“Vaccine Nationalism Erodes Public Trust”: Actual Finding or Faulty Analysis?

A Verification Report of Colombatto et al.’s (2023): *Vaccine Nationalism Counterintuitively Erodes Public Trust in Leaders*

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1. The Paper

- Question: *Does vaccine nationalism (prioritizing domestic vaccination over global distribution) improve public trust in countries’ leaders?*
- 7 studies (surveying 4,215 respondents from Australia, Canada, UK, US in 2022 & 2023) show through various models and tests (regression models, Wilcoxon tests, t-test, chi-square test): citizens trust redistributive leaders more than nationalistic ones

2. The Verification Target

- Main target: Coefficient of *condition* (nationalistic vs. redistributive) on *trust score* in regression analyses of Studies 1 & 2
- Encapsulates essence of conclusions drawn; other studies focus on further topics such as relation expected by civil servants, etc.
- Authors reported *b-, t-* and *p-values, standard errors* and *95% confidence intervals* of regression coefficient for condition, but no other regression coefficients & published analysis code

Table 1

Published Statistics of the Coefficient of ***condition*** on ***trust*** in Study 1 and Verification Results

Study	Model	*b*	SE	*t*	*p*	CI	Verified
1	All covariates	1.54	0.06	24.70	<0.001	[1.42, 1.66]	✓
1	Less exclusions	1.48	0.06	25.89	<0.001	[1.37, 1.59]	✓
1	Interactions	<0.19	-	-	>0.281	-	(✓)
1	No covariates	1.54	0.06	24.60	<0.001	[1.41, 1.66]	✓

3. Verifying the Target

1. Rerunning the provided R code

- Provided code consistently led to results published in paper

2. Verifying whether code reflects description of analyses

- Checked whether code reflects description of analyses by implementing analyses as described in paper
- **Reproduced all results**, but **some issues**:
- Control variable *education*, measured ordinally from “Some elementary school / primary school” to “Completed advanced postgraduate degree” was treated numerically, which was not mentioned in paper → This is somewhat problematic, since the levels may not be equally spaced (see Williams, 2020 for more details)
- Control variable *race* dichotomized → not mentioned in paper
- Interactions (*condition* x *country)*: Specified *b*- and *p*-values only true for United States as reference category for countries, not for others

3. Checking the underlying assumptions

- Additionally checked the required assumption for conducting the regression analysis for models including all covariates in Study 1 & 2
- Despite not including checks in the published code, all assumptions were met for the major models in Study 1 & 2

Table 2

Published Statistics of the Coefficient of ***condition*** on ***trust*** in Study 2 and Verification Results

Study	Model	*b*	SE	*t*	*p*	CI	Verified
2	All covariates	1.26	0.16	8.06	<0.001	[0.96, 1.56]	✓
2	Less exclusions	0.98	0.12	8.16	<0.001	[0.75, 1.22]	✓
2	No covariates	1.28	0.16	8.25	<0.001	[0.98, 1.59]	✓

4. Evaluation of the Verification Process

1. Rerunning the provided R code

- Code and data was well structured in OSF repository
- Well-organized data and scripts, as well as intuitive object and variable names ensured smooth experience with code
- Challenges: Analyses ordered differently to paper; identical names for different objects

2. Verifying whether code reflects description of analyses

- Paper lacks descriptions of how control variables were coded, making verification quite tedious (problems with variables *race* and *education*)
- Paper did not include regression tables as appendix, making reproduction more difficult
- Generally, analysis well described in paper (e.g., which independent variables are included)

5. Conclusions

- All findings could be verified
- Code (and data) were published, drastically simplifying the reproduction of results
- Points for improvement concerning order of published code, description of analysis in paper
- Still, critical reflection of methodology needed: For example, the timing of the conducted surveys may lead to distorted results (i.e., conducting the survey in 2021, when demand for vaccination was higher may have led to different results)

References

Colombatto, C., Everett, J. A., Senn, J., Maréchal, M. A., & Crockett, M. J. (2023). Vaccine Nationalism Counterintuitively Erodes Public Trust in Leaders. Psychological Science, 34(12), 1309-1321.

Williams, R. A. (2020). *Ordinal independent variables*. SAGE Publications Ltd.

Scan the QR code or visit github.com/jonathankoop/Replication_Colombattoetal to view our code!