

University Networks and Their Effects on Politburo Selection in China

By: Elijah French

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Abstract: An investigation into the effects of ties to current politburo members leads to the conclusion that if one has a college connection, they are, on average, less likely to be selected for the next term. Earlier and simpler regressions implied that the opposite was the case, however, adding various controls and fixed effects made clear that a significant positive bias was present. However, it is likely that a bias still exists in the final specification. One could account for this by continuing to add relevant control variables and fixed effects. An extension is made to the analysis by investigating the effects of a variable that accounts for interactions between differing connections to politburo members.

1. Introduction

The members of the Politburo, the highest level of government in China, are elected every five years by the larger central committee. (Fisman et al., 2020) Connections to members of the current politburo could influence a selection. One such factor that will be analysed is that of a college connection to a current member. A college tie would, intuitively, increase one's chances of selection. To conclude whether this is the case, other relevant variables and effects will be held constant to avoid biasing results. In this report, a variable that indicates whether one was selected to be in the politburo will be regressed with various factors, most pertinently, that of a variable that indicates whether a college tie was present.

2. Description of Data

Throughout the analysis, factors that affect a binary variable that indicates whether a candidate was selected to the Politburo will be analysed. This variable is 1 if someone was promoted to the politburo and 0 otherwise. A sample mean of such a variable would then be an estimate of the probability that one would be selected. The main comparison will be between two groups of candidates, ones where, at the time of selection to the politburo, a current member went to the same university as them (245 candidates, see Table 5) and another group where that was not the case (1112 candidates). About 18% of all candidates had a college tie. After segmenting the two groups, the group that had a college tie had a probability of selection of about 8.98% in comparison to 6.74% for the group which did not have a college tie (see Table 5). This results in a difference of about 2.2% in the probability of making it into the Politburo. This difference is large; however, it is not taking into account variables that may change with candidates when a college tie is present. The standard deviation of the samples changed when comparing the two groups, with the group that had a college tie having a standard deviation of about 3.56% more. Other variables that will be used to better understand the effect of having a college tie on selection probability will be analyzed as well. One of which indicates the number of terms a candidate has served in the central committee prior to a selection bid, and the other which indicates whether a candidate has a work tie with a current member of the Politburo. As seen in Table 5 (combining the two groups) the mean number of terms served by a candidate prior to a selection is about 0.68, indicating that many candidates had not even served one term in the central committee prior to their selection bid. However, the standard deviation is about 0.91, implying that there is a lot of variation among candidates. Furthermore, about 62% of candidates had a work tie

with someone in the current Politburo (again combining the two groups).

3. Regression analysis

3.1.1.

To begin the analysis, a simple linear regression is made with a variable that indicates that a college tie was present. Due to the binary nature of an indicator variable, the resulting coefficient would refer to the difference in the probability of selection for candidates who have a college tie with respect to a base group that does not. As seen in Table 1, the estimated coefficient is 2.23% (with a standard error of 0.0194). The constant coefficient in this regression is about 6.74%, which is the sample mean for the base group. Thus, 2.23% is the difference in the probability of selection for the two groups (which is the same as the difference in the sixth column of Table 5). With such a standard error, the estimated 95% confidence interval ranges from -0.01574 to 0.0604. So, it would not be possible to reject the hypothesis that having a college tie has no effect on the selection process at the 5% significance level. For later comparisons, the R-squared value in this regression is about 0.001. A 2.23% increase in the probability of selection is quite large. Any candidate wishing to reach the top level of Chinese government would want to take this into account. However, as no other factors are being controlled for, bias is almost certainly present in this coefficient, adding various control factors to the regression could account for this.

3.1.2.

To further the analysis, a multiple regression is run with individual control variables that account for the level of education, age, military service, and other factors present in a candidate (see the first column of Table 1). To account for collinearity, the variable that indicates the presence of bachelor's degree in a candidate is removed. This regression has an adjusted R-squared value of 0.14, which is large in comparison to the R-squared value in the simple linear regression, indicating a better fit. The coefficient on the effect of having a college tie decreased to 1.78%. Thus, given an individual, holding the added variables constant, a college tie would increase your chances of being selected by about 1.78% on average in comparison to the base group (no college tie). Its standard error decreased to 1.81%. However, this decrease in the standard error did not result in significance at the 5% level for the coefficient. In addition to this result, being ex-military would result in someone being about 1% less likely to be elected on average. This negative coefficient is somewhat surprising as one would expect that experience in a hierarchical and nationalistic organization

such as the military would be appealing to a selection committee. The estimated coefficient for the provincial officer indicator is 3.9% (see Table 1 third column). This implies that, holding all else equal, a candidate would be 3.9% more likely to be elected to the politburo if they were previously a provincial officer. This coefficient is significant and makes sense intuitively. However, there could be some selection bias present as provincial officers that performed poorly (and thus have been less likely to be selected) may not have applied to the politburo. As the coefficient on the effect of having a college tie variable decreased, a positive bias was present in the previous regression. Even though many control variables have been added, a bias may still persist. A variable that is positively correlated with both promotion and having a college tie is that of a candidate having a work tie. As seen in Table 3, when the probability of promotion is regressed with a variable that indicates a work tie, the coefficient is positive and significant. When the variable indicating a college tie is regressed with one representing a work tie, the coefficient is again positive (see Table 2). This implies that there is still a positive omitted variable bias present in the model. The positive correlation of having a work tie and a college tie to a current Politburo member could be due to graduates going into the workforce (in particular governmental roles that allow for promotion) close by their university.

3.1.3.

To account for the differences in the quality and prestige of universities in China. One can add fixed effects to the regression that control for such differences in candidates. The resulting coefficients would signify the effect of changing such a variable holding the rest of the control variables constant, including the university that a candidate attended. As seen in the fourth column of Table 1, the coefficient on the variable indicating a college tie decreased to -6.3%. Which indicates that a large positive bias was present in the previous regression that was corrected as these fixed effects were added. Even with this correction, the standard error increased to 3.3%. The coefficient is still not significant at the 5% level. Until further regressions and analysis of future coefficients are made, it cannot be known for certain that this regression suffers from omitted variable bias. However, one variable that is not being controlled for that varies over time is that of the term that a member attempts to run for a seat in the Politburo. Such a variable would not affect the college a candidate went to, but may change the number of connections a member would have as new Politburo members are selected each term. The next regression accounts for such a variable.

3.1.4.

In addition to the previous regressions, one more is made. The probability of selection is regressed with the same variables as above whilst both college and term fixed effects are accounted for. With these regressors, the coefficient would be the effect of a college tie within the set of graduates from the same university that applied to the Politburo within a specific term averaged throughout each one of these groups. The coefficient on the variable representing a college tie decreases further to -9.33% (see table 1 column 5), this is a large decrease in comparison with the original simple linear regression. Furthermore, the entirety of the 95% confidence interval is negative, indicating that the result is significant at the 5% level. This result implies that, once controlling for differences among universities in China, it is far worse for a candidate to have a college tie with someone in the current Politburo. With these added fixed effects, an F-statistic is used to test the significance of the individual control variables first seen in specification 2. The F-value is 12.23 (Table 1 column 5) which results in a p-value that is approximately 0. Thus, the joint hypothesis that all of the individual control variables have no effect on the probability of being selected cannot be rejected at any reasonable level. As many relevant control variables and fixed effects are accounted for, the above estimate of -9.33% is likely closest to the true underlying coefficient as it is likely that these added fixed effects are pertinent to the model. This result is surprising but may be indicative of the selection process used by the Chinese government.

4. Extension

The results from the last regression could be an indication that having a connection to a member of the politburo decreases one's chances of selection. To see if this is the case, another regression is run that takes into account other forms of connection. Firstly, a new variable is created. One that indicates whether a candidate has either a city or work tie with a current member of the Politburo. With this, a variable is generated that interacts the variables that indicate college ties and these two possible ties. As seen in Table 6, the sample mean for this new variable is 0.68 with a standard deviation of 0.47. This sample mean is significantly larger than that of the sample mean for the variable that indicates a college tie. Running the regression with the same individual controls and fixed effects present in specification four, the coefficient on college tie decreases to -0.114 (see Table 4 2nd column). With a standard error of 0.036, this coefficient is significant at the 1% level. Due to the addition of an interaction term, this indicates that when an individual doesn't have a different

type of a connection with a politburo member, having a college tie would decrease the probability of selection by about 11% on average. The coefficient on the new variable is 2.3%, which is not significant, however it still seems to indicate that not all connections to politburo members would reduce one's chances of selection if they did not also have a college tie. With the interaction term, having a college and some other tie would result in a decrease in the probability of selection by about 6.6% on average. These results, especially the coefficient on the new variable seem to contradict the reasoning that the central committee intentionally favours candidates without connections to the current politburo.

5. Limitations of Results

In the above regressions, the coefficient on the effect of having a college tie on the probability of getting into the politburo decreased in subsequent regressions. This was due to positive biases that were corrected with the addition of more control variables and fixed effects. It is probable that a positive bias is present in specification four due to correlations with a candidate's college tie and some variables in the residual. Factors that could, at least partially, correct this bias would be city and types of bachelor degrees fixed effects. City fixed effects would account for differences in wealth levels and opportunities (for instance differences in urban cities and rural towns and access to education and opportunities). This regression also didn't account for differences in programs that people completed. If a large percentage of politburo members have a certain degree, it might be more or less advantageous for a candidate to have a degree that is still relevant but less prevalent in the current Politburo. The more variables, fixed effects, and data points are added, the closer one can get to a claim about causality. Although there are various factors that are still unaccounted for in the residual, it is probable that a causal connection exists in this analysis, and that having a college tie with someone currently in the politburo decreases your chances of selection due to intentional selection choices made by the central committee.

6. Conclusion

In conclusion, a causal link is likely present as it pertains to the decreased probability of selection for the politburo given that one has a college tie. This causation could be due to various factors, including a need to appear less elitist as it pertains to the universities attended by current politburo members. For further study, one could continue to add control variables and fixed effects to account for differences in conditions of cities that candidates are from and differences in bachelor degree choice. To further analyze politburo selection, one could

analyze whether there is some level of discrimination towards people that are in minority groups as it pertains to language, religion, or ethnicity.

References:

Wooldridge, Jeffrey M. *Introductory Econometrics a Modern Approach*. South-Western, Cengage Learning, 2020

Fisman, Raymond, Jing Shi, Yongxiang Wang, and Weixing Wu. 2020. "Social Ties and the Selection of China's Political Elite." *American Economic Review*, 110 (6): 1752-81.

Table 1: Politburo College Ties and Candidate Election Probability

	(1)	(2)	(3)	(4)
CollegeTie	0.0223 (0.0194)	0.0177 (0.0181)	-0.0632 (0.0330)	-0.0933** (0.0337)
log(Age)		0.0107 (0.0715)	0.0514 (0.0933)	-0.0347 (0.0951)
Prior Candidacies		0.0520*** (0.0108)	0.0564*** (0.0139)	0.0545*** (0.0137)
Provincial		0.0390* (0.0164)	0.0439* (0.0211)	0.0435* (0.0220)
Military		0.00265 (0.0160)	0.00176 (0.0267)	-0.00993 (0.0268)
Four Party Secretary		0.716*** (0.0908)	0.690*** (0.0935)	0.695*** (0.0897)
Princeling		0.0370 (0.0527)	0.0246 (0.0686)	0.0278 (0.0666)
Male		0.0159 (0.0297)	0.0165 (0.0562)	0.0106 (0.0552)
Master		0.00691 (0.0145)	0.0113 (0.0208)	-0.0318 (0.0238)
Doctor		-0.00445 (0.0227)	-0.0192 (0.0272)	-0.0356 (0.0288)
Constant	0.0674 (0.007)	-0.0472 (0.287)	-0.2017 (0.3774)	0.1755 (0.3834)
College Fixed Effects	No	No	Yes	Yes
Term Fixed Effects	No	No	No	Yes
Adjusted R-Squared	0.000	0.140	0.142	0.149
F-value for Individual Controls				12.23
Observations	1357	1357	1357	1357

Robust Standard errors in parentheses

Notes: The indicator for a bachelor's degree was removed automatically to avoid collinearity etc.

* p<0.05 ** p<0.01 *** p<0.001

Table 2: Politburo Work Ties and Politburo College Ties

	(1)
Work Tie	0.0438
	(0.0239)
R-squared	0.002
Observations	1357

Robust standard errors in parentheses

Notes: * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

Table 3: Politburo Work Ties and Probability of Selection

	(1)
Work Tie	0.0495***
	(0.0130)
R-squared	0.008
Observations	1357

Robust standard errors in parentheses

Notes: * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

Table 4: Politburo College Ties, Work or City Ties, an interaction term and Candidate Election Probability

	(4)
CollegeTie	-0.114** (0.0363)
Work or City Tie	0.0235 (0.0189)
Interaction Term Between Work or City Tie and CollegeTie	0.0241 (0.0407)
log(Age)	-0.0440 (0.0949)
Prior Candidacies	0.0531*** (0.0137)
Provincial	0.0458* (0.0222)
Military	-0.00835 (0.0271)
Four Party Secretary	0.687*** (0.0904)
Princeling	0.0271 (0.0668)
Male	0.00815 (0.0542)
Master	-0.0339 (0.0242)
Doctor	-0.0373 (0.0287)
Constant	0.2014 (0.3835)
College Fixed Effects	Yes
Term Fixed Effects	Yes
Adjusted R-Squared	0.149
Observations	1357

Robust Standard errors in parentheses

Notes: The indicator for a bachelor's degree was removed automatically to avoid collinearity etc. * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

Table 5: Summary Statistics

	(1) College Tie		(2) No College Tie		(3) Difference
	Mean	SD	Mean	SD	Mean
Elected to					
Politburo	.0898	.2865	.0674	.2509	0.0224
College Tie	1	0	0	0	1
log(Age)	4.090	.0849	4.0612	.1229	0.0288
Prior					
Candidacies	.7061	.9296	.6745	.9090	0.0316
Provincial	.2122	.4097	.2554	.4363	-0.0432
Military	.2694	.4445	.1691	.3749	0.1003
4 Leaders	.0163	.1269	.0117	.1075	0.0046
Princeling	.0286	.1669	.0225	.1483	0.0061
Male	.9510	.2162	.9353	.2462	0.0158
Master	.3143	.4651	.2581	.4378	0.0562
Doctor	.1020	.3033	.0809	.2729	0.0211
WorkTie	.6775	.4683	.6079	.4884	0.0696
Observations	245		1112		1357

Table 6: Summary Statistics for New Variable Used in Specification 5

	Mean	SD
Work or City Tie	0.0438	0.466
Observations	1357	