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Researching Post-Industrial Political Behaviour with the National Occupation Classification in the 2019 and 2021 Canada Election Studies

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In the following note we describe coding of open-ended responses to respondent occupations in the Canada Election Studies 2019 (phone and online) and 2021 (online). 7904 unique entries were gathered from the three surveys and assigned 5- or 4-digit codes from the National Occupational Classification (NOC) using the information such as job and task descriptions and sample job titles from the NOC. 84% of entries were able to be matched to a 4-digit NOC code and 79% could be matched to a 5-digit code. The note concludes with a brief model of vote choice as a function of whether respondents' occupations are assessed to be in surplus or shortage. Tentative results suggests respondents facing wage declines or layoffs because their occupation project to be in surplus are less likely to vote for a right-wing party.

1 Introduction

This research note introduces category codes for respondent job titles in the 2019 phone and web and 2021 online Canada Election Study (See here for 2019 and here for 2021). Specifically, each dataset contains a 4- or 5-digit code from the National Occupation Classification that matches respondents' open-ended responses in each survey. Historically Canada has been viewed as a country where social class has played a minimal role in structuring political conflict. Although there was a burst of scholarship in the 1970s and 1980s exploring whether and why this really was the case, interest declined in the 1990s and 2000s (Langford, 2013). However, there has been a renewed interest as the English-Canadian manual working class has shifted toward the Conservative Party, further weakening already weak relationships with the New Democratic Party (Polacko, Kiss, and Graefe, 2022). At the same time, economic shifts from an industrial to a post-industrial economy have given rise to new groupings of occupations such as a 'New Middle Class' of socio-cultural professionals and a precariously employed service-sector underclass (Oesch, 2006). This transformation complicates old distinctions between manual working class / middle class (Tepe, 2012; Kitschelt and Rehm, 2014). This does not mean, however, that class does not matter; just that categorizations require updating (Weeden and Grusky, 2005).

These changes are also occurring at the same time as recent innovations in survey methodology have meant that the cost of interviewing individual respondents - at least in online contexts - has plummeted, increasing the sample size of national election studies. This permits analysis of voting patterns of groups even smaller than historical categories of social class (Stephenson et al., 2021).

2 The National Occupation Classification

The National Occupation Classification (NOC) is a system of categorizing jobs in Canada's labour market developed by Employment and Social Development Canada (ESDC). Occupations are categorized based on two dimensions: their skill level (e.g. Training, Education, Experience and Responsibility (TEER)) and "broad occupational categories" which are akin to economic sector or skill type. There are six TEER levels each denoting some level of education or training. There are 10 broad occupational categories distinguishing the skill types. The basics of this system have been in place since 2001, with revisions taking place ever five years to better reflect the realities of the current Canadian economy.

In 2021 ESDC introduced a major revision to previous classification systems, replacing the previous 4-digit codes for each occupational category with 5-digit code to provide greater specificity. The first digit of each NOC code indicates the broad occupation category, the second digit indicates the skill level (e.g. TEER). The third digit indicates the sub-major group which further classifies occupations by the duties performed by the employee, with 0 indicating a supervisory role. The fourth digit further classifies occupations based on specific industries. Finally, the fifth digit typically indicates the specific occupation held by an individual. We can illustrate this schema with the example of the NOC code '62020' which represents the unit group "Food Service Supervisors" (see Table 1) for a breakdown). The full five digit code is known as the "unit group" and is the most precise occupational coding possible. The code composed of the first four digits is known as the "minor group".

3 Recoding Occupations

To assign NOC codes to the occupations from the three surveys, we first combined all open-ended responses to the question soliciting respondent occupations and then reduced the full set to unique responses by converting to lower case. For each election survey, this question was included in the post-election survey. This meant that "Teacher" and "teacher" became

Digit	Group	Group Name
6	Broad occupational category	Sales and Service Occupations
2	Training, experience, education or responsibility (TEER)	Specialized occupations in sales and services
0	Sub-major Group	Retail sales and service supervisors
2	Minor Group	Service supervisors
0	Unit Group	Food service supervisors

Table 1: Schema for the 5-digit occupation code 62020.

one response although this did not eliminate spelling mistakes. Thus, "teachr" did not become "teacher". This left a total of 7904 unique entries that needed to be coded. Then, two research assistant hand-coded the occupations using the 2021 NOC classification system. Because of the number of job titles that had to be coded, it was deemed to be not feasible to have both research assistants code each occupation although this might have increased reliability. Instead, a system of coding rules was set up in advance. First, each job title in the dataset was entered into the National Occupation Classification search engine to search for matching 5-digit NOC categories. Each 5-digit NOC code provides a description of the category, its primary duties, usual levels of education and training and several sample job titles. For example, the NOC code '62020' – Food service supervisors, has the following description "Food service supervisors supervise, direct and coordinate the activities of workers who prepare, portion and serve food. They are employed by hospitals and other health care establishments and by cafeterias, catering companies and other food service establishments." and the following example titles: "Cafeteria supervisor," "Canteen supervisor," "Catering supervisor," and "Food service supervisor". All this information was used to guide assigning 5-digit codes.

There were three primary challenges that prevented assigning an occupational code to each response. First, the survey collected responses in both French and English. One research assistant and the Principal Investigator have high levels of French fluency. Moreover, the National Occupation Classification website is mirrored in English and French, facilitating searches of French-language entries and then an examination with the corresponding English-language page. Second, there were many ambiguities in responses. Some responses could not be assigned to a 5-digit unit code, but could be assigned to a 4-digit minor group code. For example, respondents who responded with "teacher", could have been either an elementary or kindergarten teacher (41221) or a secondary school teacher (41220). However, both share the same unit code (4122). Anticipating that the 4-digit minor group code would provide useful information for scholars, we provided 4-digit minor group codes wherever possible (the diagnostics section below reports what proportion of job titles have 4- and 5-digit codes.

However, some respondents provided responses that did not just span unit groups (5-digit codes) but minor groups (as well). For example, many respondents listed their occupation as "nurse" or "infirmière" without specifying whether they were registered nurses (unit group '31301', minor group 3130) or registered practical nurses (unit group '32101', unit group 3210). Other respondents simply provided responses that were too vague: "bosses bitch". Yet other responses provided information about the employer or the sector, rather than the actual occupation. Some examples of this include: "I work for the government," "civil servant," "blue collar worker," or "human resources". We left these responses blank. The only exception that we made to this rule was to assign responses that clearly could be classified as senior level executives as "Senior managers - financial, communications and other business services - 00012" and respondents who listed upper management positions without an industry as "Managers in financial and business services - 1002."

Third, there was a discrepancy between the CES 2019 phone survey and the 2019 and 2021 web surveys. In the former, the survey was structured such that only respondents who answered that they were employed were asked what their occupation was. In the web surveys, there was no such restriction. As a consequence, many responses in the dataset were provided by retired

NOC Code	Missing	Valid	Valid Percent
NOC21_4	1262	6642	84.0%
NOC21_5	1691	6213	78.6%

Table 2: Count of valid and missing NOC codes assigned to unique responses.

respondents such as: “retired police officer”, “nurse - retired”, etc. Where responses explicitly indicated that respondents were retired or otherwise not in the labour force, no code was assigned. However, this does not preclude the possibility that respondents were in fact retired, or out of the labour force, but failed to indicate this when entering their occupation. Users of the dataset are encouraged to make use of the questions in the web surveys about labour force status to ensure they are analyzing the proper pool of respondents.

After assigning codes to the unique occupations in the three election surveys, we merged the dataset of coded occupations back into the original election studies, with the respondents' occupation title (converted to lower case) as the key. This meant *all* of the respondents who provided the response “high school teacher“ would have the value of 41220 for the variable NOC21_5‘ and 4122 for the variable NOC21_4. All respondents who provided a response such as “teacher” would have a missing value for NOC21_5 and the value of 4122 for NOC21_4.

4 Diagnostics

Table 2 shows the rate at which we were able to successfully assign 5- and 4-digit NOC codes to unique responses. The greater percentage of valid codes for the 4-digit codes is attributable to the fact that those categories are broader and encompass more ambiguous entries.

Table 3 shows basic diagnostic statistics for the two variables coded here, NOC21_4 and NOC21_5 after being merged back into the three CES surveys. Three features stand out. First, the rate of successful coding of occupations was much higher for the 2019 phone survey than for the two online surveys, presumably because phone interviewers were able to provide basic instructions to respondents to better answer the question. For example, they may have been able to solicit something more akin to a job title than “human resources”. As phone surveys will be disappearing in favour of online surveys, this suggests a demand for data collection tools and question prompts that can minimize this ambiguity. The authors have developed a Qualtrics module deployed in the 2025 Canada Election Study to address this. Second, we see the importance of the survey flow implemented in the CES19 phone survey in that no respondents who reported being retired or other labour market status have a successful NOC code; they were not asked the question about their job title. Third, throughout the three surveys, rates of successfully coding the 4-digit codes are distinctly higher than the 5-digit codes. This stands to reason as those categories are broader.

5 Sample Analysis

To illustrate the types of analyses that these NOC codes enable, we present analyses that examine the relationship between the future prospects of labour surpluses (i.e. wage declines or layoffs) and shortages (i.e. wage increases or job stability) and vote choice. Our measure of occupation stability is drawn from the Canadian Occupation Projection System (COPS) which projects which occupations that will be experiencing shortages and surpluses in the next 10 years based on recent labour market, projected flows of job openings and job seekers, and future labour market conditions Employment and Social Development Canada., 2024. We take the measures of occupational prospects form the 2024 assessment and link those to respondent occupations in the 2021 Canada Election Study. This is undoubtedly an imperfect analysis

Survey	Employment Status	NOC Code	N Missing	Valid	Percent Valid
CES19Phone	Employed	NOC21_4	360	1467	80.3%
CES19Phone	Employed	NOC21_5	538	1289	70.6%
CES19Phone	Other	NOC21_4	285	0	0.0%
CES19Phone	Other	NOC21_5	285	0	0.0%
CES19Phone	Retired	NOC21_4	777	0	0.0%
CES19Phone	Retired	NOC21_5	777	0	0.0%
CES19Web	Employed	NOC21_4	1492	4208	73.8%
CES19Web	Employed	NOC21_5	2177	3523	61.8%
CES19Web	Other	NOC21_4	740	383	34.1%
CES19Web	Other	NOC21_5	777	346	30.8%
CES19Web	Retired	NOC21_4	798	2719	77.3%
CES19Web	Retired	NOC21_5	1254	2263	64.3%
CES21	Employed	NOC21_4	2627	5914	69.2%
CES21	Employed	NOC21_5	3604	4937	57.8%
CES21	Other	NOC21_4	1606	639	28.5%
CES21	Other	NOC21_5	1669	576	25.7%
CES21	Retired	NOC21_4	1246	3940	76.0%
CES21	Retired	NOC21_5	1851	3335	64.3%

Table 3: Comprehensive diagnostics of the coded occupation responses by employment status for the CES 2019 Phone, CES 2019 Web and CES 2021 Web surveys.

because of the difference in time between respondent vote and the assessment of occupational prospects; however, we include it here for illustrative and exploratory purposes. Canada's 2024 COPS found 12 occupations faced a workforce surplus ($N = 199$) and 109 occupations were showing signs ($N = 3161$) of shortage from 2021 to 2023. Regarding future labour market conditions 17 occupations are projected to show signs of surplus ($N = 201$) and 103 occupations are projected to show signs of shortage ($N = 3088$) from 2024 to 2033. All other occupations were classified as balanced. Our measure of right-wing voting classifies those who voted for the Conservative Party or People's Party as voting for right-wing parties and those who voted for the Liberal Party, New Democratic Party (NDP), Green Party and Bloc Quebecois as voting for left-wing parties. Those who voted for "Another Party" were removed for these analyses.

We then fit two OLS regression models using the following equation to regress support for a right-wing party on recent and future labour market conditions, where S_{iy} is whether an individual holds an occupation found to be in shortage, and P_{iy} is whether and individual holds and occupation found to be in surplus. Additionally, α_y is survey year fixed effects and $\boldsymbol{X_i}$ is a matrix of control variables:[1]

$$Y_i = \beta_1 S_{iy} + \beta_2 P_{iy} + \alpha_y + \boldsymbol{X_{iy}}\gamma + \varepsilon_{iy} \tag{1}$$

The results for these analyses are presented in Figure 1. The first panel indicates that individuals in occupations that are currently experiencing surpluses are 13.5% less likely to vote for right-wing parties than those in occupations that are experiencing balance (5.6% with controls). Similarly, those in occupations that will experience surpluses in the future are 8.9% less likely to vote for right-wing parties (4% with controls). This result is tentative but suggestive of the fairly uncontroversial possibility that voters monitor the labour market of their current occupation and are less likely to vote for a free market party when their occupation faces the prospect of layoffs or wage declines because of a surplus of labour.

[1]We control for respondent age, gender, degree status, and region of residence.

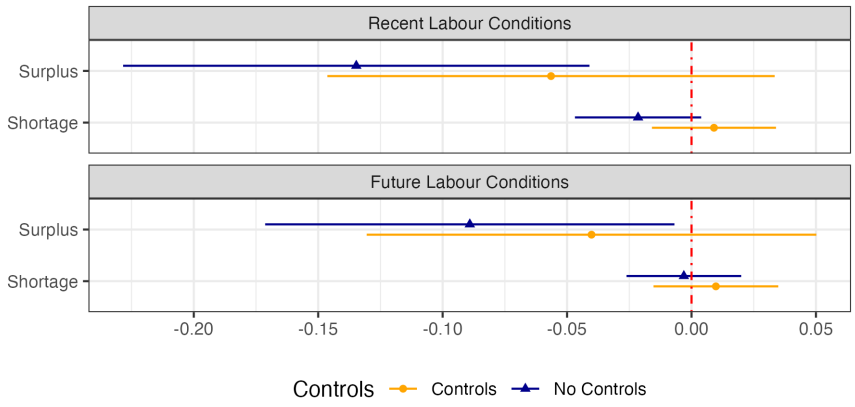

Figure 1: The first panel displays the OLS coefficients and 95% confidence intervals for a model estimated with Equation 1 with voting for right-wing parties as the dependent variable and recent labour conditions as the independent variable. The second panel displays the results from the same model with future labour market conditions as the independent variable.

Conclusion

The shift to online, representative non-probability samples in survey research has one advantage in that sample sizes are much larger. This permits theoretically and substantively important analyses of subgroups of electorates. By linking open-ended descriptions of respondent occupations to the National Occupation classification, this dataset will permit theoretically informed analyses of how voters' working lives are related to their political behaviour.

Going forward, the authors have developed a survey instrument which was developed for the 2025 Canada Election Study which efficiently permitted respondents to select the occupation title from the National Occupation Classification that best fit their current job title. Initial evaluations suggest that this worked well, with well over half of the respondents selecting an occupation from the pre-populated menus (Campos-Gottardo and Kiss, 2025c).

References

Campos-Gottardo, Rafael and Simon Kiss (22, 2025a). National Occupation Codes for the 2021 Canadian Elect DOI: 10.7910/DVN/UFZSM0. URL: https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/UFZSM0.

– (22, 2025b). National Occupation Codes for the Canadian Election Study, 2019. DOI: 10.7910/DVN/JUN3A0. URL: https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/JUN3A0.

– (2025c). Qualtrics Module For Canadian Surveys Of Occupations. Version 1.0.0. DOI: 10.5281/zenodo.1234. URL: https://github.com/RafaelGottardo/occupations-qualtrics.

Employment and Social Development Canada. (2024). Canadian Occupational Projection System. Canadian Occupational Projection System. URL: https://occupations.esdc.gc.ca/sppc-cops/welcome.jsp?lang=en&fbc=Y.

Kitschelt, Herbert and Philipp Rehm (1, 2014). "Occupations as a Site of Political Preference Formation". In: Comparative Political Studies 47.12. Publisher: SAGE Publications Inc, pp. 1670–1706. DOI: 10.1177/0010414013516066. URL: https://doi.org/10.1177/0010414013516066.

Langford, Tom (2013). "Five decades of class analysis in the Canadian review of sociology". In: Canadian Review of Sociology/Revue canadienne de sociologie 50.3, pp. 306–336.

Oesch, D (28, 2006). "Coming to grips with a changing class structure - An analysis of employment stratification in Britain, Germany, Sweden and Switzerland". In: International Sociology 21.2, pp. 263–288. DOI: 10.1177/0268580906061379. URL: http://links.isiglobalnet2.com/gateway/Gateway.cgi?GWVersion=2&SrcAuth=mekentosj&SrcApp=Papers&DestLinkType=FullRecord&DestApp=WOS&KeyUT=000236177500005.

Polacko, Matthew, Simon Kiss, and Peter Graefe (2022). "The Changing Nature of Class Voting in Canada, 1965–2019". In: Canadian Journal of Political Science/Revue canadienne de science politique 55.3, pp. 663–686. DOI: 10.1017/S0008423922000439. URL: https://www.cambridge.org/core/journals/canadian-journal-of-political-science-revue-canadienne-de-science-politique/article/changing-nature-of-class-voting-in-canada-19652019/FA5E431D849C30B9E531EC046A6107B6.

Stephenson, Laura B. et al. (2021). "Measuring Preferences and Behaviours in the 2019 Canadian Election Study". In: Canadian Journal of Political Science/Revue canadienne de science politique 54.1, pp. 118–124. DOI: 10.1017/S0008423920001006. URL: https://www.cambridge.org/core/journals/canadian-journal-of-political-science-revue-canadienne-de-science-politique/article/measuring-preferences-and-behaviours-in-the-2019-canadian-election-study/540E739DF7F62AD882A5812DD0E0BF2D.

Tepe, Markus (2012). "The Public/Private Sector Cleavage Revisited: The Impact Of Government Employment On Political Attitudes And Behaviour In 11 West European Countries". In: Public Administration 90.1, pp. 230–261. DOI: 10.1111/j.1467-9299.2011.01961.x. URL: https://onlinelibrary.wiley.com/doi/10.1111/j.1467-9299.2011.01961.x.

Weeden, Kim A. and David B. Grusky (1, 2005). "The Case for a New Class Map". In: American Journal of Sociology 111.1, pp. 141–212. DOI: 10.1086/428815. URL: http://www.journals.uchicago.edu/doi/abs/10.1086/428815.