Leadership perception in candidate faces: Scotland’s unionists prefer dominant leaders, and so do nationalists – but only if they are economic pessimists.

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Abstract

Voters rely on many cues to make decisions about who to vote for, and the appearance of a potential leader can play an important part in this decision-making process. When choosing leaders, it is thought that voters make “fit-to-task” voting decisions, for example, exhibiting a preference for masculine-looking leaders in hypothetical wartime scenarios, when masculine behavioural characteristics would be most valued. Here, we examine face preferences within a sample of Scottish voters during the campaign for the 2014 Scottish independence referendum. Subjects were presented with masculinised and feminised versions of faces in a forced-choice experimental task to select their preferred face in a hypothetical national election. No voters (those who voted to maintain the Union) chose more masculine-faced hypothetical leaders than Yes voters (those who voted in favour of an independent Scotland); effect sizes observed were medium. Within Yes voters, economic concern was related to a preference for masculine faces, but for No voters, economic outlook did not relate to face preferences. These findings underscore the importance of real-world socio-political contexts in psychology research, particularly that concerning the public perception of different leadership prototypes. Implications in the current Scottish context are discussed.

Keywords: masculinity; dominance; leadership; economic outlook; political psychology
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**Introduction**

The physical appearance of political candidates has the potential to shape the way they are viewed by voters, and thus can impact their likelihood of being elected. Voters generally prefer to elect leaders with physiological traits that communicate dominance, such as masculine facial shape (Little, Burriss, et al. 2007; Spisak et al. 2012), height (Little and Roberts 2012; Re et al. 2013) and low voice pitch (Tigue et al. 2012; Klofstad et al. 2012). It is thought that dominant appearing traits are preferred in leaders because these traits convey a sense of protection to the groups they represent, and that preferences for these traits are part of our evolved psychology (for a review, see Knowles, 2018). However, in many modern societies, leadership is won democratically, and the benefits of non-dominant, prosocial traits like diplomacy and trustworthiness could outweigh any advantages conferred by dominance.

A modest body of research has examined contextual effects on preferences for different facial shapes in leaders (see e.g. Little, Burriss, et al., 2007; Little, 2014; Spisak et al., 2012). Much of this research focuses on experimentally-induced contexts such as imagining one is selecting either a wartime or peacetime leader. Here we examine facial leadership preferences in a population faced with a single voting decision (either for or against Scottish independence from the UK), as well as examine how preferences vary with other socio-political factors including economic outlook, conservatism-socialism, and Scottish identity.

**General Perceptions of Leadership Ability and Competency**
In males, sexual dimorphism (i.e. masculinity) is linked to attributions of dominance (Perrett et al. 1998). There is some evidence that morphological masculinity is also related to leadership competency (Olivola and Todorov 2010). Indeed, when faces are presented in controlled experiments in hypothetical elections, naïve voters (i.e. those presented with no information about candidates beyond images of faces) tend to choose candidate faces which are attractive, masculine and dominant (Riggio and Riggio 2010; Murray and Schmitz 2011; Little 2014; Budesheim and DePaola 1994). The relationship between masculine appearance and dominance is fairly clear (Mazur and Booth 1998; Tremblay 1998; Oosterhof and Todorov 2008; Todorov et al. 2008). However, there is mixed evidence that masculinity enhances attractiveness (Perrett et al. 1998; Little et al. 2008; Swaddle and Reierson 2002; Thornhill and Gangestad 1999). On the whole, these findings suggest that male masculinity may be an important cue when voters make electoral decisions.

These experimental findings are also borne out in real-world elections. The more attractive of two candidates (in US congressional elections) has a greater likelihood of being elected (Verhulst et al. 2010; White et al. 2013). Furthermore, judgements of candidates’ leadership competence made by naïve viewers (those with no additional information about candidates besides appearance) reflects actual results and margins: in the 2008 US presidential election (Armstrong et al. 2010); in US gubernatorial races between 1995 and 2002 (Ballew and Todorov 2007); and in US Senate and House of Representatives elections between 2000 and 2004 (Todorov et al. 2005). Showing that these competence attributions are related to facial shape characteristics, Little et al. (2007) transformed a neutral “base face” using the mathematical difference between winners and losers of ten presidential and prime ministerial elections in several countries (between 1992 and 2004). It was found that naïve viewers tended to prefer faces which had been morphed in the direction of the real-world electoral victors.
In modern democracy, leaders are often appointed or elected by the population they will represent, and qualities which are valued in a leader can vary based on social and contextual factors which face the group (Little 2014; Little et al. 2012; Spisak et al. 2012). Despite physical prowess no longer being overtly necessary as a requisite for leadership, psychological phenomena may lead us to continue to support masculine, dominant leaders (von Rueden and van Vugt 2015). Furthermore, this tendency to elect masculine leaders may be exaggerated under specific socio-political conditions which constitute risk or threat, such as war or resource instability.

**Fit-to-Task Voting Decisions**

The relative importance of these general face preferences is also dependent upon the context in which voting decisions are made because different facial characteristics are thought to be associated with differing interpersonal characteristics (for a review, see Little & Roberts, 2012 or Antonakis & Eubanks, 2017). Choosing leaders based on “fit-to-task” judgements may be advantageous because it complements the strategic aims of the group, (Spisak et al. 2012; Van Vugt et al. 2008; Little and Roberts 2012; Little 2014). Because physical appearance is often used as a heuristic to infer judgements about others’ social and temperamental qualities, the physical appearance of a potential leader has the potential to influence voters in making these strategic decisions. For example, Little, Burriss, et al. (2007) found that facial masculinity was unrelated to perceptions of leadership ability in neutral, non-cued contexts, but when participants were cued with an imagined wartime scenario, masculinity acted as a cue to leadership ability. This effect has also been confirmed in studies using non-manipulated, naturally-occurring facial stimuli (Spisak et al. 2012).

Little and Roberts (2012) suggested the term “task-congruent selection” for such decisions, and masculinity may be the most salient physiological trait influencing leadership
selection in such circumstances. Indeed, masculinity is associated with an agentic leadership style, which is competitive and assertive in nature (Eagly and Karau 2002; Koenig et al. 2011). This agentic type of leadership may be desirable under some conditions while more diplomatic approaches may be favoured in others. Little et al. (2012) suggest that the effect of context may be greater than that of any general facial characteristics – that the context can dictate what characteristics are important for leaders to possess, and this may outweigh any underlying, general face preferences.

**Environmental Harshness and Uncertainty**

Perceptions of environmental stability or resource richness have been shown to modulate women’s preference for male facial masculinity when making attractiveness judgements. Little, Cohen, Jones, & Belsky (2007) found that women prefer men with feminised faces as long-term partners when they are asked to imagine themselves in harsh environments, and prefer more masculine men in safe environments. These context-dependent attractiveness judgements are thought to result from different partner benefits which vary in importance based on context, because different facial traits communicate behavioural tendencies associated with cooperative child-rearing (Gangestad and Simpson 2000). Similar results in favour of feminised male faces have been found using contexts related to male intrasexual violence (Little et al. 2013), pathogen stress (DeBruine et al. 2010; Little et al. 2010) and income inequality (Brooks et al. 2011). Conversely, environmental richness and male wealth (Little et al. 2013) serve to enhance preferences for masculine male features.

Given the above effects of resource stability on perceptions of facial attractiveness, there is reason to suspect that similar effects may also be found regarding perceptions of leadership ability. Nevicka, De Hoogh, Van Vianen, & Ten Velden (2013) show that in times of organisational uncertainty, narcissistic leaders are preferred despite their overtly masculine
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qualities (e.g. dominance, arrogance) because these qualities inspire confidence in uncertain times. Thus, we might expect economic uncertainty to bear some relationships with preferences for masculine leaders.

The 2014 Scottish Independence Referendum: Two National Contexts

A number of historical and social factors characterise a desire for Scottish independence from the United Kingdom. Notably, perceptions of Scotland’s economy were strongly divided between those who favoured independence and those who did not (YouGov 2014c). Supporters of independence generally believed that Scotland’s economy was rich and diverse, citing abundant oil revenues (YouGov 2014b). Conversely, Unionist supporters distrusted the reliability of depleting oil resources (YouGov 2014b). This difference in viewpoint appears to be broadly in alignment with campaign messages from both sides. In the months prior to the vote, both the Scottish and UK governments put forward opposing analyses of financial projections, with the SNP-led Scottish government claiming each Scottish person would be £1000 richer outside of the UK, while the Treasury (a UK-wide body) published figures claiming each Scot is £1400 richer within the UK (The Scottish Government 2014; HM Treasury 2014).

As a whole, the Scottish public was generally divided on perceptions of the impact of independence on Scotland’s economy, with 40% believing Scotland would be economically better off if it became an independent country (80% of Yes-voters agreed), and 42% of the population believing Scotland would be economically worse off if it became independent (87% of No-voters agreed) (YouGov 2014c). Furthermore, when voters were asked to give their most important reason affecting how they would vote, whether Yes or No, the economy was the reason most cited by voters in numerous polls (e.g. TNS BMRB, 2014a, 2014b).

Other factors influencing voting decision included employment (13% listed as their most
important issue), healthcare (12%), pensions/benefits (9%), education (7%) and personal finance (6%) (TNS BMRB 2014b). Notably, a number of these issues may also be considered to have economic implications.

This divided opinion amongst Scottish voters as to the nature of the Scottish economy is not new; in April 2007, seven years prior to the referendum vote, 46% of Scots believed that Scotland’s economy “would face serious problems if it became independent,” versus 42% who believed that Scotland would prosper if independent from the United Kingdom (YouGov 2007). Irrespective of voting decision, the economy was listed as the item which voters felt was the most important issue facing Scotland (barring the referendum itself) (YouGov 2014d).

Ultimately, Yes voters seemed to be less risk-averse than No voters, and many cited risk aversion (and particularly economic risk aversion) as a main contributing factor in voting against independence (Ashcroft 2014; Bell et al. 2014). It is clear that estimates of economic uncertainty were highly divided between the two sides, and this difference ultimately seemed to drive vote choice (Bell et al. 2014; Curtice 2014).

The Present Study

Here, we examine voting preferences for masculinity in faces within the context of the 2014 Scottish independence referendum. Although the referendum provided voters with a constitutional choice, rather than a leadership election, the setting of the referendum provided a unique opportunity to examine how differing economic attitudes and voting intentions could be related to preferences in leadership. The referendum scenario also provided an interesting setting for a naturalistic experiment, allowing researchers to examine how leadership preferences may track real variation in opinion rather than relying on experimental manipulation. For example, Little et al. (2007) asked participants to imagine voting for a
leader in wartime or peacetime, whereas this setting allowed us to capture natural variation in outlook without the need to create an artificial or imagined scenario.

During the referendum campaign, messages from the Yes campaign were clearly positive (YouGov 2014a), and supporters of independence viewed Scotland as a prosperous, resource-rich country with the ability to stand successfully on its own. Conversely, supporters of the Union tended to view these ideas as unrealistic, giving voters uncertainty about Scotland’s prosperity and economic solvency outside of the United Kingdom (Beasley and Kaarbo 2017). Data gathered just before the referendum showed that while Yes voters believed their own personal income would increase and that their job prospects would improve if Scotland became independent, No voters believed their income would decrease along with their job prospects (Bell et al. 2014), revealing that these differing convictions had a personal resonance to voters.

With differing outlooks on either increasing or decreasing national and personal wealth, we may be able to conceptualise the two sides as viewing Scotland as resource-rich and resource-poor – Yes voters may have viewed Scotland as a rich and stable environment, and No voters may have viewed Scotland as less secure and unpredictable. It might follow, then, that the two sides of the referendum vote may have seen the context of voting in different lights, and these divergent views on likely future resources may lead voters to prefer leaders with different facial characteristics.

We may expect that those with different beliefs about the economy may place differing values on dominance as a leadership characteristic. For example, those with a pessimistic outlook may value dominant leadership (as opposed to diplomatic leadership) to a greater degree than those with a more optimistic outlook, resulting from an implicit desire for strength and protection from uncertainty. Because a masculine or feminine appearance is related to social judgements of characteristics including dominance and trustworthiness.
(Olivola et al. 2014; Swaddle and Reierson 2002; Todorov et al. 2008; Perrett et al. 1998), an experimental design where individuals view and rate the faces of hypothetical candidates allows us to examine whether these differing outlooks manifest in the prioritisation of different associated leadership qualities. If preferences are found to vary as a function of outlook, this would (a) support the idea that voters make fit-to-task leadership judgements and (b) provide the first evidence that perceptions of national economic issues may influence these fit-to-task judgements.

Methods

Participants

One hundred sixty-two participants (116 female [71 No; 45 Yes]; 46 male [24 No; 22 Yes]) took part in the study. Female No voters were aged 17-62 years (M = 22.7, SD 9.5 years) and female Yes voters were aged 17-68 years (M = 29.0, SD 15.0 years). Male No voters were aged 17-47 years (M = 23.2, SD 7.7 years) and male Yes voters were aged 18-62 years (M = 27.8, SD 13.9 years). Participants included both psychology students at the University of Stirling and members of the general public who were recruited opportunistically via social media; these included Scottish university student groups aligned with both the Yes and Better Together campaigns, and student groups aligned to major political parties. Stirling University psychology students who participated received credit toward a course requirement; members of the public received no compensation. All participants were of Scottish nationality and were able to vote in the referendum. Ethical approval was provided by the University of Stirling Ethics Committee.

Stimuli
To measure preferences for sexually dimorphic features, we used 10 pairs of composite male face images. Each pair was comprised of one masculinised and one feminised version of the same face. Original images were 50 young adult Caucasian male and 50 Caucasian female photographs taken under standard lighting conditions and with a neutral expression. The composite images were made by creating an average image made up of 5 randomly assigned individual facial photographs (this technique has been used to create composite images in previous studies, see e.g., Benson & Perrett, 1993; Tiddeman, Burt, & Perrett, 2001). Composite images were made perfectly symmetric. Faces were transformed on a sexual dimorphism dimension using the linear difference between a composite of all 50 adult males and a composite of all 50 young adult females (following Perrett et al., 1998). Transforms represented +/-50% the difference between these two composites. Example images can be seen in Figure 1.

[FIGURE 1 ABOUT HERE]

**Procedure**

Participants were recruited from June to September 2014, the four months prior to the referendum vote on September 18\textsuperscript{th}, 2014. The study was conducted online. After responding to question items regarding age and gender, participants completed the voting task. Stimulus pairs were presented to participants in a forced-choice design, with pairs consisting of a masculinised and a feminised version of the same face. Screen location of the masculinised and feminised faces (i.e. left/right) was randomised for each trial. Participants were prompted to imagine they were selecting a leader to run their country, and did so across 10 trials, each consisting of a new face pair. The order of face pairs was randomised for each participant.

Following this task, participants answered questions about their voting intention (No or Yes) and the strength of that voting intention on a 1-7 Likert scale. Participants also placed
themselves on a scale of right-left political identity on a scale of 1-7, as well as stating how much they agreed with a number of political statements (all 7-point Likert scales). To gauge perceptions of economic outlook, we included the statement “Scotland would be worse-off economically as an independent nation.” We also provided a scale of national identity: “I do not consider myself to be British, but Scottish.” The wording of this statement places Britishness and Scottishness at two ends of a continuum, with low values corresponding to a more British identity, and high values being indicative of a more Scottish identity.

We examined differences in face preferences based on participants’ pre-existing political and economic views without the need to present participants with contextualised vignettes which may induce demand effects, wherein participants may guess the nature of the research and attempt to produce behaviours they believe are desirable. Previous research on context-dependent perceptions of leadership ability in faces has utilised experimental methods which explicitly present participants with contexts which they are instructed to mentalise or imagine (e.g. wartime and peacetime, Little, Burriss, et al., 2007). Here, we did not explicitly manipulate experimental condition by using a cross-sectional approach.

**Results**

Both Yes- and No-voters chose masculinised faces at rates significantly above chance (50%), analysed using a one-sample t-test, Yes-voters: 58.7%, $t(66) = 2.89, p = .005$; No-voters: 69.8%, $t(94) = 9.02, p < .001$. While this shows that voters generally exhibited a preference for masculinised faces, No-voters chose significantly more masculine faces than Yes-voters, $t(160) = 3.06, p = .003$, Cohen's $d = 0.48$. Both male and female No-voters chose masculine faces at similar rates (70.8% and 69.4%, respectively) and both were significantly above chance, men: $t(23) = 5.16, p < .001$; women: $t(70) = 7.43, p < .001$. Within Yes voters, we observed a gender difference. Male Yes-voters chose faces at chance rates, 48.2%; $t(21) =$.
0.39, \( p = .70 \), while female Yes-voters selected masculinised faces at rates above chance, but still to a lesser degree than No voters, 63.8%; \( t(44) = 3.78, p < .001 \), Cohen’s \( d = 0.66 \).

A 2x2 ANOVA (gender [male, female]; referendum vote [Yes, No]) showed a main effect of vote, \( F(1,158) = 12.93, p < .001 \), \( \eta^2_p = .08 \), and a non-significant main effect of gender, \( F(1,158) = 3.25, p = .07 \), \( \eta^2_p = .02 \), on the proportion of masculine faces chosen. There was a significant interaction between gender and vote, \( F(1,158) = 4.66, p = .03 \), \( \eta^2_p = .03 \), such that the main effect of vote choice was stronger for male voters than for female voters. Male Yes voters chose significantly fewer masculinised faces (48.2%) than male No voters (70.8%), \( t(44) = 3.68, p < .001 \), Cohen’s \( d = 1.08 \). The same was not true for female voters, Yes-voters: 63.8%; No-voters: 69.4%; \( t(114) = 1.29, p = .20 \), Cohen’s \( d = 0.24 \). See Figure 2.

**Political Values and Economic Beliefs**

Correlations between study variables are presented in Table 1. Age and Scottish identity were both significantly negatively associated with the proportion of masculine faces chosen. Belief that the economy would be worse in the case of independence was positively correlated with the percentage of masculine faces chosen – that is, economic pessimism was associated with choosing a greater proportion of masculine faces during the trials.

These significant associations may be explained by a confounding variable: intended referendum vote. Yes and No voters differed on a number of these variables. In this sample, Yes voters were older, \( t(102) = 2.86, p = .005 \), more socialist, \( t(160) = 5.69, p < .001 \), and identified as more Scottish to the exclusion of being British, \( t(160) = 4.83, p < .001 \), relative to No voters. The largest difference between Yes and No voters was their economic outlook – Yes voters were significantly more optimistic than were No voters, \( t(160) = 15.71, p < .001 \),
an effect size nearly three times greater than self-reported conservatism/socialism and more than three times greater than feelings of Scottishness. Descriptive statistics and effect sizes are shown in Table 2.

Because of the inter-relationships between these variables (see Table 2 for correlations between these factors), linear mixed model analyses were performed to parse which of these variables and/or combinations of variables best predicted the percentage of masculine faces chosen (Kuznetsova et al. 2014; R Core Team 2014). Controlling for age and gender, we examined the following fixed factors: intended referendum vote, conservatism-socialism, economic outlook and Scottish identity. A model using vote choice alone explained some of the variance in the data, $\chi^2(1) = 10.75$, $p = .001$, and the fixed effect was significant, $F = 10.93$, $p = .001$.

A model consisting of economic beliefs as a lone fixed factor produced similar, but marginally less robust results, $\chi^2(1) = 10.58$, $p = .001$; $F = 10.84$, $p = .001$. The addition of other fixed effects (including economic optimism-pessimism, conservatism-socialism and Scottish identity) did not significantly improve the model. Adding an interaction term to the model between vote choice and economic outlook produced the best-fitting model, $\chi^2(3) = 17.33$, $p < .001$, with a significant fixed effect of vote, $F = 6.73$, $p = .01$, and a significant interaction between vote and economic outlook, $F = 5.26$, $p = .02$. The direction of the interaction was such that within Yes voters, economic pessimism was associated with a greater preference for masculine faces, $r(67) = .27$, $p = .02$. This effect was absent for No voters, whose economic pessimism was not significantly related to their face preferences, $r(95) = -.05$, $p = .63$. 
Because we controlled for age and gender in these models, it was not possible to assess any potential independent effects of these variables on preferences for masculinity. To address this, we performed a linear regression with all variables included in the equation (age, gender, economic optimism-pessimism, conservatism-socialism and Scottish identity) with masculinity preference as the dependent variable. The model was significant, \( F(5,156) = 4.44, p < .001; \) age negatively predicted masculinity preference (\( \beta = -.16, t = -2.12, p = .04 \)) and economic pessimism positively predicted masculinity preference (\( \beta = .21, t = 2.41, p = .02 \)). Masculinity preference was not significantly independently predicted by either gender (\( \beta = -.12, t = -1.56, p = .12 \)), conservatism (\( \beta = .14, t = 1.67, p = .10 \)) or Scottish identity (\( \beta = -.14, t = -1.69, p = .09 \)).

**Discussion**

We found that No voters (those who intended to vote against Scottish independence) selected a larger proportion of masculinised faces than Yes voters. Because of the relationship between facial masculinity and dominant behavioural characteristics (Todorov et al. 2008), this suggests that No voters may have held stronger preferences for candidates with dominant leadership qualities. Within Yes voters, economic pessimism was also associated with a preference for more masculinised faces. It is important to note that a vote in favour of Scottish independence was not associated with an explicit preference for leader femininity: amongst male Yes voters, there appeared to be no clear preference for either masculinised or feminised stimuli, while female Yes voters (and No voters of both genders) exhibited a general preference for masculinised stimuli. Other factors were also associated with a preference for leaders with masculine faces. Age, gender and Scottish identity were correlated with the proportion of masculine faces chosen, with older voters, women, those with a stronger British identity exhibiting stronger
preferences for leader masculinity. In mixed model analyses which statistically control for age and gender, vote decision and economic concern were the only significant predictors of masculinity preferences.

A Vote For or Against Change

Why would No voters prefer masculine faced leaders? One answer may be linked to voters’ attitudes for or against change. While it may be assumed that those against Scottish independence were also against change, there was much attention given during this time to the promise of additional devolved powers – the allocation of more governing powers to the Scottish parliament from Westminster. According to then-Prime Minister David Cameron, a No vote was “not for the status quo,” (BBC 2014) and ultimately, devolved powers beyond those already in place were promised in a signed statement by Westminster party leaders (Daily Record 2014). Nevertheless, the devolution of further powers to the Scottish parliament may have rightly been considered less change than would be realised by full independence. In this way, both sides could be viewed as wanting and/or expecting change, but the type of change expected may have been qualitatively different. For example, Yes voters might have desired a more extreme, exploratory change, while No voters may have desired no change at all, or perhaps more subtle changes which better exploited current resources while mediating the risks associated with large-scale political change.

Spisak, Grabo, Arvey, & van Vugt (2014) have shown that younger-looking leaders are preferred during times of “exploratory change”, and older-looking leaders are preferred during times of stability. Due to the age-related emergence of secondary sexual characteristics, we may reason that men with more masculine features appear older, and men with feminised features appear younger (Boothroyd et al. 2005). Although we did not manipulate age directly, it may be that our masculinity transformation influenced perception
of candidate age because of the exaggeration of facial masculinity. Nevertheless, these results add to current knowledge about leadership preferences and political change. One limitation of this study is that the faces used as stimuli were young adults, who may not be viewed as appropriately experienced for the leadership scenario as was posed.

Our results support and expand upon Spisak et al. (2014), showing that masculinity, associated with maturity and behavioural dominance, may be preferred when stability is desired by voters (i.e. the desire to maintain Scotland’s union with the United Kingdom). Moreover, amongst those who did desire change (i.e. Scottish independence), this effect was qualified by the perception of economic repercussions (Yes voters who had a negative economic outlook also chose more masculine faces). This suggests that these effects may be more closely tied to specific perceptions of future risk rather than simply a desire for change in general.

Risk, Economic Concerns and Resource Stability

Bell, Delaney, & Mcgoldrick (2014) showed that an intent to vote No was associated with risk aversion. A Lord Ashcroft poll following the referendum showed that 47% of No voters stated that the risks of independence, including economic risks, were the most important factor in choosing to vote No (Ashcroft 2014). Our data show that perceptions of economic risk were (unsurprisingly) polarised between Yes and No voters, with Yes voters overwhelmingly disagreeing with our statement “Scotland would be worse-off economically as an independent nation.” Indeed, this question received the most polarised responses of all that we asked, with Yes and No voters roughly three times more polarised on this topic than their self-reported conservatism-socialism and Scottish-British identity.

This may reflect broad alignment with party messages throughout the long campaign for independence. The Yes campaign were positive with regard to Scotland’s future economic
prosperity, claimed continued use of the pound as the national currency, and claimed each Scot would be £1000 richer if independent from the UK (The Scottish Government 2014). The Better Together campaign were more negative in their outlook with regard to Scotland’s economic future, highlighting depleting North Sea oil resources and the unwillingness of the UK government to agree to a currency union (The Economist 2014; HM Government 2014). Figures were produced which claimed that contrary to the Scottish Government’s figures, each Scot was £1400 richer within the UK (HM Treasury 2014). Polling data at the time showed each party broadly agreed with their respective campaign’s messages (YouGov 2014b), and economic expectations seemed to make the biggest difference in decisions to vote Yes or No (Curtice 2014).

It is clear that Yes and No voters believed strikingly different things regarding Scotland’s economy. Generally, No voters were pessimistic while Yes voters envisaged a future of prosperity (Beasley and Kaarbo 2017). However, it is important to understand that variation in responses was still apparent. Some Yes voters expressed concern regarding Scotland’s potential economic situation, and these individuals tended to prefer masculinised versions of faces in our hypothetical voting task. That is, while Yes voters appeared to show no clear preference for masculine or feminine faces on the whole, those who expressed concerns about the economy had stronger preferences for masculinity.

A tendency to choose masculine-faced leaders when concern for the economy is greatest may be related to perceptions of resource stability, which have been examined by psychologists with respect to facial attractiveness. Women’s preferences for male face shape can shift based on a number of environmental factors, including environmental harshness, Little, Cohen, et al. (2007). Further studies show that women’s preferences for masculine-faced romantic partners may be contingent upon other environmental cues, including wealth, income inequality and violence (Brooks et al. 2011; Little et al. 2013; DeBruine et al. 2010).
Our results are consistent with these findings, and extend this body of knowledge to include perceptions of leadership ability.

Research examining leadership choices in an organisational context has suggested that masculine traits are preferred during times of uncertainty because masculine/dominant leaders inspire confidence (Nevicka et al. 2013; Hoyt et al. 2009), which would be most beneficial when times ahead are uncertain. Furthermore, numerous studies have demonstrated that masculine-faced leaders are preferred during times of war (see e.g. Little, Burriss, et al., 2007; Little et al., 2012; Little, 2014; Spisak et al., 2012), arguably a scenario that reflects uncertainty in the extreme.

We also found that women who intended to vote Yes, like No voters of both genders, tended to prefer masculinity. This may stem from sex differences in levels of risk aversion, although research in this area offers mixed results (see Maxfield, Shapiro, Gupta, & Hass, 2010). Data collected in Scotland during the same time frame as our study showed that women were more likely than men to think that Scotland’s economy would be negatively affected by independence (e.g. YouGov, 2014c), and this was borne out in our data. If women are more risk averse than men, it may help to explain why they chose, on average, more masculine faces than their male, Yes-voting counterparts. If this were wholly true, however, we might expect to see a congruent sex difference in No voters, which is absent in this dataset. An alternative explanation, then, might be that women generally prefer more masculine (i.e. gender-typical) male leaders. Spisak et al. (2012) report a general female preference for masculinity in assessing male leadership ability in the absence of contextual cues in line with our observed sex difference.

Ultimately, this research has the potential to say something about the relationship between the electorate and political leaders in Scotland, Britain and abroad. That economically pessimistic voters tended toward a preference for more masculine-faced leaders
suggests that dominance as a leadership quality may have more traction amongst a pessimistic electorate. We would like to note that although we have studied facial masculinity as an indicator of behavioural dominance, we believe that voters are more likely to be influenced by *explicit* behaviours, rather than attributions which are simply implicit (as those based solely on appearance must be). While numerous studies show that the physical appearance of candidates can impact their electoral success, particularly amongst less-informed voters (Little, Burriss, et al. 2007; Lenz and Lawson 2011), dominant actions are likely to influence perceptions of a leader’s dominance far more than appearance alone.

If economic pessimism is associated with a preference for dominant behaviour, as this research suggests, this may help us understand why voters in beleaguered economies (or economic sectors) sometimes find dominant and/or populist candidates appealing (Agerberg 2017). This relationship may be further intensified if additional sources of negative sentiment are present in the electorate, which could also increase the appeal of dominant leaders. It is thus worth examining the current outlook in Scotland regarding independence, and identifying other factors affecting a pessimistic outlook toward the economy and the governments in power.

Current public opinion in Scotland regarding independence from the UK largely appears to reflect the 2014 result (What Scotland Thinks 2019), and voters are similarly optimistic/pessimistic about the national economy now as they were then (Panelbase 2019). Although overall opinions about Scottish independence and the economy have not shifted much, other issues currently dominate public attention and are potentially relevant when considering voters’ outlook on a larger scale. While economic concerns topped the list of voters’ most important issues in the independence polls in 2014, now there is some evidence that Brexit, the NHS and the economy hold a three-way tie as voters’ most important issues when considering independence (Progress Scotland 2019). Furthermore, 45% of Scots believe
that Brexit itself will be bad for the Scottish economy, while just 13% think the economy will improve as a result of Brexit. There is also the sentiment that the financial impact of Brexit will be the hardest on those who are already economically disadvantaged in Scotland (YouGov 2017).

Implications also extend logically to the way our current and future political leaders are perceived and selected. At the time of writing, the Conservative party are involved in a leadership contest to select the UK’s next Prime Minister. Public sentiment about Brexit is largely negative; a recent opinion poll reveals that a majority of the British electorate (65%), including those in Scotland (68%) are pessimistic about Brexit (BritainThinks 2019).

Although the poll does not state the issue(s) most relevant to this pessimism, this degree of negative sentiment may have implications in the leadership decision made by the Conservative party members in their choice between potential leaders – with respect especially to their perceived behavioural characteristics. The party’s choice, and the reaction of the public to that choice, will surely be of great interest to those studying political leadership around the globe.

Conclusions

This study shows that economic and political beliefs have the potential to modulate leadership preferences. Here, we show that both a Yes/No vote decision and perceptions of economic stability/instability can prioritise the importance of different facial characteristics when selecting a leader: if the economy was viewed as weak and/or in need of protection, voters tended to choose more masculine-faced leaders than those who viewed the economy as rich and secure. This tendency to choose archetypally masculine features relates to a “fit-to-task” selection of leaders, wherein masculine or dominant leaders are preferred when those characteristics suit the aims of the group.
This study is the first to show that economic outlook is associated with face preferences in a leadership context. Furthermore, its focus on real political issues which are salient to the study participants (rather than visually cued or imagined scenarios) adds another facet to our understanding of how the appearance of potential leaders can affect their electoral success. Ultimately we suggest that voters’ perceptions of a candidate’s leadership ability, when made by appearance alone, may be at least partially sensitive to their economic outlook. Voters who desire political stability, economic security, and are averse to the risk associated with change may have preferred masculine-faced male leaders because a masculine appearance is associated with dominant behavioural characteristics which inspire more confidence in uncertain times. This may be particularly relevant when considering uncertainty and pessimism regarding Scottish independence, exiting the European Union, and in the selection of future political leaders.
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Figure 1.

Examples of transformed composite images of feminised (left) and masculinised (right) face stimuli.
Figure 2.

Percentage of masculinised faces chosen (dark grey bars) by gender and vote intention, using the participant as the unit of analysis. Light grey bars indicate the converse proportion of feminine faces chosen. Error bars represent the standard error of the mean.
Figure 3.

Economic optimism-pessimism plotted against the proportion of masculine faces chosen, for all voters together (a) and also grouped by voting intent (b). Because both variables are captured as integers, a small amount of noise (± up to 5%) has been applied to both x and y values for ease of visual representation, and to reflect the density of the distribution of the data across the plane.
Table 1.

Correlations between variables of interest (Pearson $r$).

*p < .05, **p < .01, ***p < .001.

<table>
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<th>Economic pessimism</th>
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Table 2.

Descriptive statistics for political values and beliefs.

**p < .01, ***p < .001.

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