worldview or reaffirm one's beliefs, thus influencing perceptions of corruption. Social media is a valuable control because it enjoys growing popularity in the 21st century and is a major conduit for personal communication and widespread dissemination of information. Although not strictly intended as a news source, social media serves as a primary source of news for many individuals and thus is capable of influencing perceptions of corruption.

Because it is reasonable to expect that the variance of perceptions of corruption will differ dependent on one's media intake, I employ heteroskedasticity-robust standard errors. In addition to including country fixed effects, I also cluster these standard errors at the country level. This accounts for the heteroskedasticity caused by the unobserved correlation of individual observations within each country.

B. An Instrumental Variables Approach

An OLS model does not suffice to tease out the causal effect of exposure to media on individuals' perceptions of corruption in Eastern Europe. An individual's media exposure is demonstrably endogenous to their perceptions of corruption, inducing reverse causality and introducing simultaneity bias into the OLS estimate. There are two possible expected effects of increased media exposure on perceptions of corruption, dependent on state control of media: if media is free, perceptions are likely to increase, but if media is controlled, perceptions are likely to decrease. Reverse causality is probable; increased perceptions of corruption are likely to cause individuals to become frustrated with their society and government and thus choose to decrease their media engagement. Although it is less likely, increased perceptions of corruption may also cause individuals to become passionate about enacting societal change and thus choose to increase their media engagement. Given free media, we could then expect negative bias on the OLS estimate, but given controlled media, the direction of the bias is not clear. Thus, in general, the directional impact of the simultaneity bias on the OLS estimates is unclear. The evident reverse causality and uncertain bias on the coefficient of interest obviate the need for a two-stage least squares (2SLS) model rather than an OLS model. Additionally, there exist several omitted variables, such as political preferences, cultural ethnicity, and parents' beliefs, that are likely related to both media exposure and corruption perceptions.

To disentangle the effect of media exposure on perceptions of corruption, I employ a 2SLS model. This model relies on a valid instrumental variable, which must satisfy two

conditions. First, it must fit the instrument relevance requirement, which states that the instrument must be a strong predictor of the suspectedly endogenous explanatory variable. Second, it must fit the exclusion restriction, which states that, conditional on included controls, the instrument should not exert a direct effect on the outcome of interest. In other words, the instrument should affect the outcome of interest solely through its effect on the endogenous, instrumented variable.

To investigate the impact of media exposure on perceptions of corruption, I employ primary language spoken as an instrument for media exposure. This instrument fulfills instrument relevance because the dissemination of media through the written and spoken word means that language barriers impact whether an individual is able to comprehend media. An individual who speaks their nation's official language is more likely to comprehend, engage with, and understand the intentional messaging of the media; an individual who does not speak their nation's primary language is more likely to ignore the media. If an individual does not understand or chooses to ignore the media, then they experience the same outcome as if they had never been exposed to the media. Even passive exposure to the media still results in a lack of internalization and therefore no impact on personal beliefs. Following this logic, an individual's ability to comprehend their nation's primary language should be a strong predictor of their exposure to, and intake of, news media. Instrument relevance can also be demonstrated by the strong positive coefficients in the first stage of the 2SLS regression (see Table 7). Heterogeneity among primary language spoken by individuals in this region can be seen in Table 3.

The exclusion restriction requires that primary language affects corruption perceptions only through media exposure. This assumption fails if other characteristics, such as minority status, wealth, and education, are correlated with both primary language and corruption perceptions. I am unfortunately unable to account for ethnic minority status, which presumably would be correlated with individuals' primary language spoken, experiences with institutions, and trust in institutions. However, my inclusion of a wide range of controls in the model at the very least alleviates these concerns. A covariate balance test, regressing each of these controls on the instrument, reveals statistically insignificant point estimates in nearly every case.¹¹ This suggests that, based on measurable characteristics, the individuals in the sample who speak their

¹¹ The only control that had a statistically significant coefficient at the 95% level was socioeconomic status group 9 (second-highest SES). Even so, the small point estimate (0.003) suggests that it has a minimal relationship with primary language spoken. These results are not reported, but are available upon request.

nation's primary language are not meaningfully different from those who do not speak said primary language. The plausible correlation of several of these characteristics, such as rural status, socioeconomic status, and education, with ethnic minority status suggests that this omitted variable would likely also not vary problematically on the basis of primary language spoken. Furthermore, corruption activities, particularly at the street-level, are primarily action-based and not language-based; as a result, an individual's ability to perceive corruption on a personal level should not be impacted by the language that they speak. Given this property and the inclusion of the vector of controls, the exclusion restriction plausibly ought to hold.

The 2SLS model employing this "primary language" instrument is built off of equation (1). At the first stage, media exposure is regressed on the "primary language" dummy. At the second stage, perceptions of corruption are regressed on the fitted values of media exposure that were obtained from the first stage. As with the OLS model, I run versions of the 2SLS model for each of the definitions of PC_i and ME_i and employ heteroskedasticity-robust standard errors clustered at the country level.

C. Examining Effect Heterogeneity: The Role of European Union Membership

A further set of model specifications is necessary to address the mediating influence of state control of media on the effect of media exposure on perceptions of corruption. As discussed at length, state control of media and use of media for partisan messaging heavily impacts individuals' perceptions of corruption. Greater state control of media typically forces media sources to promote the state and related institutions, causing the media to downplay corruption, and therefore increased exposure to media decreases baseline perceptions of corruption. Conversely, lesser state control of media permits freer media reporting, allowing the media to paint a more realistic image of corruption, and therefore increased exposure to media increases baseline perceptions of corruption. I choose to use membership in the European Union (EU) as a measure of attained democratization; based on the assumption that democratization is associated with decreased control of media, including a variable for EU membership addresses the mediating influence of state control of media. The EU accepts into its ranks nations that are democratic and have market economies; thus, any post-socialist nation that is an EU member can be assumed to be a democracy. These democratic-leaning countries should experience lower levels of state influence on media messaging. By contrast, any European country that has not yet

been admitted into the EU, or has not applied to join the EU, is less likely to display democratic tendencies. As such, relatively speaking, any European nation that is not an EU member likely retains more vestiges of a single-state system. These countries generally have tighter government control and should experience higher levels of state influence on media messaging.

The OLS model incorporating this measure of EU membership is built off of equation (1) and is given by equation (2):

$$(2) PC_i = \beta_0 + \beta_1 ME_i + \beta_2 ME_i \times EU_c + \beta_3 FT_i + \beta_4 FSM_i + \beta_5 X_i + \mu_c + \varepsilon_i$$

Here, $ME_i \times EU_c$ represents the interaction between media exposure and EU membership. All other variables are the same as in equation (1). As before, I run versions of this OLS model for each of the definitions of PC_i and ME_i and employ heteroskedasticity-robust standard errors clustered at the country level. Rather than including the EU membership dummy independently, I interact it with the media exposure variable. The main coefficient of interest in this specification is β_2 , which indicates how living in an EU member nation shapes the effect of media exposure on perceptions of corruption.

Because media exposure is endogenous to perceptions of corruptions, an instrumental variables approach is still necessary to establish a causal interpretation of this relationship. In a new 2SLS model, I again employ “primary language spoken” as an instrument for media exposure, but the inclusion of the $ME_i \times EU_c$ interaction term in equation (2) necessitates a secondary instrument. Thus, I instrument this interaction between media exposure and EU membership with an interaction of the primary language instrument with the EU membership dummy. The relevance of this instrument is demonstrated by the strong positive coefficients in the first stage of the 2SLS regression (see Table 9). With regards to the exclusion restriction requirement, EU membership affects corruption perceptions only through media exposure; any other potential channels of influence should be absorbed by the inclusion of country fixed effects.

The resulting 2SLS model employs both the original “primary language” instrument and the new instrument, which is defined as the interaction between the primary language instrument and the EU membership dummy; this model is built off of equation (2). The first stage involves two regressions. First, media exposure is regressed on the “primary language” dummy. At the same time, the “media exposure \times EU membership” interaction term is regressed on the “primary language \times EU membership” interaction term. At the second stage, perceptions of corruption are

regressed on both the fitted values of media exposure and the fitted values of the “media exposure x EU membership” interaction term that were obtained from the first stage regressions. As with the earlier models, I run versions of this 2SLS model for each of the definitions of PC_i and ME_i and employ heteroskedasticity-robust standard errors clustered at the country level.

V. Results & Discussion

A. Ordinary Least Squares Models

The initial OLS model serves to establish the baseline relationship between media exposure and perceptions of corruption. As seen in Table 5, there is universally a negative correlation between media exposure and perceptions of corruption: an increase in exposure to news media is associated with a decrease in one’s perceptions of corruption in post-socialist nations. For example, a one-standard deviation increase in exposure to news broadcasts on radio or TV (on the 1-7 scale) is associated with a 0.050-unit decrease in perceptions of the President or Prime Minister’s corruption (on the 1-4 scale). This relationship is consistent across all nine sectors for which people were asked to rate their perceived level of corruption, as well as at the aggregate level. The negative correlation indicates that the aforementioned Theory 2 of state-controlled media suppressing perceptions of corruption applies in post-socialist nations.

Although the negative effect of media exposure on perceptions of corruption is persistent across the three measures of news media, it is noteworthy that the findings are consistently stronger in terms of statistical significance for the news broadcasts on radio or TV and news media index metrics than for the newspaper metric. The point estimates are also larger for the former two definitions of news media than for the latter. This gap does narrow when the effect of media exposure is considered in standard deviations, but in all instances the magnitude of the effect of news broadcasts on radio or TV remains greater than the effect of newspapers. For example, the point estimates for these two definitions of news media are closest for perceptions of parliament members’ corruption; for this sector, a one-standard deviation increase in exposure to newspapers is associated with a 0.026-unit decrease in perceptions of corruption, but the equivalent increase in exposure to news broadcasts on radio or TV is associated with a 0.027-unit decrease in perceptions of corruption. In sum, this suggests that there is a weaker correlation between newspaper consumption and perceptions of corruption, and that news broadcasts on

radio or TV enjoy a much stronger role. This aligns with the theory that radio and television are more relevant and influential media sources than newspaper in the 21st century.

I employ a new OLS model incorporating the “media exposure \times EU membership” interaction term in order to study the mediating influence of state control on the impact of media exposure on perceptions of corruption. As seen in the odd columns of Table 6, the baseline effect is still a negative correlation between media exposure and perceptions of corruption. These estimates are generally less statistically significant and are slightly smaller in magnitude than the results from Table 5, and again the newspaper media specification exhibits the weakest estimates. Interestingly, the impact of exposure to a given news media source on perceptions of corruption is overall more heterogeneous by sector than in the initial OLS results.

However, it is the even columns of Table 6 which present the estimates of interest in this specification: these coefficients indicate that individuals living in EU member nations experience a stronger negative effect of media exposure on their perceptions of corruption when compared to the baseline. The coefficients on the EU \times media exposure interaction term are only consistently statistically significant for perceptions of local government representatives and tax officials’ corruption, but they are notably negative in all specifications. The negative interaction term indicates that exposure to the less-controlled, “freer” media in EU nations further decreases perceptions of corruption. This opposes the theory outlined in section II, which proposed that increased exposure to media in democratic-leaning nations ought to increase perceptions of corruption. The effect seen here may be due to a combination of individuals’ ability to select media outlets that match their preexisting views and the partisan agendas of even “independent” media outlets.

B. Two-Stage Least Squares Models

Recognizing that endogeneity mars the causal interpretation of the OLS findings, I turn to the 2SLS results. Table 7 presents the first stage of these initial 2SLS results, in which media exposure is regressed on the primary language dummy. The results illustrate that the utilized instrument is relevant: across the specification, there is a positive correlation between speaking the national language of one’s country and one’s exposure to media. Thus, as conjectured, speaking one’s country’s national language is positively associated with one’s media intake.

Although the first stage results are significant in every case, results for the news broadcasts on radio or TV and news media index metrics are again stronger in terms of statistical significance than the results for the newspaper metric. This implies that the “primary language” instrument is a better fit for radio and television consumption, as well as aggregate news consumption, than for newspaper consumption. This may occur because there is relatively less newspaper consumption among the individuals in this sample, meaning that there is less variation for the instrument to explain. Nonetheless, if the instrument is able to explain less of the variation in newspaper consumption, then the second stage results for newspaper consumption should be taken with less confidence.

The second stage results for this 2SLS model are presented in Table 8. As was true of the OLS estimates, there is generally a negative correlation between media exposure and perceptions of corruption: increasing one’s media exposure decreases one’s perceptions of corruption in post-socialist countries. These second stage point estimates are greater in magnitude than the equivalent OLS estimates, indicating that the use of the “primary language” instrument allows the model to better capture the direct impact of media exposure on perceptions of corruption. Interestingly, these results are very similar across all three definitions of news media, despite the weaker fit of the instrument for newspaper consumption. However, none of these results are statistically significant, and the imprecise estimates do not permit any definitive conclusions. The insignificance of these results may be somewhat attributable to the fact that the instrument is weakened by its plausible correlation with the omitted ethnic minority status.

Even though the results are not significant, clear trends emerge. Among the negative correlation that prevails, the effect on perceptions of the President or Prime Minister’s corruption is much greater in magnitude than the other effects. For example, a one-standard deviation increase in exposure to news broadcasts on radio or TV, on the 1-7 scale, is associated with a 0.670-unit decrease in perceptions of the President or Prime Minister’s corruption, but with a 0.289-unit decrease in perceptions of local government representatives’ corruption (on the 1-4 scale). This may reflect a tendency of the media to paint the nation’s leader in a particularly positive light. The other interesting pattern is the positive relationship between exposure to news media (all three definitions) and perceptions of judges & magistrates and business executives’ corruption. This suggests that increased media exposure is associated with increased perceptions of corruption in those sectors. Although the lack of statistical significance means that I do not

find conclusive evidence of the effect of news media exposure on perceptions of judges, magistrates, and business executives' corruption, the consistent trend across all three definitions of news media implies that the positive correlation is noteworthy. This perhaps implies harsher or more truthful media reporting on judges, magistrates, and business executives.

As with the OLS specification, I add the “media exposure \times EU membership” interaction term to the 2SLS model in order to study state control as a mediating influence on the impact of media exposure on perceptions of corruption. Table 9 presents the first stage results for this new 2SLS model; these estimates indicate that the primary language and EU \times primary language instruments are stronger when the news media source is defined as radio/television or aggregate news media than when it is defined as newspapers only. This is consistent with the first stage results from the original 2SLS model (see Table 7).

The second stage results of this model are presented in Table 10. Irrespective of how media exposure is defined, two trends emerge. First, there is the familiar negative correlation between media exposure and perceptions of corruption: the coefficients in the odd columns show that at the baseline, increased exposure to media of any type generally decreases perceptions of corruption. Second, there is a positive correlation between the EU \times media exposure interaction term and perceptions of corruption: individuals living in EU member nations experience a unique positive effect of media exposure on their perceptions of corruption when compared to the baseline. In other words, living in an EU member nation weakens the negative relationship between media exposure and perceptions of corruption, even turning the relationship positive in many cases. This opposes the story told by the OLS specification, in which the sign on the interaction term was always negative (see Table 6). The positive correlation in this more-robust 2SLS specification matches the theory outlined in section II, which stated that for individuals living in democratic-leaning nations, increased exposure to media ought to increase perceptions of corruption. However, as was true of the original second stage results (see Table 8), none of these second stage results are statistically significant. Thus, among post-socialist nations, there is not conclusive evidence that there is a mediating effect of living in an EU member nation.

VI. Conclusion

The relationship between media exposure and perceptions of corruption is a complex narrative, but the empirical approach employed in this paper reveals several important

conclusions. First, it is critical to account for state control of media as a mediating factor when determining the impact of exposure to media on perceptions of corruption. The OLS and 2SLS models consistently convey that, all else equal, an increase in media exposure will decrease perceptions of corruption in post-socialist countries. At face value, this makes sense in post-socialist nations: there are likely lingering vestiges of control from past regimes that depress perceptions of corruption. It is not until incorporating the mediating role of EU membership, representing democratic tendencies, into the instrumental variables approach that another story emerges. As outlined in section II, there are heterogeneous effects dependent on state control of media: in countries which retain remnants of a prior single-state system, increased media exposure will decrease perceptions of corruption, but in countries which tend towards democracy, the opposite will occur. This empirical study confirms the ironic truth that it is the nations which experience more corruption that are nonetheless perceived by their citizens as less corrupt.

Second, the impact of media exposure on perceptions of corruption is fairly consistent across all sectors of perceived corruption. It is difficult to discern if any inconsistent effects are spurious or genuine due to insignificant estimates in the 2SLS models, but it appears that any variation is more aptly attributed to individual/country-level characteristics or type of news source than to specific sectors. The consistency of perceptions by sector likely serves as evidence of individuals' inability to effectively differentiate between varying levels of corruption across sectors. This holds important implications for the use of aggregate corruption perceptions measures: in general, in post-socialist countries, there is not heterogeneity at the sector level that will skew aggregate perceptions.

Finally, newspapers are a poor metric for news media in the 21st century. Across all specifications, the models which used exclusively newspapers as the definition of "news media", rather than news broadcasts on radio/TV or the news media index, provided the least convincing estimates of the impact of media exposure on perceptions of corruption. This reflects the decreased consumption of newspapers, and increased consumption of radio and television content, in the modern day. Further studies should seek to rely on holistic metrics for media, such as the news media index, or metrics of "modern" media, such as television and social media, rather than traditional metrics such as newspapers.

Given that scholars and policymakers alike will continue to employ corruption indices based on perceptions of corruption, there is value to this study of the impact of media exposure on perceptions of corruption. The strength of my instrumental variables findings suffered from noise, a lack of variation in the “primary language” instrument in some countries, and a weakness in the exclusion restriction due to the omission of ethnic minority status, but I was still able to uncover a valuable narrative of the heterogeneous impact of media exposure on perceptions of corruption, as mediated by state control of media. My results illustrate the importance of accounting for media messaging in addition to media exposure when studying perceptions of corruption. Even among groups such as post-socialist nations with shared historical experiences, institutional tendencies and media messaging still exert a heavy influence on individuals’ perceptions of corruption.

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Table 1: Descriptive Statistics for Media Exposure by Source

Media Source	Obs	Mean	Std. Dev.	Min	Max
Newspaper	37665	3.949	2.188	1	7
News Broadcasts on Radio or TV	37665	6.217	1.396	1	7
News Media Index	37665	5.083	1.420	1	7

Notes: Media exposure was self-rated on a 1-7 scale, where 1 = “never” and 7 = “daily”. The *News Media Index* is constructed as the average of the other media sources.

Table 2: Descriptive Statistics for Perceptions of Corruption by Sector

Sector	Obs	Mean	Std. Dev.	Min	Max
President/Prime Minister	22277	2.427	0.994	1	4
Members of Parliament	24700	2.603	0.878	1	4
Government Officials	25246	2.596	0.856	1	4
Local Government Reps	24600	2.472	0.880	1	4
Tax Officials	23911	2.514	0.886	1	4
Police	25941	2.456	0.857	1	4
Judges & Magistrates	24816	2.532	0.896	1	4
Business Executives	24103	2.483	0.861	1	4
Religious Leaders	20710	2.168	0.980	1	4
Corruption Index	16561	2.511	0.793	1	4

Notes: Perceptions of the proportion of individuals in a given sector that are corrupt were self-rated on a 1-4 scale, where 1 = “none” and 4 = “all of them”. The *Corruption Index* is constructed as the average of the sectors.

Table 3: Descriptive Statistics for Primary Language Instrument

	Obs	Mean	Std. Dev.	Min	Max
Full Sample	37665	0.870	0.337	0	1
Country					
Albania	1500	0.996	0.063	0	1
Armenia	1527	0.986	0.116	0	1
Azerbaijan	1510	0.989	0.106	0	1
Belarus	1502	0.999	0.026	0	1
Bosnia and Herzegovina	1498	0.997	0.058	0	1
Bulgaria	1500	0.889	0.314	0	1
Croatia	1503	0.997	0.058	0	1
Czech Republic	1532	0.992	0.092	0	1
Estonia	1503	0.725	0.447	0	1
FYR Macedonia	1498	0.656	0.475	0	1
Georgia	1507	0.954	0.209	0	1
Hungary	1501	0.989	0.106	0	1
Kazakhstan	1503	0.462	0.499	0	1
Kyrgyz Republic	1498	0.847	0.360	0	1
Latvia	1500	0.670	0.470	0	1
Lithuania	1501	0.896	0.305	0	1
Moldova	1511	0.874	0.332	0	1
Mongolia	1499	0.957	0.202	0	1
Montenegro	1502	0.487	0.500	0	1
Poland	1500	0.999	0.026	0	1
Romania	1512	0.938	0.240	0	1
Russia	1507	0.974	0.159	0	1
Serbia	1504	0.961	0.193	0	1
Slovak Republic	1542	0.932	0.252	0	1
Ukraine	1505	0.569	0.495	0	1

Notes: The *primary language* instrument is coded as a dummy = 1 if an individual's main language spoken matches their nation's official language. The full sample of 25 countries is included.

Table 4: Descriptive Statistics for Control Variables

Control	Obs	Mean	Std. Dev.	Min	Max
Male	37665	.619	.486	0	1
Age					
Teens	37665	.003	.054	0	1
Twenties	37665	.079	.269	0	1
Thirties	37665	.148	.355	0	1
Forties	37665	.180	.384	0	1
Fifties	37665	.220	.414	0	1
Sixties	37665	.195	.396	0	1
Seventies	37665	.119	.324	0	1
Eighties or older	37665	.056	.229	0	1
Education					
No education	37665	.012	.110	0	1
Less than HS education	37665	.232	.422	0	1
High school education	37665	.340	.474	0	1
More than HS education	37665	.273	.446	0	1
College graduate	37665	.091	.288	0	1
Masters/PhD graduate	37665	.050	.219	0	1
Socio-Economic Status					
SES 1	37665	.048	.213	0	1
SES 2	37665	.076	.266	0	1
SES 3	37665	.160	.366	0	1
SES 4	37665	.185	.389	0	1
SES 5	37665	.286	.452	0	1
SES 6	37665	.116	.321	0	1
SES 7	37665	.067	.250	0	1
SES 8	37665	.029	.169	0	1
SES 9	37665	.007	.086	0	1
SES 10	37665	.005	.072	0	1
Rural	37665	.422	.494	0	1
Frequent Talk w/Family, Friends, or Colleagues	37665	.687	.464	0	1
Frequent Social Media Use	37665	.352	.478	0	1

Notes: All controls are coded as dummies. *Socio-economic status* dummies are coded based on individuals' perceptions of their status on a 10-step ladder, where 1 = "poorest" and 10 = "richest". For *frequent talk w/family, friends, or colleagues* and *frequent social media use*, "frequent" is defined as a response of "several times a week" or "daily".

Table 5: Summary of OLS Results
Coefficient on Media Exposure

Sector	Newspaper	News Broadcasts on Radio/TV	News Media Index
President/Prime Minister	-0.013** (0.006)	-0.036*** (0.010)	-0.034*** (0.009)
Members of Parliament	-0.012** (0.006)	-0.019** (0.007)	-0.025*** (0.008)
Government Officials	-0.010* (0.006)	-0.019*** (0.006)	-0.022*** (0.006)
Local Government Reps	-0.013** (0.006)	-0.032*** (0.006)	-0.033*** (0.007)
Tax Officials	-0.009 (0.006)	-0.033*** (0.007)	-0.027*** (0.007)
Police	-0.007 (0.006)	-0.031*** (0.006)	-0.024*** (0.007)
Judges & Magistrates	-0.013** (0.005)	-0.025*** (0.007)	-0.028*** (0.007)
Business Executives	-0.007 (0.006)	-0.023*** (0.007)	-0.021** (0.008)
Religious Leaders	-0.003 (0.010)	-0.064*** (0.010)	-0.039*** (0.011)
Corruption Index	-0.011* (0.006)	-0.028*** (0.008)	-0.028*** (0.007)

Heteroskedasticity-robust standard errors, clustered at the country level, in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Notes: The table presents OLS results; each entry is a separate regression, and only coefficients on *media exposure* are reported. The dependent variable is *perceptions of corruption*; this is given by sector. The independent variable is *media exposure*; this is given by source. The full sample of 25 countries is included and country fixed effects are employed. All regressions control for gender, age, education, socioeconomic status, rural-urban status, frequency of social media usage, and frequency of conversation with family, friends, or colleagues. Sample size ranges from 16,561 (sector = corruption index) to 25,941 (sector = police). R² ranges from 0.119 (media = newspaper & sector = religious leaders) to 0.204 (media = news broadcasts on radio/TV & sector = president/prime minister).

Table 6: Summary of OLS Results, Incorporating EU Membership
Coefficients on Media Exposure and EU × Media Exposure Interaction Term

Sector	Newspaper		News Broadcasts on Radio/TV		News Media Index	
	Media Exposure	EU × Media Exposure	Media Exposure	EU × Media Exposure	Media Exposure	EU × Media Exposure
President/Prime Minister	-0.006 (0.010)	-0.018 (0.011)	-0.032** (0.013)	-0.015 (0.023)	-0.026* (0.013)	-0.025 (0.018)
Members of Parliament	-0.004 (0.008)	-0.022* (0.011)	-0.018* (0.010)	-0.005 (0.014)	-0.014 (0.011)	-0.028* (0.015)
Government Officials	-0.002 (0.008)	-0.020* (0.010)	-0.016* (0.008)	-0.013 (0.012)	-0.012 (0.008)	-0.029** (0.012)
Local Government Reps	-0.003 (0.008)	-0.028** (0.011)	-0.025*** (0.008)	-0.024** (0.011)	-0.018** (0.008)	-0.042*** (0.011)
Tax Officials	-0.001 (0.008)	-0.021** (0.010)	-0.025*** (0.009)	-0.029** (0.013)	-0.015 (0.009)	-0.036*** (0.013)
Police	-0.001 (0.007)	-0.013 (0.009)	-0.024*** (0.007)	-0.025** (0.012)	-0.015 (0.009)	-0.024* (0.012)
Judges & Magistrates	-0.008 (0.007)	-0.013 (0.009)	-0.019** (0.009)	-0.018 (0.014)	-0.020** (0.009)	-0.022 (0.014)
Business Executives	0.001 (0.008)	-0.021* (0.011)	-0.019* (0.009)	-0.016 (0.014)	-0.010 (0.009)	-0.031* (0.016)
Religious Leaders	0.006 (0.014)	-0.024 (0.016)	-0.064*** (0.014)	-0.000 (0.020)	-0.033** (0.015)	-0.019 (0.021)
Corruption Index	-0.005 (0.009)	-0.018 (0.011)	-0.022** (0.010)	-0.020 (0.015)	-0.019** (0.009)	-0.029* (0.015)

Heteroskedasticity-robust standard errors, clustered at the country level, in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Notes: The table presents OLS results; each pair of coefficients represent a separate regression, and only coefficients on media exposure and EU × media exposure are reported. The dependent variable is *perceptions of corruption*; this is given by sector. The independent variable is *media exposure*; this is given by source. The *EU* variable is coded as a dummy = 1 if a country was a member of the European Union as of 2013. The full sample of 25 countries is included and country fixed effects are employed. All regressions control for gender, age, education, socioeconomic status, rural-urban status, frequency of social media usage, and frequency of conversation with family, friends, or colleagues. Sample size ranges from 16,561 (sector = corruption index) to 25,941 (sector = police). R² ranges from 0.120 (media = newspaper & sector = religious leaders) to 0.204 (media = news broadcasts on radio/TV & sector = president/prime minister).

Table 7: Summary of First Stage Results for *Primary Language* Instrument
Coefficient on *Primary Language* by Media Source & Sector

	Newspaper	News Broadcasts on Radio/TV	News Media Index
President/Prime Minister	0.270** (0.132)	0.290*** (0.068)	0.280*** (0.078)
Members of Parliament	0.268** (0.126)	0.283*** (0.059)	0.276*** (0.075)
Government Officials	0.280** (0.123)	0.262*** (0.065)	0.271*** (0.074)
Local Government Reps	0.293** (0.126)	0.242*** (0.061)	0.268*** (0.074)
Tax Officials	0.281** (0.128)	0.268*** (0.061)	0.274*** (0.076)
Police	0.260* (0.136)	0.235*** (0.065)	0.248*** (0.081)
Judges & Magistrates	0.253* (0.131)	0.275*** (0.069)	0.264*** (0.081)
Business Executives	0.264* (0.140)	0.239*** (0.066)	0.252*** (0.086)
Religious Leaders	0.291* (0.150)	0.306*** (0.066)	0.298*** (0.082)
Corruption Index	0.308** (0.146)	0.334*** (0.069)	0.321*** (0.084)

Heteroskedasticity-robust standard errors, clustered at the country level, in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Notes: The table presents first-stage results; each entry is a separate regression, and only coefficients on the *primary language* instrument are reported. The dependent variable is *media exposure*; this is given by source. The independent variable is *primary language*, coded as a dummy = 1 if an individual's main language spoken matches their nation's official language. Results are reported for each *perceptions of corruption* sector to account for differences in sample size for each sector. The full sample of 25 countries is included and country fixed effects are employed. All regressions control for gender, age, education, socioeconomic status, rural-urban status, frequency of social media usage, and frequency of conversation with family, friends, or colleagues. Sample size ranges from 16,561 (sector = corruption index) to 25,941 (sector = police). Adjusted R² ranges from 0.117 (media = news broadcasts on radio/TV & sector = police) to 0.211 (media = newspaper & sector = corruption index).

Table 8: Summary of Second Stage Results
Coefficient on Media Exposure

	Newspaper	News Broadcasts on Radio/TV	News Media Index
President/Prime Minister	-0.516 (0.514)	-0.480 (0.345)	-0.498 (0.412)
Members of Parliament	-0.200 (0.361)	-0.190 (0.291)	-0.195 (0.322)
Government Officials	-0.264 (0.368)	-0.283 (0.330)	-0.274 (0.346)
Local Government Reps	-0.171 (0.319)	-0.207 (0.348)	-0.187 (0.332)
Tax Officials	-0.172 (0.349)	-0.180 (0.327)	-0.176 (0.337)
Police	-0.025 (0.289)	-0.028 (0.313)	-0.027 (0.300)
Judges & Magistrates	0.120 (0.245)	0.111 (0.245)	0.115 (0.244)
Business Executives	0.100 (0.220)	0.111 (0.256)	0.105 (0.235)
Religious Leaders	-0.119 (0.213)	-0.114 (0.183)	-0.116 (0.195)
Corruption Index	-0.138 (0.342)	-0.127 (0.284)	-0.132 (0.310)

Heteroskedasticity-robust standard errors, clustered at the country level, in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Notes: The table presents second-stage results; each entry is a separate regression, and only coefficients on *perceptions of corruption* are reported. The dependent variable is *perceptions of corruption*; this is given by sector. The independent variable is *media exposure*; this is given by source, and model employs the fitted values of *media exposure* obtained from the first stage. The full sample of 25 countries is included and country fixed effects are employed. All regressions control for gender, age, education, socioeconomic status, rural-urban status, frequency of social media usage, and frequency of conversation with family, friends, or colleagues. Sample size ranges from 16,561 (sector = corruption index) to 25,941 (sector = police).

Table 9: Summary of First Stage Results for *Primary Language & European Union Instruments*
Coefficient on Instrument by Media Source & Sector

Sector	Newspaper		News Broadcasts on Radio/TV		News Media Index	
	Primary Language	EU × Primary Language	Primary Language	EU × Primary Language	Primary Language	EU × Primary Language
President/Prime Minister	0.237 (0.150)	0.425 (0.264)	0.342*** (0.075)	0.133 (0.090)	0.289*** (0.099)	0.279** (0.121)
Members of Parliament	0.246* (0.146)	0.407 (0.259)	0.318*** (0.072)	0.191*** (0.074)	0.282*** (0.096)	0.299** (0.130)
Government Officials	0.252* (0.142)	0.428* (0.250)	0.299*** (0.082)	0.151** (0.066)	0.275*** (0.095)	0.289** (0.015)
Local Government Reps	0.247* (0.144)	0.506** (0.241)	0.278*** (0.075)	0.141* (0.076)	0.262*** (0.095)	0.323*** (0.118)
Tax Officials	0.250* (0.143)	0.455 (0.285)	0.297*** (0.073)	0.170** (0.079)	0.274*** (0.093)	0.312** (0.138)
Police	0.204 (0.153)	0.493* (0.271)	0.258*** (0.085)	0.173** (0.072)	0.231** (0.102)	0.333** (0.138)
Judges & Magistrates	0.224 (0.159)	0.432* (0.232)	0.310*** (0.088)	0.186** (0.075)	0.267** (0.107)	0.309*** (0.112)
Business Executives	0.217 (0.161)	0.476* (0.263)	0.266*** (0.085)	0.168** (0.071)	0.242** (0.108)	0.322** (0.133)
Religious Leaders	0.255 (0.173)	0.474 (0.289)	0.362*** (0.070)	0.153* (0.091)	0.309*** (0.105)	0.313** (0.126)
Corruption Index	0.259 (0.161)	0.564* (0.321)	0.375*** (0.071)	0.203 (0.126)	0.317*** (0.103)	0.384*** (0.135)

Heteroskedasticity-robust standard errors, clustered at the country level, in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Notes: The table presents first-stage results; each entry is a separate regression, each pair of regressions represents a unique model, and only coefficients on the *primary language* and *EU × primary language* instruments are reported. The dependent variable is *media exposure*; this is given by source. The independent variable in columns (1), (3), and (5) is *primary language*, coded as a dummy = 1 if an individual's main language spoken matches their nation's official language. In columns (2), (4), and (6), the independent variable is *EU × primary language*; the *EU* variable is coded as a dummy = 1 if a country was a member of the European Union as of 2013. Results are reported for each *perceptions of corruption* sector to account for differences in sample size for each sector. The full sample of 25 countries is included and country fixed effects are employed. All regressions control for gender, age, education, socioeconomic status, rural-urban status, frequency of social media usage, and frequency of conversation with family, friends, or colleagues. Sample size ranges from 16,561 (sector = corruption index) to 25,941 (sector = police). Adjusted R² for *primary language* ranges from 0.117 (media = news broadcasts on radio/TV & sector = police) to 0.211 (media = newspaper & sector = corruption index). Adjusted R² for *EU × primary language* ranges from 0.746 (media = newspaper & sector = members of parliament) to 0.950 (media = news broadcasts on radio/TV & sector = government officials).

Table 10: Summary of Second Stage Results, Incorporating EU Membership
Coefficient on Media Exposure and EU × Media Exposure Interaction Term

Sector	Newspaper		News Broadcasts on Radio/TV		News Media Index	
	Media Exposure	EU × Media Exposure	Media Exposure	EU × Media Exposure	Media Exposure	EU × Media Exposure
President/Prime Minister	-0.621 (0.717)	0.337 (0.692)	-0.462 (0.374)	-0.169 (1.034)	-0.533 (0.503)	0.173 (0.611)
Members of Parliament	-0.345 (0.522)	0.447 (0.477)	-0.304 (0.351)	0.635 (0.496)	-0.320 (0.421)	0.501 (0.457)
Government Officials	-0.371 (0.530)	0.331 (0.492)	-0.339 (0.384)	0.401 (0.667)	-0.354 (0.447)	0.343 (0.498)
Local Government Reps	-0.275 (0.493)	0.277 (0.444)	-0.266 (0.396)	0.439 (0.670)	-0.270 (0.440)	0.310 (0.466)
Tax Officials	-0.232 (0.487)	0.193 (0.444)	-0.211 (0.376)	0.214 (0.626)	-0.220 (0.425)	0.195 (0.464)
Police	-0.101 (0.475)	0.182 (0.430)	-0.093 (0.381)	0.362 (0.483)	-0.096 (0.423)	0.227 (0.428)
Judges & Magistrates	0.058 (0.337)	0.186 (0.383)	0.032 (0.289)	0.484 (0.501)	0.046 (0.310)	0.281 (0.426)
Business Executives	0.052 (0.326)	0.128 (0.333)	0.039 (0.306)	0.439 (0.403)	0.047 (0.315)	0.212 (0.363)
Religious Leaders	-0.256 (0.315)	0.423 (0.399)	-0.208 (0.178)	0.817 (0.691)	-0.226 (0.228)	0.507 (0.475)
Corruption Index	-0.273 (0.516)	0.412 (0.493)	-0.214 (0.321)	0.675 (0.489)	-0.237 (0.396)	0.467 (0.453)

Heteroskedasticity-robust standard errors, clustered at the country level, in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Notes: The table presents second-stage results; each pair of coefficients represent a separate regression, and only coefficients on media exposure and EU × media exposure are reported. The dependent variable is *perceptions of corruption*; this is given by sector. The independent variable is *media exposure*; this is given by source, and model employs the fitted values of *media exposure* obtained from the first stage. The *EU* variable is coded as a dummy = 1 if a country was a member of the European Union as of 2013. The full sample of 25 countries is included and country fixed effects are employed. All regressions control for gender, age, education, socioeconomic status, rural-urban status, frequency of social media usage, and frequency of conversation with family, friends, or colleagues. Sample size ranges from 16,561 (sector = corruption index) to 25,941 (sector = police).