

Vision and Division: Democrats and Republicans Look at Political Images Differently, Reflecting Their Attitude*

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Abstract

How do political leanings influence visual engagement? We report the first large-scale eye-tracking study examining how political perspectives influence visual information processing of politically sensitive content. Our findings demonstrate that Democrats and Republicans not only view political images in ways that reflect their political stances but also that their visual focus predicts their evaluations of the depicted subjects. These findings provide compelling empirical evidence that political affiliations significantly shape visual engagement with political imagery, thereby influencing perceptions and potentially deepening partisan divides. These results are robust across multiple dimensions, including multiple study waves, image selection, measures of partisanship and ideology, different survey participant devices, and varying levels of participant engagement.

Most recent version is [here](#).

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Introduction

In today's digital age, the world has become profoundly visual, with images permeating nearly every aspect of our daily lives (see e.g., Grabe and Bucy 2009; Geise and Lobinger 2017; Sontag 2018; Coleman and Banning 2006). From the relentless streams of photos and videos shared on social media to the dynamic infographics and banners that dominate websites, visual content engages us (Nekrasov, Teoh, and Wu 2022; Sülfow, Schäfer, and Winter 2019), informs us (Messaris and Abraham 2001; Gamson et al. 1992), and influences our perceptions and decisions (Newhagen and Reeves 1992; Powell et al. 2015). In politics, visual content, be it everyday news (Miller, Andsager, and Riechert 1998; Torres 2024) or campaign ads portraying politicians and their actions, can swiftly convey complex and emotive messages that directly impact viewers' perceptions and emotional responses (Grabe and Bucy 2009; Gamson et al. 1992; Powell et al. 2015).

Research on visuals in politics has examined in great detail how images can communicate and reinforce attitudes toward polarizing topics (Boxell 2018; Grabe and Bucy 2009; Spinde et al. 2022; Webb Williams et al. 2023; Peng 2018; Gasparyan and Sirotkina 2023). However, the cognitive mechanisms through which these images influence political views remain relatively underexplored. Building on this gap, advancements in political neuroscience have begun to demonstrate a strong association between political ideology and brain reactions to sensitive content (Amodio et al. 2007; Kim et al. 2020; Yang et al. 2022; Leong et al. 2019; Leong et al. 2020), a phenomenon known as neural polarization (Leong et al. 2019). This suggests that processing in specific brain areas varies significantly between conservatives and liberals, illustrating the profound influence of political bias on cognitive functioning.

A critical gap that current research addresses is obtaining direct evidence of how individuals with different political affiliations *visually process* naturalistic political content, what they perceive in political images¹, and how the viewing modes reflect partisans' interpretations

1. Political images are defined as images depicting a politically-relevant topic (Grabe and Bucy 2009).

and subsequent attitudes. With this study, we gain deeper insights into whether and how cognitive biases influence people's perceptions and subsequent attitudes to political imagery (Leong et al. 2019).

We address this gap by conducting the first large-scale eye-tracking study (N=2,006)², linking participants' behavioral data with survey responses. This study exposes people to images depicting one of the topics about which Democrats and Republicans most disagree in their attitudes - immigration. We collected images covering real-live events accessed through publicly available social media accounts as well as stock image sources (such as Getty) that often serve as a primary source of imagery for many media outlets covering news on immigration (Aiello and Woodhouse 2016). In two eye-tracking studies, survey respondents viewed 31 images and reported their attitudes about the objects portrayed.

Two previously theorized mechanisms could explain the differences in partisan visual perception: motivated seeing (Balcetis and Dunning 2006; Leong et al. 2019; Leong et al. 2020) and motivated reasoning (Leong et al. 2019). Motivated seeing suggests that people pay attention to objects that support their evaluative biases (e.g., Republicans stereotype immigrants as dangerous, so they are expected to pay more visual attention to crowds - a more negative stereotype - than to women with children, a more positive stereotype, see e.g., Farris and Silber Mohamed 2018). Motivated reasoning implies that people pay attention to the same objects but differ in their reporting and interpretation of what they see and their attitude toward it (Leong et al. 2019).

The major finding of this study is the consistent disparity in how Democrats and Republicans engage with politically sensitive visuals. Democrats tend to focus on the overall scenes longer, with Strong Democrats viewing visuals on average 12 milliseconds longer than

2. We draw on the latest advancements in webcam-based eye-tracking technology that employs a deep neural network, similar to the I-VT (Velocity-Threshold Identification) algorithm, known as WebGazer (Steffan et al. 2024). This technology processes images captured from a survey participant's web camera to detect the panelist's face and pupils - circular, black-colored opening in the center of the iris of the eye, which movement is tracked to determine where a person is looking, - subsequently predicting the gaze point by analyzing eye positions. This approach is essential for understanding where, how long, and how intensively individuals focus on specific parts of a visual scene.

Strong Republicans, and they pay more attention to specific objects within the scenes, such as women and children ($b = 2.297$, $SE = 0.354$, $P < 0.00001$) or crowds ($b = 1.894$, $SE = 0.251$, $P < 0.00001$), whereas Republicans' fixations are less frequent and shorter. This suggests that Democrats may engage more deeply with the sensitive content, possibly reflecting a greater emotional or cognitive investment in the issue depicted.

Importantly, the most consistent result is when the effect is conditional on individuals' attitudes toward the topic portrayed: The influence of being more Democratic on average fixation duration increases as attitudes toward immigration become more positive. At more negative levels of attitudes towards immigration, Democrats have shorter durations than Republicans, however with a more positive attitude towards immigration, Democrats have longer fixations than Republicans.

We find that this effect is predominantly driven by Republican respondents. Within the partisan groups, the attitude toward immigration is an insignificant predictor of visual attention for Democrats but a significant and strongly negative predictor for Republicans. This suggests that Republicans' visual attention to these images is closely linked to their attitudes toward immigration. Consequently, we conclude that a stronger Republican orientation, when combined with a more positive attitude toward immigration, significantly widens the partisan divide in visual information processing.

These variations in visual processing have a causal effect on people's attitudes toward portrayed objects. Unsurprisingly, the major difference in evaluations is explained by partisanship. However, with the causal mediation analysis, we show that at least one percent of the resulting attitude is explained by how partisans viewed the images. Even though this effect might not seem large given the nature of the dependent variable, it has important substantial implications for understanding the mechanisms of political polarization as a result of consistent exposure to certain political images.

Finally, our results lend support to the motivated reasoning hypothesis, which appears more suitable for explaining partisan differences in visual information processing and sub-

sequent attitudes. Analyzing images at the object level, we found that Democrats and Republicans display similar viewing patterns: both groups focus less on crowds — one of the most negative representations of immigration — and more on women and children, one of the most positive visual representations of immigration. Democrats consistently spend more time focusing on these and other objects and visuals overall, compared to Republicans. This clearly rules out the motivated seeing mechanism, which predicts partisan visual selection bias *at the stage of visual processing*. More likely, partisans approach images with both their perceptual and evaluative biases already in play, when they know the images depict immigration. But further research is certainly required to fully understand these dynamics.

The study was conducted in two phases across platforms with different participant pools—Lucid (N=1,082, June 2023) and Prolific (N=924, March 2024). Participants used a variety of devices including mobile phones, laptops, and tablets, which are the typical ways people access online news and social media. This range of devices used in the study adds to its ecological validity, allowing participants to interact in their natural environments outside of a laboratory setting. This approach helps ensure that the study results more accurately mirror real-world behaviors (Nichols and Maner 2008; Chaytor and Schmitter-Edgecombe 2003). The diversity of our sample spanned socio-demographics, media consumption habits, political preferences, ideology, and geographic locations across the U.S. Participants were also assessed on the ‘quality’ of their participation³. All of these factors make us confident that the results are robust.

With this study, we contribute to the expanding field of political neuroscience (see e.g., Jost et al. 2014; Nam et al. 2018), which explores the biological and cognitive origins of how liberal and conservative people process sensitive information (Amodio et al. 2007; Kim et al. 2020; Yang et al. 2022) sometimes leading to polarized attitudes. We extend this literature to include visual information processing, emphasizing how these insights apply to how individuals

3. The participants were rated based on whether they followed the eye-tracking instructions received during calibration and how attentively they did so.

perceive and interpret visual political information.

Our study breaks new ground by exploring how political leanings affect visual attention and its effects on attitudes. We demonstrate that partisanship plays a complex role in how individuals engage with political visuals. This understanding has important implications for grasping the perceptual and attitudinal consequences of visual bias in conservative and liberal media outlets (see e.g., Peng 2018; Peng, Lock, and Ali Salah 2023), as well as in search engines on visual social media platforms like Twitter and Instagram (see e.g., Peng 2021, Gasparyan and Sirotkina 2023), which have previously been shown to amplify certain visual representations while downplaying others. Ultimately, our findings contribute to a deeper awareness of how visual biases reinforce existing attitudes.

Materials and Methods

Study Flow

We conducted our study in two phases⁴, first recruiting participants to answer socio-demographic and political preference questions on Qualtrics. Subsequently, we directed them to the eye-tracking portion of the study, where they viewed immigration-related images and responded to questions about each one. Participants needed to meet specific physical requirements for the eye-tracking study, such as sitting in a stationary chair in a well-lit room, having good eyesight, and using a webcam-equipped device.

Participants used a variety of devices including laptops/desktops (n=990), mobile phones (n=573), and tablets (n=443). Although using these diverse devices could introduce noise into our results, it also enhanced ecological validity, reflecting common real-world usage patterns for viewing online visuals.

In the eye-tracking part of the study, respondents went through a 1-minute 40-point calibration during which they were asked to look at 40 different points that appear one after

4. Lucid (N=1,082, June 2023) and Prolific (N=924, March 2024).

another on the screen. These points typically cover the entire area of the screen to maximize the calibration accuracy across the display. As the user looked at each point, the eye tracker recorded the position of the eyes and the corresponding point on the screen. Those who successfully passed the calibration were admitted to the study.

In the eye-tracking assignment, participants viewed all images for 5 seconds each (see e.g., Holmqvist et al. 2011), with a 1-second break after each image to prevent visual fatigue and ensure that participants maintained their focus and attention throughout the study. After each image, they received a question asking about their attitude toward the objects portrayed. The question was on a 7-point scale ranging from 'extremely negative' to 'extremely positive'.

Our participants were diverse, hailing from all 50 US states; the youngest one was 18 years old, while the oldest one was older than 85 with the largest number of participants in the age group from 35 to 44 years old. The participants' income distribution peaked at the income range of \$50 000 - \$59,999. We had 1816 non-Hispanic and 190 Hispanic participants in the sample. This comprehensive demographic and technical setup allowed us to gather robust data on how different groups engage with politically charged visual content.

Major Predictors

Our primary predictors of interest, reported in the main text, include *Partisanship (R-D)* on a 7-point scale, where 1 represents partisans who identify themselves as "Strong Republican," 4 denotes "Independent," and 7 stands for "Strong Democrat." *Strong Rep vs. Strong Dem* is a binary variable derived by subsetting only Strong Republicans and Strong Democrats from the *Partisanship (R-D)* variable, where 0 indicates "Strong Republican" and 1 indicates "Strong Democrat." *Attitudes to immigrants* is a 5-point scale variable where 1 represents advocating for deporting illegal immigrants and 5 stands for being against this measure. Note that since our images specifically depict migrant caravans from Central America moving through Mexico to the US-Mexican border we decided that this question on attitudes toward immigration captures the issue most effectively.

In the Appendix, we show results for the Feelings Thermometer (*Rep. Thermometer* and *Dem. Thermometer*), both measured on a 100-point scale where 0 represents "feeling very cold about the party" and 100 represents "feeling very warm about the party." Additionally, we measured *Ideology (main)* on a 7-point scale where 1 stands for "very conservative" and 7 for "very liberal," and *Ideology (social)*, a construct variable formed from several questions asking about their attitudes on abortion, same-sex marriage, affirmative actions, support for state-funded higher education programs, and immigration (Cronbach's alpha is 0.78).

Core Results

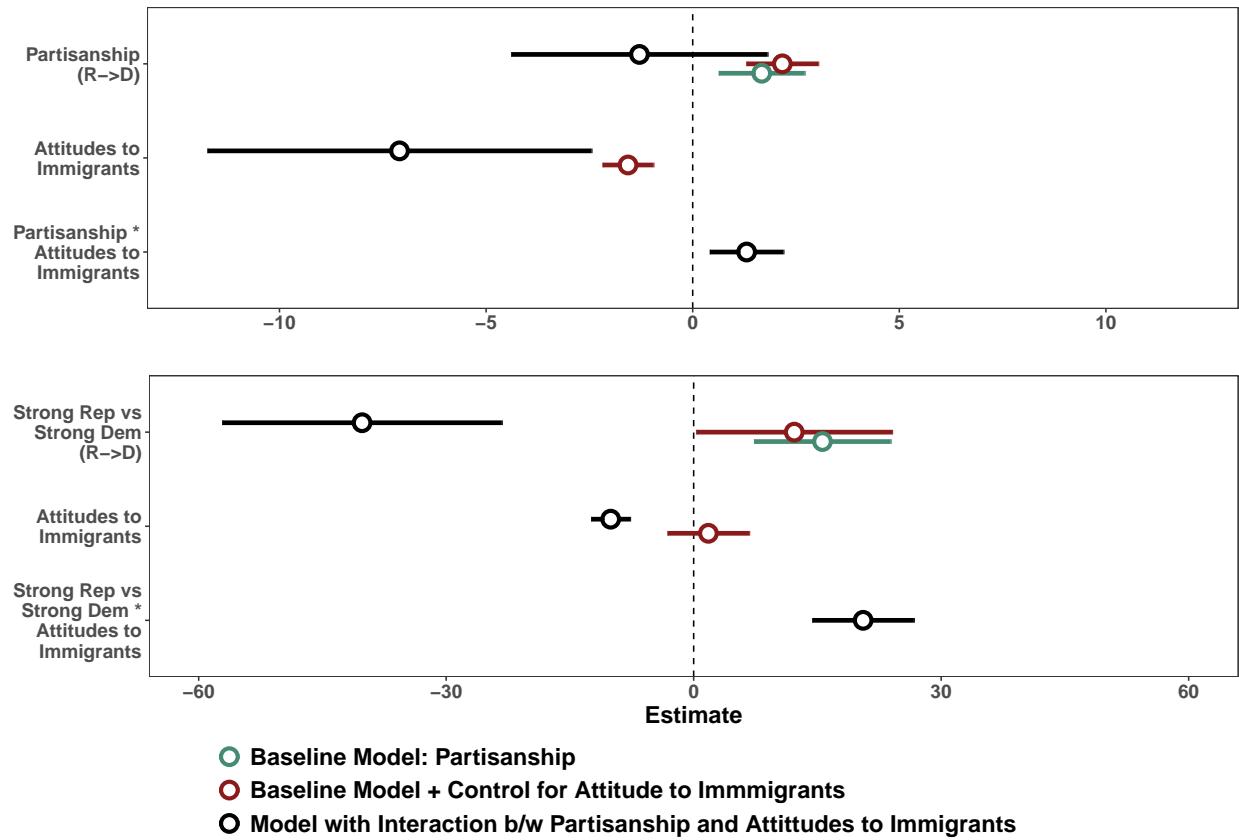
1. Partisanship Shapes Visual Information Processing

Figure 1 reports the results with partisanship as the main predictor and average fixation duration (AFD) as an outcome.⁵ AFD is a critical metric in eye tracking, reflecting both the cognitive load required to process visual information (Just and Carpenter 1980) and the viewer's motivation to engage with it (Gomez, Gunten, and Danuser 2019). Previous research showed that AFD is sensitive to the "emotional" content of different kinds: People tend to look more intensely at both pleasant and unpleasant objects (Nummenmaa, Hyönä, and Calvo 2006) evoking higher arousal (Niedenthal, Setterlund, and Jones 1994; Lane et al. 1997). But this effect also varies within the valence groups: negative emotions like fear, for instance, make people focus more as individuals seek to gather more information to address perceived threats (Öhman, Flykt, and Esteves 2001), while anger leads to shorter fixations, indicating a quicker shift in attention (Ferrer et al. 2016). Positive emotions make individuals concentrate more on preferred stimuli (Wadlinger and Isaacowitz 2006; Isaacowitz 2005).

Images in this study are sensitive visual representations of a politically charged topic. The topic's sensitivity is also confirmed by partisans' evaluations, which show a significant

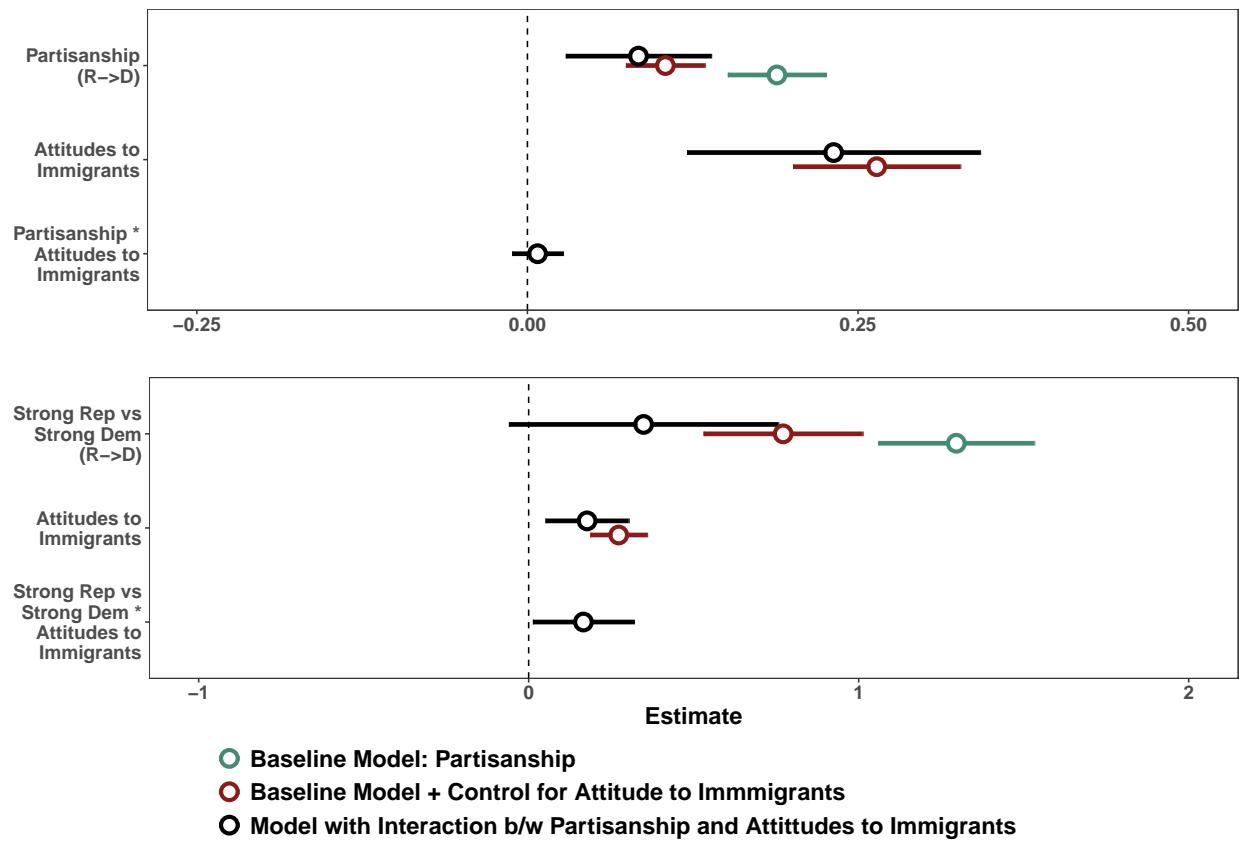
5. AFD assesses the depth of cognitive engagement with specific elements within a visual scene and visuals as holistic representations of a politically sensitive story; longer average durations typically suggest more intense and attentive processing.

Figure 1: Partisanship Affects Average Fixation Duration (m/s)



Note: Plots report coefficients for the main predictors of interest (Partisanship, Attitudes to Immigrants, and interaction between Partisanship and Attitudes to Immigrants). DVs are Average Fixation Duration (in ms.), AFD. Eye trackers identify fixations by detecting periods when the gaze remains within a predefined visual angle for a certain minimum duration. According to the literature, a ‘fixation’ typically starts from 80 milliseconds (see e.g., Velichkovsky, Rumyantsev, and Morozov 2014). In our baseline results, we use a smaller lower bound of 60 ms and report thresholds of 80 and 100 ms in Figure B.2 in the Appendix. We set the upper bound for the average fixation duration at 800 ms, as duration beyond this may indicate the viewer’s “confusion, boredom, frustration,” or loss of attention (Negi and Mitra 2020). The reported coefficients are estimated with OLS models with a full set of control variables that include age, gender, education, income, interest in politics, Hispanic ethnicity, participants’ quality in the eye tracking task, participants’ devices, and a control for the survey wave. Standard errors are clustered multi-way on respondent, image, and participant device level. Reported CI are 95%.

Figure 2: Partisanship Affects Attitudes to Images



Note: Plots report coefficients for the main predictors of interest (Partisanship, Attitudes to Immigrants, and interaction between Partisanship and Attitudes to Immigrants). Dependent variables are attitudes towards images and are measured on a 7-point scale from very negative to very positive. The reported coefficients are estimated with OLS models with a full set of control variables that include age, gender, education, income, interest in politics, Hispanic ethnicity, participants' quality in the eye tracking task, participants' devices, and control for the survey wave. Standard errors are clustered multi-way on respondent and image level. Reported CI are 95%.

gap in partisan attitudes about different depictions of immigration (see Figure 2), evoking strong emotional responses. The results for the baseline model demonstrate a strong positive association between being a more Democratic (*Partisanship (R-D)*) and focusing longer on sensitive images ($b = 1.671$, $SE = 0.531$, $P = 0.0017$) (in green color in Figure 1). Importantly, partisanship explains a unique variation in AFD controlled for *Attitudes to immigrants* (the model in red color of Figure 1). *Attitudes to immigrants* has either a negative or a statistically insignificant effect on AFD, including when we do not control for partisanship. However, in the model with an interaction term of partisanship and attitudes to immigrants (in black color in Figure 1), we show that as positive attitudes towards immigration increase, the effect of being more Democratic on average fixation duration also amplifies (with Democrats having longer average fixation duration than Republicans) ($b = 1.305$, $SE = 0.455$, $P = 0.004$).

When comparing only between Strong Democrats and Strong Republicans, the effects are largely similar but more pronounced.

These results demonstrate the crucial impact of partisanship on how people approach political visuals. They are robust across model specifications (Table B.2) and dependent variables (Table A.1) that approximate the engagement of visual information processing from slightly different perspectives.

Importantly, these findings align with previous research primarily focusing on the ideological drivers of different cognitive styles that liberals and conservatives exhibit (see e.g., Amodio et al. 2007; Jost et al. 2014; Kim et al. 2020; Yang et al. 2022; Leong et al. 2019). A critical departure of this study from previous research is that we show the effect of ideology on visual engagement is actually minimal, with partisanship being the main driving factor (see e.g., Tables D.3-D.5 in the Appendix D). In the models featuring an interaction effect between ideology and attitudes toward immigrants (Tables D.3-D.4 in the Appendix), the direct effect of ideology is not statistically significant while the effect of attitudes toward immigration is negative and the interaction effect is positive, both are statistically significant. This confirms that the effect of ideology on viewing intensity only intensifies when attitudes

toward immigration are more favorable, so the attitude towards the depicted topic is more impactful than ideology.

These results are consistent across various eye-tracking metrics used as alternatives to Average Fixation Duration (AFD) as the dependent variable: Total Fixation Duration, in ms. (TFD), and focal (versus ambient) processing (FP) of the visual content.⁶ TFD aggregates the durations of all fixations across the visual stimulus, indicating overall engagement. FP assesses the detailed attention given to specific parts of the stimulus. The results are presented in Figure A.1 in the Appendix.

2. The Effect of Partisanship on Visual Processing is Mainly Driven by Republicans

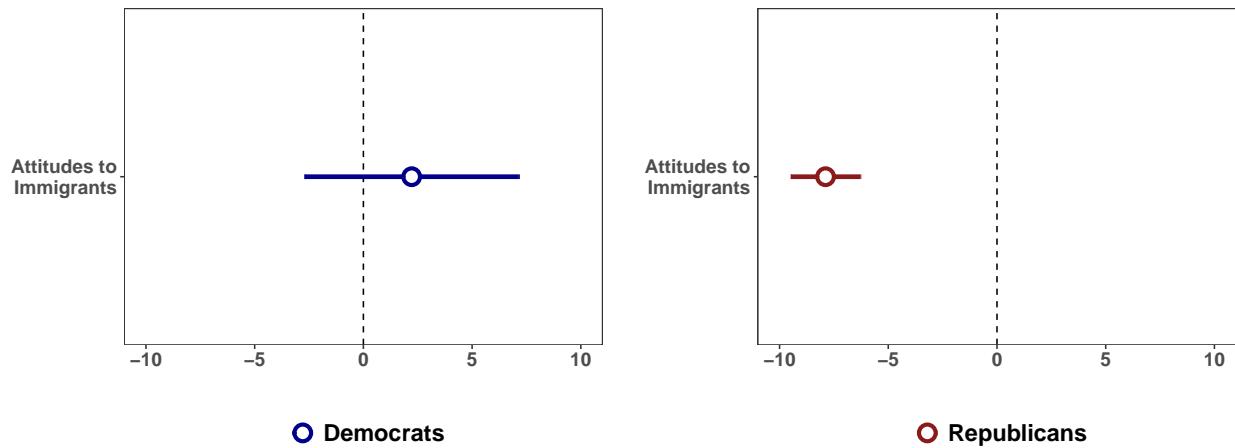
We now look into the partisan groups to explore the heterogeneous effects of attitudes toward immigration (Figure 3). Within the Democratic group (comprised of “Strong” and “Not so strong Democrats” on a 7-point scale of the *Partisanship (R-D)* variable), the attitude toward immigration has a positive but not statistically significant effect on Average Fixation Duration (AFD). Conversely, within the Republican group (comprised of “Strong” and “Not so strong Republicans”), the attitude toward immigration has a substantial and negative impact on Republicans’ visual attention. On average, for each one-point increase in a Republican’s positive attitude towards immigration, they spend 7.8 milliseconds less visually engaging with these images.

3. About 1% of Attitudinal Changes is Mediated by Visual Processing

To what extent does the way people look at images influence their evaluations of the scenes and objects depicted? We analyze this by conducting a causal mediation analysis (CMA) to

6. A measure based on the longevity of fixation duration and saccade amplitudes, which are the angular distances that the eye moves during a saccade—a rapid, ballistic movement of the eye between fixation points where the eye stops to focus.

Figure 3: Attitudes to Immigrants Influence Average Fixation Duration (m/s) by Partisan Subgroups

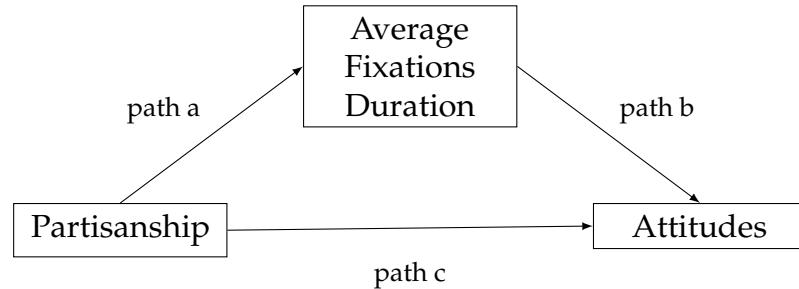


Note: Plots report coefficient for the main predictor of interest: Attitudes to Immigrants. The reported coefficients are estimated with OLS models with a full set of control variables, standard errors are clustered multi-way on respondent, image, and participant device level. Reported CI are 95%.

determine whether people's attitudes about the portrayed objects are influenced by their partisanship, with average fixation duration (AFD) serving as the mediator (see DAG in Figure 4). The model specifications use the same set of predictors and control variables as the baseline models. Figure 5 shows the results of the CMA, which unsurprisingly indicates that the largest impact is in the direct effect of partisanship on evaluations. Nevertheless, the mediation effect of average fixation duration is also robust and statistically significant, with a p-value of <0.00001.

While the mediated effect constitutes about 1% - an expected outcome given the nature of the data - it importantly suggests that how people view political images causally influences their attitudes, at least to some extent. This demonstrates that visual processing not only reflects underlying biases but also actively contributes to reinforcing or modifying political attitudes.

Figure 4: Directed Acyclic Graph for Causal Mediation

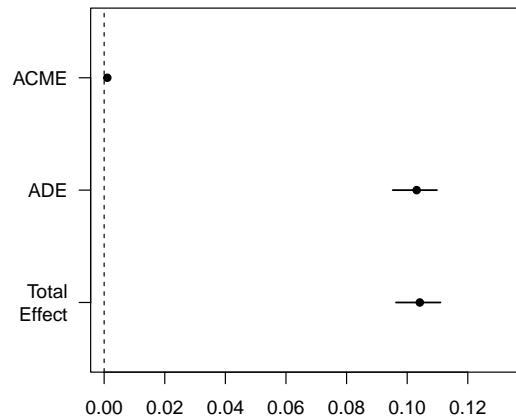


ACME/Indirect Effect (a+b): $b = 0.001$, se= 0.000014, p < 0.00001

ADE/Direct Effect(c): $b = 0.103$, se= 0.018, p < 0.00001

Total Effect: $b = 0.104$, se=0.018, p< 0.00001

Figure 5: Results for Causal Mediation Analysis



Note: ACME indicates average causal mediation effect or indirect effect of Partisanship on Attitudes through Fixations Duration as a mediator. ADE indicates average direct effect of partisanship on attitudes. Total effect is comprised from both ADE and ACME. The effects are statistically significant with reported CI at 95% level. Models are estimated with robust standard errors clustered multi-way at participant, image, and participant's device level.

4. Motivated Reasoning Explains Visual Information Processing and Attitudes

Thus far we demonstrated that partisanship has a substantial effect on how people on average look at politically sensitive visuals and this affects the evaluation result, but what is the mechanism? We are testing two major theories from political neuroscience that can be responsible for the effect we observe: motivated seeing and motivated reasoning.

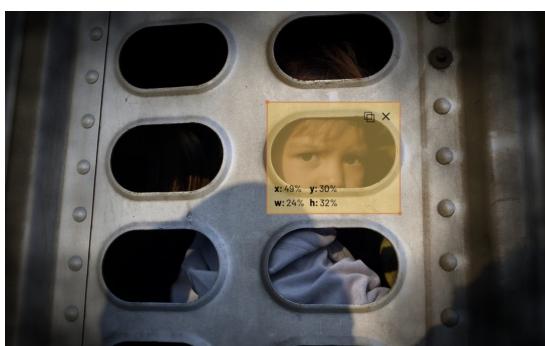
Motivated seeing broadly suggests that people see what they want to see, indicating that they are influenced by perceptual biases (Leong et al. 2020). When sensory information reaches us, it goes through various cognitive processes before we become fully aware of it. Perceptual biases influence these early stages of perception, subtly altering the information so that the resulting perception aligns more closely with our pre-existing desires or expectations. This means that when looking at politically sensitive visuals, people with certain predispositions may focus on parts of the images that align more closely with their preferences or that activate their *preferred* stereotypes about the topic depicted. For instance, people with negative attitudes about immigrants should tend to focus on those aspects of the visuals that more easily justify their negative evaluations.

In contrast, motivated reasoning should influence how people respond to what they see, but it should not directly alter their perception - only how they choose to report what they observed. This distinction is crucial for understanding *which* motivation is more at play and responsible for the differences in evaluations, whether motivation reshapes perception or influences its reporting. Empirically, motivated reasoning in our case should manifest as a negligible difference in the specific objects of political visuals that people observe - partisans should look similarly to the same salient objects on the political visuals - but they should report different evaluations of images with these objects. If the motivated reasoning hypothesis is true, the bias or attitude difference appears at the evaluation stage, not during the initial perception.

To answer this question, we used several approaches, all requiring identifying certain

meaningful objects in the visuals - areas of interest (AOI) (see examples of AOIs in Figure 6). This term refers to specific regions on a visual display to analyze how participants focus on different parts of a stimulus during an eye-tracking session (e.g., time spent looking at each AOI, the number of fixations and their duration).

Figure 6: Examples of Areas of Interest (AOI)



(a) Area of Interest: Child's Face



(b) Area of Interest: Child's Face



(c) Area of Interest: Crowds



(d) Area of Interest: Closed-Up Shots

Tables E.6-E.7 and F.8-F.9 present results from grouping objects based on the literature on immigration stereotypes. Specifically, we chose images that depict "women and children," commonly presented as the most positive representation of immigration, and "crowds," often described as the most negative representation of immigration that leads people to easier stereotype them as dangerous, uncontrolled lawbreakers.

This approach is somewhat imprecise, as not all images feature women, children, or crowds, so we do lose some data for other visuals. However, this method allows us to test

the most conservative hypothesis: if variations in visual information processing and attitudes exist, we should observe them in the visual objects for which we have the strongest prior evidence of communicating the opposite attitudes about immigration.

We selected images featuring either "crowds" or "women and/or children". We applied two empirical strategies:

1. Within each subgroup of images (crowds or women and/or children), we examined the effect of partisanship on Average Fixation Duration (AFD) at the level of areas of interest (AOI). We used models with fixed effects at the image and AOI levels (see Tables E.6 and E.7).
2. For the entire group of images featuring crowds and women and/or children, we examined the effect of partisanship on AFD (see Table F.8) as well as participants' attitudes toward the images with these AOIs (see Table F.9), conditional on the type of image. AFD was calculated at the AOI level, while attitudes were measured for the whole image.

These results demonstrate that Democrats and Republicans view political images differently, and this variance in viewing extends across objects and visual scenes: Democrats fixate on all images and image objects longer compared to Republicans, regardless of the valence of these objects. However, we do observe a statistically significant negative effect of partisanship on AFD conditional on images portraying crowds. In other words, *all* partisans view images portraying crowds with shorter fixations duration than images portraying close-up shots of women and/children.

Our findings challenge previously theorized mechanisms explaining the visual cognitive processing of politically divisive content. We demonstrate that motivated reasoning is indeed the mechanism at play, but we also show that it influences both perceptions and attitude reporting. This suggests that motivated reasoning likely begins at the initial stage when individuals are told about the content of the images—before they view them and form

attitudes. This suggests that motivated reasoning can influence both visual information processing and attitude formulation earlier in the process chain than was previously assumed (see e.g., Leong et al. 2019; Leong et al. 2020).

Discussion

We live in an increasingly visual world, yet our understanding of how our beliefs shape the way we see this visual world is limited. This study provides the first systematic analysis of how partisan political perspectives influence the way people visually process political information and, in turn, how these perceptions affect their attitudes.

In the first large-scale eye-tracking study of its kind, we exposed individuals with diverse political and ideological backgrounds to realistic images representing the polarizing topic of immigration. We linked their eye-tracking data with socio-demographic and political preference responses, as well as their attitudes toward the objects depicted in the images they viewed during the study.

We report a striking difference in how Democrats and Republicans visually engage with politically sensitive images. These differences suggest that political affiliation may systematically influence how individuals process visual information related to controversial topics. The consistency of our results across various visual objects and scenes, as well as the response latencies used to measure visual information processing, indicates that political leanings can significantly shape not only what people look at but also how quickly and deeply they process this information. This implies that political biases are not just reflected in opinions and attitudes but are also deeply embedded in the fundamental cognitive processes involved in visual perception.

Furthermore, we demonstrate that the differences in viewing patterns between Democrats and Republicans partially shape their attitudes, suggesting a causal relationship between how people visually engage with politically sensitive images and their subsequent opinions. This means that the way individuals from different political affiliations look at and process

visual information contributes to reinforcing their preexisting perceptual and attitudinal biases. For the real-world implications it means that as people scroll through visually rich news content, these biased viewing patterns can strengthen their existing political beliefs, leading to a self-reinforcing cycle where perception and attitude influence each other. This finding provides critical insight into the mechanisms through which media consumption can perpetuate political polarization.

One of the most substantial findings is that neither perceptual biases nor post-exposure motivated reasoning alone can explain visual behavior and subsequent attitudes. Instead, we reveal that motivated reasoning is the primary mechanism driving both visual information processing and attitude formation. This means that individuals' preexisting beliefs and motivations shape their visual engagement with politically sensitive images as soon as they recognize the content. This not only predictably influences their attitudes about the topic but also, less predictably, affects how they "choose" to look at these visuals. These findings highlight the need for further systematic investigation into how these deep-seated, unconscious processes shape political attitudes and behaviors.

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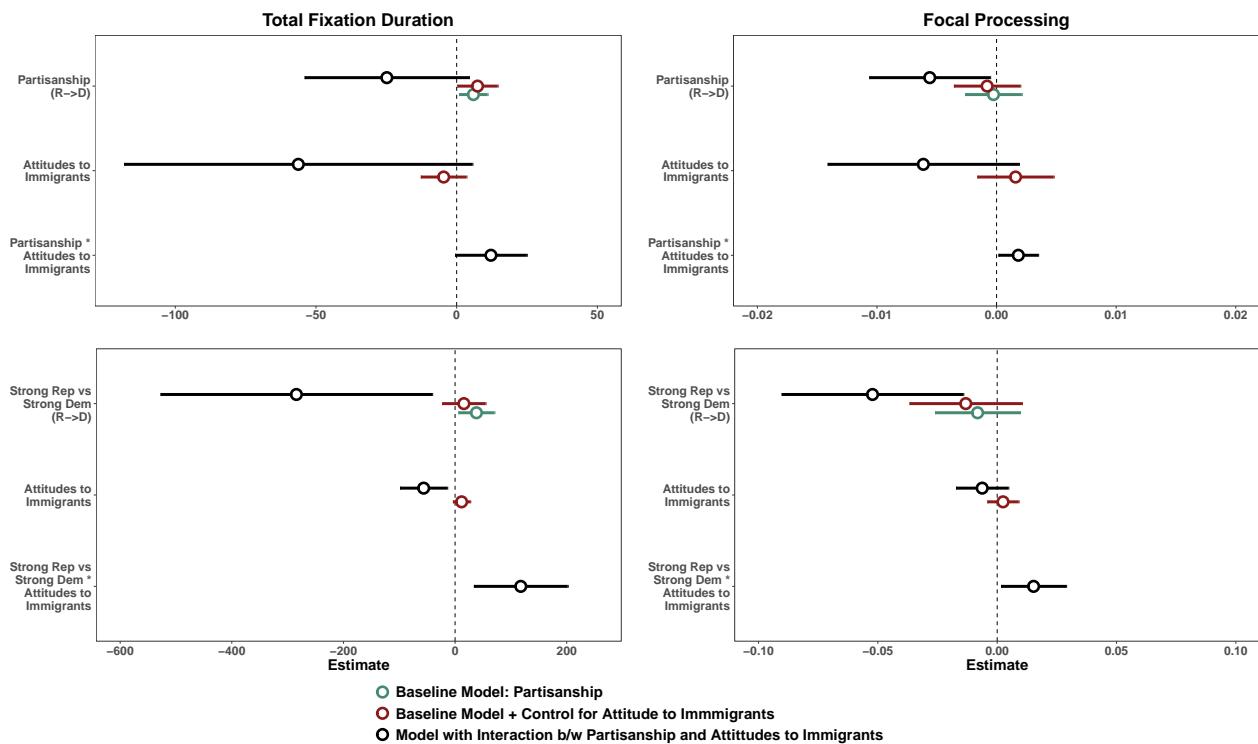
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Appendix

A Alternative Outcomes

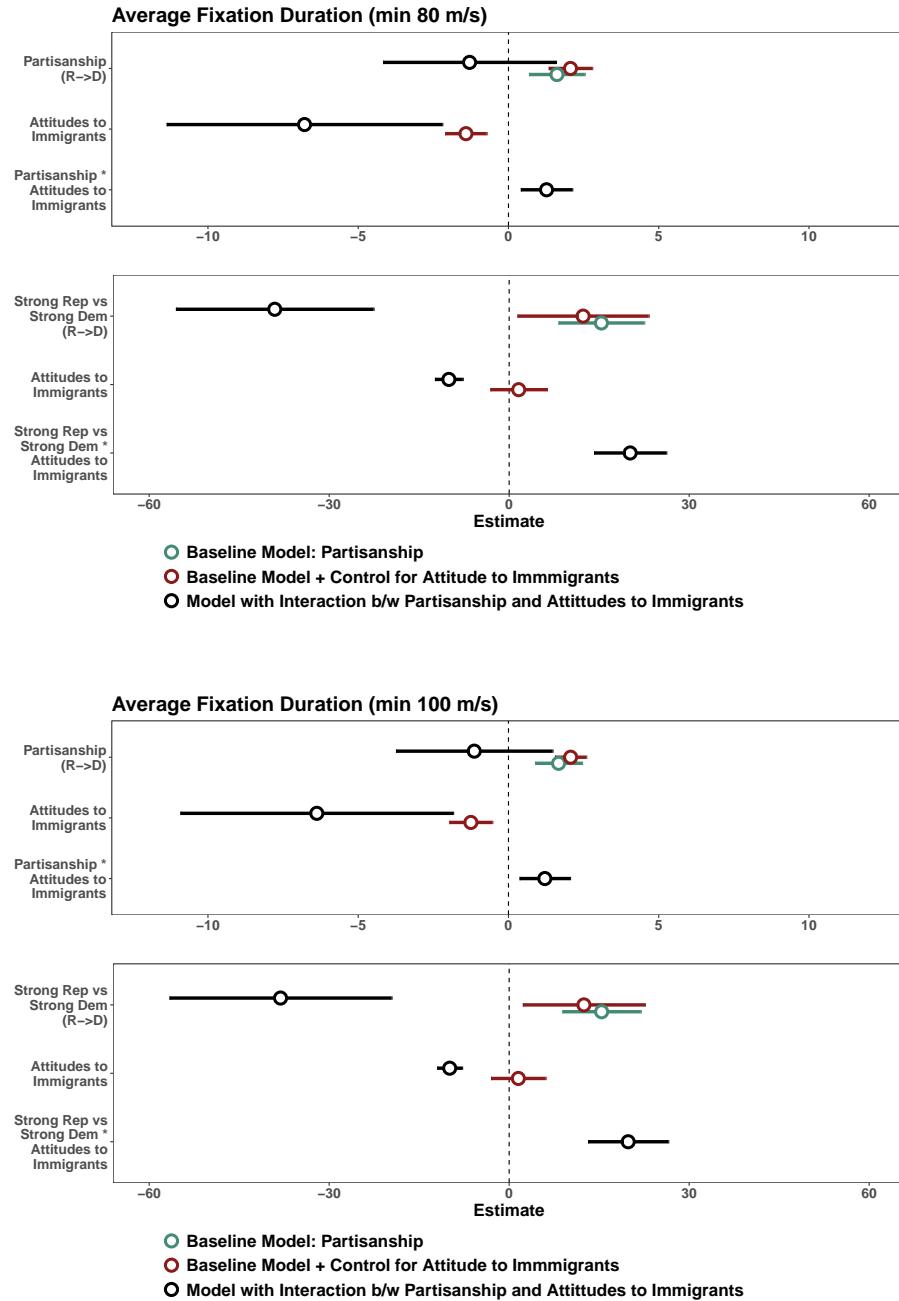
Figure A.1: Partisanship Effects on Total Fixation Duration (m/s) and Focal Processing



Note: Plots report coefficients for the main predictors of interest (Partisanship, Attitudes to Immigrants, and interaction between Partisanship and Attitudes to Immigrants). Focal processing is measured as a binary variable with 1 - focal processing of an image vs. 0 - ambient processing of an image. The reported coefficients are estimated with OLS models with a full set of control variables, standard errors are clustered multi-way on respondent x image x participant device level for total fixation duration outcome, and respondent x image level for the focal processing outcome. Reported CI are 95%.

B Alternative Minimal Fixation Duration Thresholds

Figure B.2: Partisanship Affects Average Fixation Duration (m/s)



Note: Plots report coefficients for the main predictors of interest (Partisanship, Attitudes to Immigrants, and interaction between Partisanship and Attitudes to Immigrants). DVs are Average Fixation Duration (in ms.), AFD. The reported coefficients are estimated with OLS models with a full set of control variables, standard errors are clustered multi-way on respondent, image, and participant device level. Reported CI are 95%.

C Feeling Thermometers Results

Table C.1: Effects of Democratic Feeling Thermometer on Average Fixation Duration (m/s)

	Dependent variable:		
	Average Fixation Duration in m/s, OLS		
	(1)	(2)	(3)
Democratic Thermometer	0.046*** (0.016)	0.052*** (0.017)	-0.038 (0.106)
Attitudes to Immigrants		-0.324 (0.414)	-2.160 (1.680)
Female	-7.703*** (1.911)	-7.682*** (1.929)	-7.802*** (2.034)
Age	-2.732*** (0.924)	-2.780*** (0.886)	-2.848*** (0.945)
Education	-0.854 (0.736)	-0.828 (0.721)	-0.823 (0.716)
Income	1.267 (0.835)	1.259 (0.840)	1.253 (0.850)
Interest	0.147 (1.013)	0.151 (1.021)	-0.036 (0.869)
Hispanic	1.006 (6.291)	1.105 (6.176)	1.127 (6.142)
Democratic Thermometer*Attitudes to Immigrants			0.035 (0.034)
Constant	224.394*** (25.055)	225.117*** (25.902)	230.567*** (24.989)
Additional Controls	✓	✓	✓
Image FE	✓	✓	✓
Observations	106,148	106,148	106,148

Note: *p<0.1; **p<0.05; ***p<0.01. Models are estimated with OLS at participant per image level. Robust standard errors clustered multiway at participant, image, and participants' device level. Additional controls include controls for survey wave, survey respondents' device, participants' quality in the eye tracking task.

Table C.2: Effects of Republican Feeling Thermometer on Average Fixation Duration (m/s)

	<i>Dependent variable:</i>		
	Average Fixation Duration in m/s, OLS		
	(1)	(2)	(3)
Republican Thermometer	-0.134*** (0.029)	-0.163*** (0.028)	0.0002 (0.112)
Attitudes to Immigrants		-1.407*** (0.191)	1.107 (1.254)
Female	-6.889*** (2.020)	-6.548*** (2.040)	-6.491*** (1.986)
Age	-2.364** (0.950)	-2.542*** (0.943)	-2.558*** (0.953)
Education	-1.154 (0.773)	-1.068 (0.776)	-1.127 (0.811)
Income	1.393 (0.925)	1.374 (0.916)	1.406 (0.900)
Interest	0.343 (0.696)	0.364 (0.686)	0.027 (0.509)
Hispanic	-0.220 (5.737)	0.215 (5.461)	0.475 (5.132)
Republican Thermometer*Attitudes to Immigrants			-0.062* (0.034)
Constant	228.293*** (23.749)	233.753*** (23.768)	227.096*** (23.041)
Additional Controls	✓	✓	✓
Image FE	✓	✓	✓
Observations	105,741	105,741	105,741

Note: *p<0.1; **p<0.05; ***p<0.01. Models are estimated with OLS at participant per image level. Robust standard errors clustered multiway at participant, image, and participants' device level. Additional controls include controls for survey wave, survey respondents' device, participants' quality in the eye tracking task.

D Ideology Results

Table D.3: Effects of Self-Reported Ideological Stands on Average Fixation Duration (m/s)

	<i>Dependent variable:</i>		
	Average Fixation Duration in m/s, OLS		
	(1)	(2)	(3)
Ideology (Cons -> Libs)	1.605 (1.493)	2.219 (1.691)	-1.751 (1.518)
Attitudes to Immigrants		-1.542*** (0.554)	-7.616*** (0.825)
Female	-11.039*** (3.621)	-10.861*** (3.669)	-11.099*** (3.532)
Age	-2.318** (1.025)	-2.473** (1.007)	-2.461** (0.973)
Education	-0.846 (1.477)	-0.747 (1.528)	-0.813 (1.599)
Income	0.914 (0.782)	0.898 (0.766)	0.910 (0.755)
Interest	1.592 (1.911)	1.571 (1.903)	0.843 (1.867)
Hispanic	-0.558 (7.212)	-0.109 (7.164)	-0.105 (6.923)
Ideology*Attitudes to Immigrants			1.444*** (0.064)
Constant	214.718*** (39.060)	216.706*** (38.690)	234.882*** (37.502)
Additional Controls	✓	✓	✓
Image FE	✓	✓	✓
Observations	44,982	44,982	44,982

Note: *p<0.1; **p<0.05; ***p<0.01. Models are estimated with OLS at participant per image level. Robust standard errors clustered multiway at participant, image, and participants' device level. Additional controls include controls for survey wave, survey respondents' device, participants' quality in the eye tracking task.

Table D.4: Effects of Being a Strong Liberal (vs Strong Conservative) on Average Fixation Duration (m/s)

	<i>Dependent variable:</i>		
	Average Fixation Duration in m/s, OLS		
	(1)	(2)	(3)
Strong Libs vs Cons	4.554 (8.626)	-1.863 (8.560)	-55.694*** (4.634)
Attitudes to Immigrants		2.773** (1.090)	-8.391*** (1.511)
Female	-13.605** (5.310)	-14.004*** (5.301)	-14.472*** (4.559)
Age	-4.689*** (1.132)	-4.357*** (1.052)	-4.138*** (1.309)
Education	0.428 (1.539)	0.514 (1.509)	-0.300 (1.849)
Income	-0.016 (0.137)	-0.035 (0.126)	0.187 (0.117)
Interest	-0.108 (2.695)	-0.175 (2.817)	-2.395 (3.746)
Hispanic	5.444 (8.796)	4.968 (9.085)	1.851 (8.395)
Strong Liberals*Attitudes to Immigrants			20.169*** (4.152)
Constant	278.027*** (43.250)	274.627*** (42.715)	307.902*** (38.290)
Additional Controls	✓	✓	✓
Image FE	✓	✓	✓
Observations	10,412	10,412	10,412

Note: *p<0.1; **p<0.05; ***p<0.01. Models are estimated with OLS at participant per image level. Robust standard errors clustered multiway at participant, image, and participants' device level. Additional controls include controls for survey wave, survey respondents' device, participants' quality in the eye tracking task.

Table D.5: Effects of Ideology (as an aggregated measure) on Average Fixation Duration (m/s)

<i>Dependent variable:</i>	
Average Fixation Duration in m/s, OLS	
Ideology (Aggregated)	1.869 (2.120)
Female	-11.161*** (3.553)
Age	-2.327** (1.036)
Education	-0.755 (1.507)
Income	0.877 (0.763)
Interest	1.720 (1.866)
Hispanic	-0.677 (7.116)
Constant	214.540*** (39.235)
Additional Controls	✓
Image FE	✓
Observations	44,982

Note: *p<0.1; **p<0.05; ***p<0.01. Models are estimated with OLS at participant per image level. Robust standard errors clustered multiway at participant, image, and participants' device level. Additional controls include controls for survey wave, survey respondents' device, participants' quality in the eye tracking task.

E Object-Level (AOI) Analysis of Partisanship Effects on AFD on Image Subsets

Table E.6: Effects of Partisanship on Average Fixation Duration on the Subset of Images Portraying Crowds

<i>Dependent variable:</i>	
Average Fixation Duration (m/s): Crowds	
Partisanship	1.894*** (0.251)
Attitudes to Immigrants	-1.622*** (0.322)
Female	-7.196*** (2.010)
Age	-3.549*** (0.794)
Education	-0.597 (0.565)
Income	1.361 (0.909)
Interest	0.547 (1.112)
Hispanic	0.063 (7.193)
Constant	230.412*** (22.525)
Additional Controls	✓
Image FE	✓
AOI FE	✓
Observations	25,877

Note: *p<0.1; **p<0.05; ***p<0.01. Partisanship is measure on a 7-point scale (from Strong Republican - 1 to Strong Democrat - 7). Models are estimated with OLS at the level of areas of interest (AOI) within image per participant, and include fixed effects at image level and at the level of areas of interest (AOI). Robust standard errors are clustered two-way at participant and participant's device level. Additional controls include controls for survey wave, survey respondents' device, participants' quality in the eye tracking task.

Table E.7: Effects of Partisanship on Average Fixation Duration on the Subset of Images Portraying Close-up Shots of Women/Children

<i>Dependent variable:</i>	
Average Fixation Duration (m/s): Close-up Shots of Women/Children	
Partisanship	2.297*** (0.354)
Attitudes to Immigrants	-1.319*** (0.165)
Female	-9.051*** (1.643)
Age	-3.248*** (1.245)
Education	-0.923 (0.941)
Income	1.763** (0.703)
Interest	0.091 (1.177)
Hispanic	0.764 (3.044)
Constant	257.175*** (33.023)
Additional Controls	✓
Image FE	✓
AOI FE	✓
Observations	30,504

Note: *p<0.1; **p<0.05; ***p<0.01. Partisanship is measure on a 7-point scale (from Strong Republican - 1 to Strong Democrat - 7). Models are estimated with OLS at the level of areas of interest (AOI) within image per participant, and include fixed effects at image level and at the level of areas of interest (AOI). Robust standard errors are clustered two-way at participant and participant's device level. Additional controls include controls for survey wave, survey respondents' device, participants' quality in the eye tracking task.

F Object-Level Analysis of Partisanship Effects Conditional on the Type of Image

Table F.8: Effect of Partisanship on Fixation Duration Conditional on Image Type (Crowds vs. Closed-Up Shots of Women/Children)

	<i>Dependent variable:</i>	
	Average Fixation Duration (m/s)	
	(1)	(2)
Partisanship	2.199*** (0.372)	
Str Dem vs Str Rep		10.829** (5.295)
Image with Crowds	-7.898** (3.248)	-6.088** (2.954)
Attitudes to Immigrants	-1.464*** (0.169)	2.279 (1.479)
Female	-8.270*** (1.416)	-12.559*** (1.859)
Age	-3.398*** (1.024)	-2.091 (1.559)
Education	-0.788 (0.666)	-0.178 (1.226)
Income	1.606** (0.799)	0.856** (0.409)
Interest	0.302 (1.054)	-1.381 (2.274)
Hispanic	1.120 (5.092)	7.029 (13.224)
Partisanship*Image w/Crowds	-0.203** (0.103)	
Str Dem vs Str Rep*Image w/Crowds		-3.365*** (0.939)
Constant	205.524*** (24.206)	191.548*** (29.121)
Additional Controls	✓	✓
Observations	56,381	20,097

Note: *p<0.1; **p<0.05; ***p<0.01. Partisanship is measure on a 7-point scale (from Strong Republican - 1 to Strong Democrat - 7). Models are estimated with OLS at the level of areas of interest (AOI) per image per participant. Additional controls include controls for survey wave, survey respondents' device, participants' quality in the eye tracking task. Variable "Images with Crowds" indicated images portraying migrant caravan events as crowds of people vs images with close-up shots of immigrant women and children. Hence, images of closed-up shots of women and children serve as a reference category.

Table F9: Effects of Partisanship on Attitudes towards an Image Conditional on Average Fixation Duration and on Image Type (Crowds vs. Closed-Up Shots of Women/Children)

	<i>Dependent variable:</i>	
	Respondents' Attitudes	
	(1)	(2)
Partisanship	0.083 (0.059)	
Str Dem vs Str Rep		0.610 (0.424)
Image with Crowds	0.193 (0.220)	0.265 (0.237)
AFD	0.0003 (0.0003)	0.001** (0.0003)
Attitudes to Immigrants	0.302*** (0.041)	0.298*** (0.061)
Female	0.026 (0.068)	0.089 (0.130)
Age	-0.001 (0.016)	-0.040*** (0.007)
Education	0.052* (0.030)	0.032 (0.038)
Income	-0.013** (0.006)	-0.015 (0.015)
Interest	0.019 (0.012)	0.025 (0.023)
Hispanic	0.076 (0.179)	-0.103 (0.248)
Partisanship*Image w/Crowds	0.005 (0.025)	
Partisanship*AFD	0.0002 (0.0002)	
Str Dem vs Str Rep*Image w/Crowds		-0.040 (0.134)
Str Dem vs Str Rep*AFD		0.001 (0.001)
Images w/Crowds*AFD	-0.001* (0.001)	-0.001** (0.001)
Partisanship*Image w/Crowds*AFD	0.00000 (0.00005)	
Str Dem vs Str Rep*Image w/Crowds*AFD		0.00004 (0.0003)
Constant	2.229*** (0.076)	2.907*** (0.288)
Additional Controls	✓	✓
Observations	56,381	20,097

Note: * p<0.1, ** p<0.05, *** p<0.01. Partisanship is measure on a 7-point scale (from Strong Republican - 1 to Strong Democrat - 7). Models are estimated with OLS at the level of areas of interest (AOI) per image per participant. Additional controls include controls for survey wave, survey respondents' device, participants' quality in the eye tracking task. Variable "Images with Crowds" indicated images portraying migrant caravan events as crowds of people vs images with close-up shots of immigrant women and children. Hence, images of closed-up shots of women and children serve as a reference category.