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Is Voting Skin-Deep? Estimating the Effect of Candidate Ballot Photographs on Election Outcomes

Andrew Leigh* and Tirta Susilo**

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*Corresponding author. Tel: +612 6125 1374. Fax: +612 6125 0182. Address: Economics RSSS, HC Coombs Building, The Australian National University ACT 0200, Australia. Author ordering is alphabetical, reflecting an equal contribution by both authors. Email: andrew.leigh@anu.edu.au; http://econrsss.anu.edu.au/~aleigh/
**Tirta Susilo, School of Psychology, The Australian National University. Email: tirta.susilo@anu.edu.au

Abstract

In the Northern Territory, Australia, ballot papers for territory elections depict candidates' photographs. We exploit this unusual electoral feature by looking at the effect that candidates' beauty and skin color has on voting patterns. Our results for beauty are mixed, but we find strong evidence that skin color matters. In electorates with a small Indigenous population, lighter-skinned candidates receive more votes, while in electorates with a high number of Indigenous people, darker-skinned candidates are rewarded at the ballot box. The relationship between skin color and electoral performance is stronger for challengers than incumbents. We explain this with a model in which voters use skin color as a proxy for some underlying characteristic which they value only to the extent that they share the trait.

JEL Codes: D72, J45, J71

Keywords: elections, beauty, race, facial characteristics

1. Introduction

It has long been recognized that voters make decisions based on limited information. As Matsusaka (2005) observes, 'decades of survey research have shown that most voters are uninformed to the point of ignorance about public policy, politics and government in general'.[1] Lacking a comprehensive knowledge of political issues, electors frequently use rules of thumb, or 'information shortcuts'; extrapolating from limited information to make a decision.

In this paper, we look at the effect of an unusual cue: ballot paper photographs. Specifically, we look at the extent to which candidates' beauty and skin color are related to voter behavior. Other things equal, the presence of photographs on the ballot paper should increase the salience of this cue for voter decisions.

To test for the effects of skin color and beauty on voting, we take advantage of a unique dataset. For territory elections in the Northern Territory, Australia, photographs of candidates are published on the ballot paper, adjacent to their names. Such ballot papers are unique within Australia, and – so far as we are aware – the developed world. They therefore provide us with an opportunity to learn more about the extent to which voter behavior is associated with the facial characteristics of candidates.

To preview our findings, we observe that in elections where candidates' photographs appear on the ballot paper, more attractive candidates are more likely to win. However, the aspect of the candidate's appearance that matters most is not beauty, but skin color. In electorates with a large share of Indigenous voters, candidates with darker skin receive more votes, while in electorates with a small share of Indigenous voters, having lighter skin brings a larger electoral benefit.

Our paper proceeds as follows. Section 2 outlines a simple theoretical model of candidate cues and discusses the relevant literature. Section 3 outlines the political

[1] Other studies looking at voting when individuals have limited information include Lupia (1994), Aidt (2000), and Caplan (2007). The limited-information model appears to apply well to Australia. In the 2004 Australian Election Study, only 12 percent of respondents agreed strongly with the statement 'I feel that I have a pretty good understanding of the important political issues facing Australia'.

context and data used in our study. Section 4 presents results, and the final section concludes.

2. A Simple Model of Candidate Cues

To begin, it is useful to outline a simple theoretical model of the way in which candidate characteristics might affect voter behavior. Let U_{ij} be the utility received by voter i in supporting candidate j. Now suppose that this is a function of two candidate characteristics. The first characteristic, X_j, is a trait that is *universally liked*. The second, Z_j, is a *voter-dependent characteristic*, meaning that it is liked by voters who share it, but disliked by voters who do not share it. Formally:

$$U_{ij}=F(X_j, Z_jZ_i) \quad (1)$$

Now suppose that we normalize the share of the population who have trait Z_i to have a mean of zero, and the share of candidates who have trait Z_j to also have a mean of zero. Assuming that the distributions of Z_i and Z_j are symmetrical, then if the median voter theorem holds:

$$dU_{ij}/dX_j \geq 0 \quad (2)$$
$$dU_{ij}/dZ_jZ_i \geq 0$$

Such a simple typology of candidate cues can be used to separate many of the standard findings on voter behavior. A candidate characteristic that is universally liked (X_j) might be personal integrity, experience, and intelligence. A candidate characteristic (Z_j) that interacts with a voter characteristic (Z_i) might be income (e.g. rich voters prefer rich candidates, poor voters prefer poor candidates) or ideology (e.g. left-wing voters prefer left-wing candidates, right-wing voters prefer right-wing candidates).

Now suppose that instead of directly observing X_j and Z_j, voters instead observe noisy signals, x_j and z_j, such that:

$$x_j = X_j + \varepsilon_j \quad (3)$$

$$z_j = Z_j + \mu_j \quad (4)$$

Assuming that ε_j and μ_j are mean-zero, normally distributed disturbance terms, these noisy signals of voter traits (x_j and z_j) will be positively correlated with voters' utility.

$$dU_{ij}/dx_j \geq 0 \quad (5)$$
$$dU_{ij}/dz_j Z_i \geq 0$$

It is important to note that our model does not assume that voters are rational, in the sense that they cast their ballot with the aim of bringing about a particular political outcome. Although our model is quite consistent with rational voter models, it also accords with models of expressive voting, in which constituents do not expect their vote to have any impact on the election result (see e.g. Brennan and Lomasky 1993).

In this paper, we focus on two such noisy signals – candidate beauty and candidate skin color. Drawing on prior face attractiveness literature, we expect that candidate beauty will be a *universally liked* trait. Psychological evidence has shown that facial features are one of the initial bases for categorical judgments (Fiske and Taylor 1991). In a meta-analysis of 919 studies, Langlois et al. (2000) find that attractive children and adults are judged more positively than unattractive people, and are also treated more positively.[2] This finding appears to be robust across countries, cultures, and contexts, including in elections. Attractive candidates have been shown to win more votes in elections to the national parliaments of Australia (King and Leigh 2006), Finland (Berggren, Jordahl and Poutvaara 2006) and Germany (Klein and Rosar 2005). In the US, candidates whose faces were judged to be more competent won more votes in actual elections (Todorov et al 2005). Better-looking candidates are also more likely to win elections to become an officer of the American Economic Association (Hamermesh 2006) and a member of a British community board (Banducci et al. 2003).

By contrast, we expect that candidate skin color will be a *voter-dependent* trait. As in the deep south of the United States, the Northern Territory is a jurisdiction where

[2] Recent beauty studies in the psychological literature include Rhodes (2006) and Wilson and Eckel (2006).

racial politics have typically been important (Worthington 2001; Jaensch 2002; Goot 2006). We therefore expect that Indigenous voters will prefer candidates who support extending land rights and benefits to the Indigenous community, while non-Indigenous voters will tend to oppose such candidates. Voters who do not know a particular candidate's position on these issues may instead use skin color as a proxy for policy positioning and as an indication of whether a candidate belongs to an in-group rather than an out-group.[3]

Face processing literature speaks of the substantial difference in the psychological and neural processing of same-race faces versus other-race faces (Phelps and Thomas 2002; Eberhardt 2005). Perhaps the most relevant finding here is that attention to race seems to occur automatically even in the very early stage of face processing (Golby et al. 2001). Most existing evidence indicates that voters are more likely to support candidates who are like themselves on some salient dimension, such as gender or race. Polling evidence has shown that voters used candidates' gender and race as a cue to policy positions (McDermott 1998). Experimental studies with college students also demonstrated that voters' choices were affected by similarities of gender and race (Adams 1975; Sigelman and Sigelman 1982). Among white participants, an experimental study showed that even when policy positions were held constant, darker-skinned African-American candidates were less favored than lighter-skinned African-American candidates (Terkildsen 1993). Outside the laboratory, police (Donohue and Levitt 2001; Antonovics and Knight 2004), basketball referees (Price and Wolfers 2007), and employers making hiring or promotion decisions (Stoll, Raphael, and Holzer 2004; Stauffer and Buckley 2005) have been found to treat those of a different race more harshly than those of their own race.[4]

However, we should not overlook the possibility that skin color – like beauty – could be a *universally liked* trait. There is some laboratory evidence supporting this view.

[3] For a thorough analysis of the biological determinants of skin color, see Jablonski (2006).

[4] Another literature finds that among minority groups in the US, lighter-skinned workers earn higher wages. This appears to hold true for African-Americans (Goldsmith, Hamilton and Darity 2006, 2007; see also Hersch 2006), Mexican-Americans (Mason 2004), and new immigrants (Hersch 2008) (we are not aware of any studies that have analyzed the relationship between skin color and wages in Australia). However, this does not necessarily speak to the question of whether there is an interaction between the skin color of the employer and the employee, since the wage studies do not contain information on the employer's skin color. Given that most employers are white, their preferences are likely to overwhelm those of non-white employers in any empirical analysis.

Maddox and Gray (2002) presented photographs of light-skinned and dark-skinned African-Americans to black and white college students. They found that among both black and white experimental subjects, images of lighter-skinned people were judged more positively across a number of traits. Similarly, Nosek, Banaji, and Greenwald (2002) found that both black and white participants in an Implicit Association Test showed a subconscious bias towards white faces over black faces. However, we are not aware of any evidence that these biases – to the extent that they exist – lead blacks to favor whites when making conscious choices. Our interpretation of the evidence is that when making a conscious decision (such as casting a ballot, making an arrest, or hiring a new worker) both blacks and whites tend to exhibit a same-race preference. Our study can be regarded as a further test of this hypothesis.

An important point to note about our empirical strategy is that we analyze results not at the individual level, but at the electoral level. Although we will tend to interpret our results as indicative of individual-level patterns, it is nonetheless possible that our results are driven by unobserved factors that are correlated with the individual demographics in our dataset (the so-called 'ecological fallacy' problem).

3. Institutional Context and Data

Our data in this paper are drawn from the Northern Territory election held on 18 June 2005. The Northern Territory has a unicameral parliament, with 25 seats in the Legislative Assembly. In the previous election (held in 2001), the centre-left Australian Labor Party had won office for the first time since the Northern Territory attained self-government in 1978. In the 2005 election, the Australian Labor Party further increased its majority, winning 19 of the 25 seats.

Although voting is compulsory (and failure to vote was punishable by a fine of $110 in the 2005 election), turnout in Northern Territory elections has always been relatively low (Shepheard 2005, 17). This is due partly to the region's low population density. In the 2005 election, 89,646 people voted, which equated to 80 percent of those on the electoral roll. Four percent of the votes cast were informal, so our sample consists of 86,288 votes. Although Northern Territory elections use a preferential

voting system, we do not exploit this feature of the data, since our focus is on a voter's most favored candidate.

As discussed above, an unusual feature of Northern Territory elections is that candidates' photographs appear on the ballot paper. Under the *Electoral Act* (NT 2004) and *Electoral Regulations* (NT 2004), all candidates are required to submit a black and white, full-faced vertical portrait of the nominee's head and shoulders, taken within 6 months before lodgment of the nomination. The 2005 election was not the first Northern Territory election in which candidates' photographs were on the ballot[5], but it was the first Northern Territory election in which ballots had shown both photographs and party names.

Our voting data are drawn from the website of the Northern Territory Electoral Office, which publishes the number of votes received by each candidate, and demographic profiles of each electorate. These demographic profiles are based upon data from the 2001 Australian Census, matched to the electoral boundaries as they were for the 2005 election. The profiles provide information on several characteristics of the electorate, including the share of the population that self-identifies as Aboriginal or Torres Strait Islander.

Ballot papers were supplied to us in electronic form by Bill Shepheard, the Northern Territory Electoral Commissioner. Following a determination from the Northern Territory Information Commissioner that electoral ballots are not public documents, Mr Shepheard sought permission for us to use the ballot papers, by contacting agents for all political parties who ran candidates, and directly contacting all independent candidates. Only one candidate (an independent who ran in the division of Nightcliff) denied permission, and that candidate is excluded from our results. Our dataset therefore contains information on 79 of the 80 candidates who ran for election in 2005.

[5] The history of ballot photos in the Northern Territory dates back to the 1980 election. The photos were initially introduced as a part of an integrative effort to simplify voting procedure. Specifically, the photos were intended to assist voters with low level of literacy and voters who need significant help from others in casting their vote (Jaensch and Loveday 1981). Adding photographs to the ballot paper was associated with a 2% increase in turnout (from 75.9% in 1977 to 77.9% in 1980), but no noticeable change in the rate of informal voting.

Figure 1 shows a sample ballot paper from the 2005 election, for the seat of Arafura.

Figure 1: A Sample Ballot Paper from the 2005 Northern Territory Election

Form 1 Regulation 4

NORTHERN TERRITORY OF AUSTRALIA
Electoral Act

BALLOT PAPER

ELECTION OF ONE MEMBER OF
THE LEGISLATIVE ASSEMBLY FOR THE

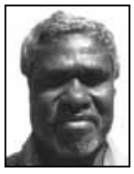
DIVISION OF ARAFURA

Directions:
Number the boxes 1 to 3 in the order of your choice. Remember, number every box to make your vote count.

CANDIDATES

☐ SCRYMGOUR, Marion
Australian Labor Party NT (ALP)

☐ STEVENS, August
Northern Territory Country Liberal Party

☐  PASCOE, George
The Greens

We coded five characteristics of candidates. The first three characteristics were candidates' gender, political party, and whether they were the incumbent. These were based upon data from the Northern Territory Electoral Office, supplemented by incumbency information from the Northern Territory Legislative Assembly. In the case where a local member had just retired, none of the candidates were coded as incumbents.

The fourth characteristic we coded was candidates' beauty. This was done by compiling the ballot photographs of the 79 candidates into a 2-page PDF document. We gave the following instruction to our raters:

> "Please rate the attractiveness of each face on a 1 to 9 scale (1 = least attractive, 9 = most attractive). Try to use the scale optimally and maintain an average of 5."

To accommodate both the Indigenous and non-Indigenous population in the Northern Territory, and also to be representative of the gender and age of the Australian electorate in general, our raters were a 24 year-old Indigenous male, a 39 year-old Indigenous female, a 24 year-old non-Indigenous female, and a 40 year-old non-Indigenous male. None of the raters were familiar with any of the photographs, thus ruling out possible rating contamination due to other accessible proxies (e.g. familiarity), and ensure that the rating was solely based on direct assessment of physical beauty itself. The rating process took each rater about half an hour (i.e. about 20 seconds per photograph). The raters were compensated with A$20 book vouchers.

Table 1: Inter-Rater Beauty Correlations

	IM24	IF39	NIF24	NIM40
IM24 (μ = 5.114)	1			
IF39 (μ = 4.645)	0.585	1		
NIF24 (μ = 5.088)	0.600	0.472	1	
NIM40 (μ = 4.696)	0.462	0.458	0.460	1

Note: Sample size is 79. All correlations are significant at 1% level. IM24 is a 24 year-old Indigenous male, IF39 is a 39 year-old Indigenous female, NIF24 is a 24 year-old non-Indigenous female, and NIM40 is a 40 year-old non-Indigenous male. μ is the mean beauty rating for each rater.

The pairwise correlations between ratings are shown in Table 1. As can be seen, the correlations between the four raters are uniformly moderate to high, ranging from 0.458 to 0.600.[6] An important point here is that there is no substantial difference on beauty judgment between Indigenous and non-Indigenous raters, supporting the main

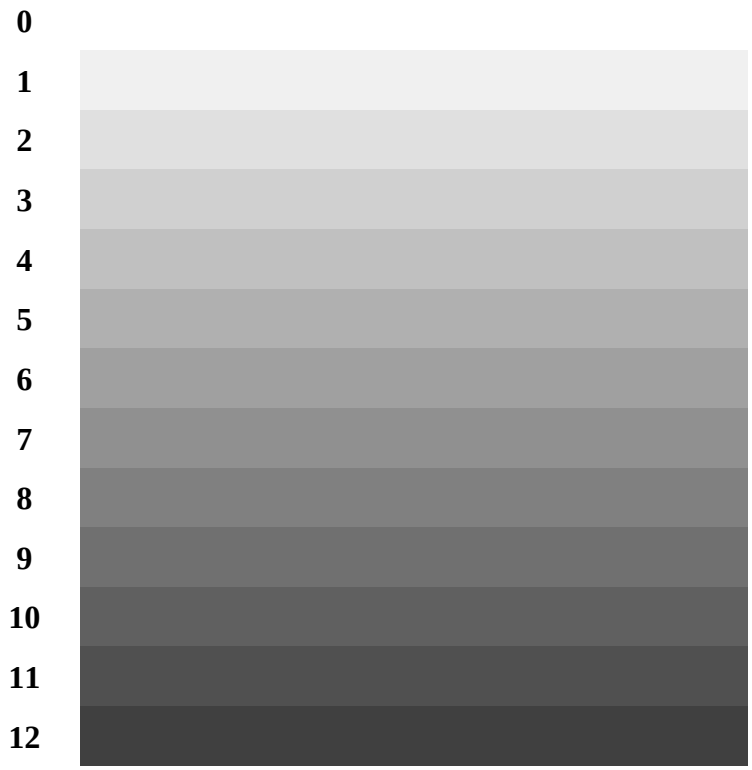
[6] Four raters is about the modal number used in studies of the economics of beauty. The correlations between beauty raters in our study are also quite similar to other studies, such as King and Leigh (2006). Since the lowest correlations were with the 40 year-old non-Indigenous male, we also experimented with dropping his ratings. We found that the results were very similar if we used only the average of the three other raters.

finding of the beauty literature that people tend to have a general and reliable agreement over what constitutes beauty (Langlois et al. 2000, Rhodes 2006).[7]

The beauty measure we use in this paper aggregates the four raters' beauty scores. This is done by rescaling each rater's scores into a *z-score* (mean 0, standard deviation 1), creating a new variable that is the mean of the four *z-scores*, and then rescaling this average so that it has a mean of 0 and a standard deviation of 1.

The fifth candidate characteristic we coded was skin color. This was done by one of the authors, using a 17-point scale that ran in even steps from white (0) to black (16). Figure 2 depicts this scale.[8] In our sample, candidates' skin color ranged from 1 to 11, with a mean of 3.4.

Figure 2: Skin Coding Scale



[7] We also experimented with breaking the sample into two groups: the 53 candidates whose skin color was rated 3 or lighter, and the 26 candidates whose skin color was rated 4 or darker (see Figure 2 for definitions of these numbers). We found that our raters tended to concur more on the ratings of darker-skinned candidates (correlations from 0.707 to 0.765) than lighter-skinned candidates (correlations from 0.251 to 0.572). However, we still did not observe any systematic tendency for the ratings of our Indigenous raters to differ from the ratings of our non-Indigenous raters.

[8] Specifically, this 0-16 scale uses the following 17 html colors: FFFFFF, F0F0F0, E0E0E0, D0D0D0, C0C0C0, B0B0B0, A0A0A0, 909090, 808080, 707070, 606060, 505050, 404040, 303030, 202020, 101010, 000000.

Table 2 presents summary statistics for the 79 candidates in our sample. Across the sample, 28 percent of the candidates were incumbents, and 37 percent were women. 32 percent represented the Australian Labor Party (ALP), 32 percent represented the Country Liberal Party (CLP), 14 percent represented the Greens, and the remainder were independents. On average, candidates received 32 percent of the vote. The average share of Indigenous voters in an electorate was 26 percent, though this was highly skewed (the median is 13 percent). Since both beauty and skin color are normalized to a mean of zero and a standard deviation of unity, this has the advantage that regression coefficients for these variables can simply be interpreted as the marginal effect of a one standard deviation increase in beauty/skin darkness.[9]

Table 2: Summary Statistics (N=79)

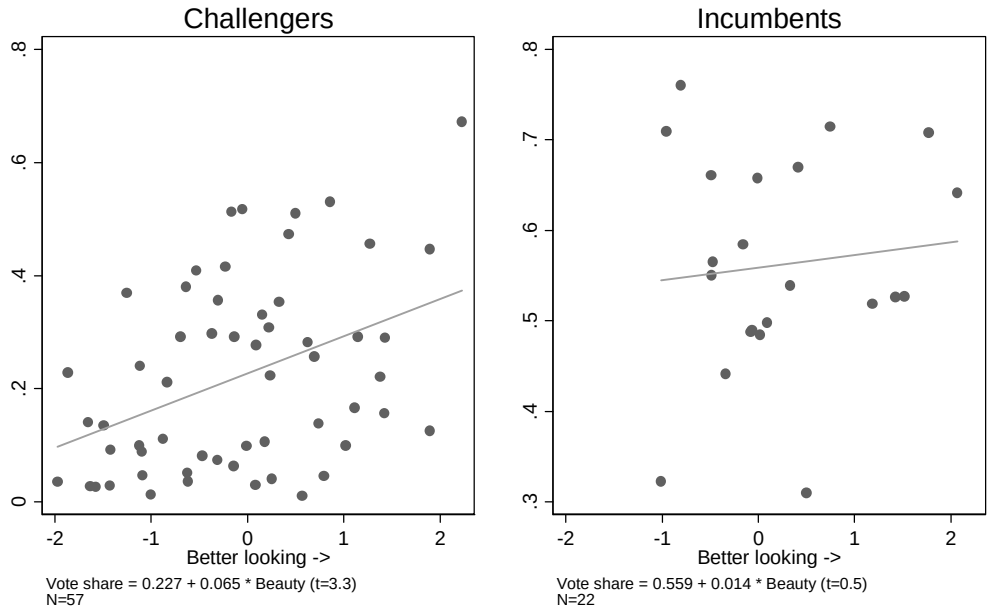
Variable	Mean	Std. Dev.	Min	Max
Vote share	0.316	0.218	0.011	0.761
Incumbent candidate	0.278	0.451	0.000	1.000
Party=ALP	0.316	0.468	0.000	1.000
Party=CLP	0.316	0.468	0.000	1.000
Party=Greens	0.139	0.348	0.000	1.000
Party=Independent	0.228	0.422	0.000	1.000
Female	0.367	0.485	0.000	1.000
Beauty (normalized)	0.000	1.000	-1.976	2.230
Skin color (0-16 scale)	3.418	2.245	1.000	11.000
Skin color (normalized)	0.000	1.000	-1.077	3.377
Share of Indigenous Voters in Electoral Division	0.262	0.262	0.047	0.843

4. Beauty, Skin Color and Vote Share

[9] The correlation between beauty (averaged from four ratings) and skin color was -0.04 (ns). We also estimated the correlation separately for each rater. The correlations between beauty rating and skin color for IM24, IF39, NIF24, and NIM40 were 0.126 (ns), -0.033 (ns), -0.231 (significant at 5% level), and 0.021 (ns), respectively. We therefore conclude that there is no systematic relationship between beauty rating and skin color in our sample.

We begin by simply plotting the bivariate relationship between the key variables in the analysis. Figure 3 depicts the relationship between beauty and vote share separately for challengers and incumbents. For challengers, a one standard deviation increase is associated with a 6.5 percent increase in vote share, while for incumbents, beauty has no statistically significant impact on vote share. This is consistent with theories that suggest that beauty becomes less salient when voters have more information about a candidate, as is likely to be the case for incumbents.

Figure 3: Candidate Beauty and Vote Share
(vote share on vertical axis)



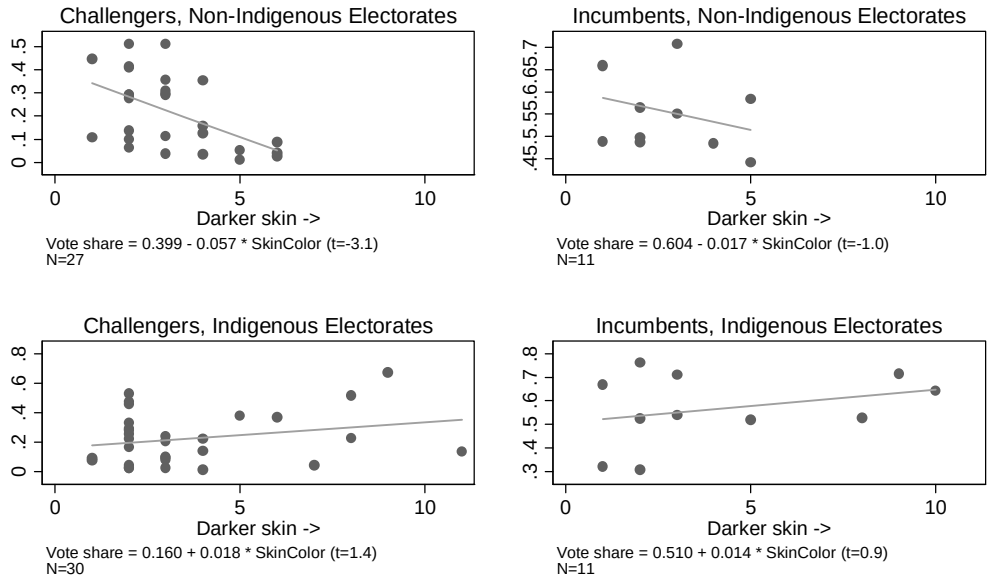
By contrast with our results for beauty, we observe no uniform pattern between the color of a candidate's skin and their share of the vote across all electorates.[10] This indicates that Northern Territory voters do not have a uniform preference for candidates with lighter or darker skin. However, it is possible that pooling the full sample is masking effects that run in opposite directions. Since the median Northern Territory electorate has 13.3 percent Indigenous voters, we separate electorates into two groups of approximately equal size – those in which less than 13 percent of the population are Indigenous, and those in which more than 13 percent of the population are Indigenous. For simplicity, we term these 'Non-Indigenous Electorates' and 'Indigenous Electorates', respectively.

[10] For challengers, the regression result is *Vote share = 0.218 + 0.001*SkinColor (t=0.1)* (N=57). For incumbents, the regression result is *Vote share = 0.534 + 0.008*SkinColor (t=0.8)* (N=22).

In Figure 4, we chart the relationship between a candidate's skin color and their vote share separately for these two groups of electorates. Splitting the data in this manner reveals a very different pattern to that shown in the previous graph. Within Non-Indigenous electorates, candidates with whiter skin receive more votes, while in Indigenous electorates, candidates with darker skin receive more votes. As with beauty, the relationship between skin color and electoral performance is stronger for challengers than incumbents. Across the four groups, the relationship between voting and skin color is strongest for challengers in Non-Indigenous electorates.

Figure 4 also reveals another factor about Northern Territory politics: candidates with quite dark skin simply choose not to run in Non-Indigenous electorates. Of the eight candidates whose skin color was rated 7 or darker, all chose to run in Indigenous electorates.

Figure 4: Candidate Skin Color and Vote Share
(vote share on vertical axis)



Indigenous electorates are defined as those with more than 13% Indigenous population

To test these patterns more formally, we estimate regressions that take the form:

$$V_{jk} = \alpha + \beta x_{jk} + \gamma z_{jk} E_k + \nu_{jk} \qquad (6)$$

where V_{jk} is the vote share of candidate j running in electorate k, x_{jk} is a noisy signal of a *universally liked* characteristic, z_{jk} is a noisy signal of a *voter-dependent characteristic*, E_k is a characteristic of voters in electorate k, and ν_{jk} is a normally-distributed mean-zero error term. To take account of the fact that votes in each electorate must sum up to 100 percent, standard errors are clustered at the electorate level.

Table 3 shows the results from these regressions. All specifications control for incumbency (which has a positive and significant effect on vote share) and whether the candidate is female (the coefficient is negative but insignificant). Without party fixed-effects (column 1), a one standard deviation increase in beauty boosts a candidate's share of the vote by 6.1 percentage points. This is a substantial impact – using the same specification, King and Leigh (2006) find a coefficient of 2.2 percentage points for candidates in national elections. However, as column 2 shows, the beauty effect in Northern Territory elections is not robust to the inclusion of party fixed-effects.[11]

Column 3 shows the results from including a variable in the regression measuring the darkness of a candidate's skin. This is then interacted with the share of voters in an electorate who are Indigenous. The main effect is significant and negative, while the interaction is significant and positive. These results are robust to the inclusion of party fixed-effects (column 4), to controlling for candidate beauty (column 5), and to interacting candidate beauty with the Indigenous share (column 6).[12]

Our preferred specification is column 4 (party fixed-effects but no controls for candidate beauty). In this column, the coefficient on *Skin Darkness* is -0.059, and the coefficient on *Skin Darkness * Share Indigenous* is 0.114. Both are statistically significant at the 5 percent level or better.

[11] We also experimented with coding the photographs in other ways, but found that factors such as facial expression were not strongly correlated with a candidate's share of the vote.
[12] We obtain very similar results if the skin color variable is measured relative to other candidates running in the same electorate.

Table 3: Beauty and Skin Color Effects
Dependent Variable: Vote share

	[1]	[2]	[3]	[4]	[5]	[6]
Beauty (normalized)	0.061***	0.006			0.012	-0.005
	[0.019]	[0.014]			[0.013]	[0.016]
Beauty * Share Indigenous						0.050
						[0.042]
Skin Darkness (normalized)			-0.070*	-0.059**	-0.063**	-0.064**
			[0.036]	[0.024]	[0.024]	[0.024]
Skin Darkness * Share Indigenous			0.156**	0.114***	0.118***	0.117***
			[0.072]	[0.039]	[0.039]	[0.037]
Incumbent Candidate	0.321***	0.223***	0.337***	0.222***	0.221***	0.221***
	[0.036]	[0.036]	[0.034]	[0.031]	[0.031]	[0.031]
Female	-0.035	-0.011	-0.008	-0.025	-0.035	-0.04
	[0.049]	[0.024]	[0.047]	[0.027]	[0.028]	[0.030]
Share Indigenous			0.008	0.013	0.017	0.018
			[0.088]	[0.044]	[0.047]	[0.046]
Party Fixed Effects	No	Yes	No	Yes	Yes	Yes
Observations	79	79	79	79	79	79
R-squared	0.56	0.85	0.54	0.87	0.87	0.87

Note: Robust standard errors, clustered at the electorate level, in brackets. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

To see what these magnitudes imply, note that the share of the population who are Indigenous in Northern Territory electoral divisions ranges from 5 to 84 percent. The above coefficients imply that in the least Indigenous electorate, a one standard deviation increase in skin darkness would *lower* a candidate's vote share by 5.3 percent, while in the most Indigenous electorate, a one standard deviation increase in skin darkness would *raise* a candidate's vote share by 3.7 percent.

The fact that political parties do not run darker-skinned candidates in non-Indigenous electorates suggests that they may be aware of these patterns. Evidence of this comes from the 2001 election (the previous election to the one we analyze here), in which the CLP ran both an Indigenous and a non-Indigenous candidate in the 68 percent Indigenous seat of MacDonnell, successfully holding the seat.[13] However, it is also possible that in electorates with few Indigenous voters, there are also few potential candidates with dark skin. In this event, the bias would arise from the racial composition of the electorate, rather than strategic decisions by the political parties.

[13] According to Worthington (2001), this tactic was also used by both the ALP and the CLP in the 1977 election for the seat of Tiwi (an election in which candidate photographs were not depicted on the ballot paper).

5. Conclusions

The theoretical model posited in this paper separates candidate characteristics into two types: those that are *universally liked*, and those that are voter-dependent, meaning that they are liked only by those who share them. However, in our model, these traits are not directly observed by voters; they merely observe a noisy proxy.

Our empirical analysis focuses on candidates' facial features. Using data from elections in the Northern Territory, we code two aspects of candidates' facial features – their beauty, and their skin color. Although the effect of beauty on electoral outcomes has been studied before, we are not aware of any other study that has looked at the impact of skin color in an actual election.

Consistent with earlier studies, we find evidence that beauty is positively associated with candidates' vote share (though the beauty effect is not robust to the inclusion of party fixed-effects). However, we find that the effect of skin color on vote share depends strongly upon the size of the Indigenous population in the electorate. The relationship between skin color and electoral performance is stronger for challengers than incumbents. This is consistent with beauty being a proxy for *universally liked* traits, and skin color being a proxy for voter-dependent traits.

It should be noted, however, that our finding is inconclusive regarding the issue of whether voters take skin color as a cue of group membership or as an inherently desirable characteristic. This issue is beyond the scope of our dataset. One way in which future research may be able to solve the issue is by systematically distinguishing candidates' policies from their skin color (e.g. a randomized trial in which half the experimental subjects had campaign materials and a photograph of the candidate; while the other had only the photograph). If skin color is a preferred characteristic of itself, then the availability of candidates' policies should have no effect on the observed relationship between skin color and vote share. But if skin color is used as an indicator of group membership when other information is not available, then voters who have access to candidates' policies – thereby have more direct information of the candidate's group membership – would discard skin color as

a cue. In this latter case, the relationship between skin color and vote share would be affected by policy positioning.

Since we only observe results from one election, we cannot determine whether the relationship between vote share and skin color in Northern Territory elections is stronger than it would be in the absence of ballot photographs. However, the effects of skin color on voting behavior in the Northern Territory are very strong, and it seems likely that skin color would be less salient in the absence of ballot photographs.

However, removing ballot photographs could have disadvantages. Given that the Northern Territory has the lowest literacy levels in Australia, the absence of ballot photographs would be likely to increase voter error. In addition, the removal of photographs from the ballot paper might decrease voter turnout. These factors would have to be weighed against any possible benefits from decreasing the salience of race in Northern Territory elections.

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