

College Ties and Candidate Election Probability in China

By: Ying Xiong

1004795885

Eco 375: Applied Econometrics

University of Toronto

Department of Economics

Assignment 2

December 2021

Abstract:

Several studies have reported connection benefits on a candidate's probability of promotion as a new China's Politburo member; however, Fisman's paper conducted a within-group variation analysis and documented a negative impact from having connections with an incumbent member of Politburo. Here we evaluate his paper by replicating his results specifically on shared college backgrounds to analyze how a college tie may affect a candidate's selection likelihood. As we apply fixed college effect and fixed-term effects to absorb differences across college and terms, we find that candidates with a college tie suffer from a 9.3 percentage point reduction in their likelihood of selection. Moreover, we extend the analysis by dividing the college connection into two types with different member groups, Politburo Standing Committee and non-PSC. We conclude that the connection penalty would be the same for candidates regardless of whether they are linked to a more powerful member or not.

1. Introduction

In China, the Central Politburo is the most powerful body in the government structure, which de facto controls the force of law with its decision-making abilities. All the Politburo members are assessed thoroughly and carefully selected, while the process is veiled in secrecy. According to Shih (2016), there is a widely shared view that the Politburo itself contributes most to electing future members in practice. With such statements, one may suspect that the members' election process could be biased, which may adversely influence the justice of the government body and provide room for unethical concerns. Meanwhile, social connections play an essential role in Chinese society, including work ties, hometown ties, and college ties. For colleges, one may find a high proportion of members coming from several specific universities, suggesting the possibility of links. However, connections should not be the driving factor in selecting the top leadership. Fisman (2020)'s paper reported a negative effect on the likelihood of promotion with college ties, which is in contrast with all previous articles.

This study aims to analyze the relationship between candidate promotion and college connection with Fisman (2020) dataset. We explore the relationship with four linear probability model specifications, where each model controlled for unobserved differences in the likelihood of promotion across colleges. In the extension model, we further delve into different types of college connections and examine the connection penalty. In short, this report evaluates Fisman's paper by reproducing part of his results on the relationship between college ties and promotion probability through an in-depth analysis of controls for unobserved differences.

2. Data Description

The raw dataset from Fisman's analysis has 2338 observations, including various background information of Central Committee members since the 7th term. As candidates have specific tenure in Central Committee, the panel data is unbalanced. We take a subset sample for the analysis by identifying candidates whose undergraduate studies took place in one of the 436 universities we list and attend election after the 7th term. We also remove observations that appear only once since there would be no variation after controlling for the fixed effects. Since we seek to analyze the relationship between promotion and social connection and control for unobserved differences, we produce a statistical data summary that presents the means and differences of candidate characteristics for Central Committee members with and without Politburo college tie.

Referring to Table 1, there are 1357 observations where 18% have college ties. As shown,

candidates with college connections have a two-percentage point higher possibility of being elected to Politburo. However, the difference is statistically insignificant, suggesting the same likelihood of selection for both groups and possibly no relationship between connection and promotion. Also, the data suggests discrepancies between groups for the age variable and the military indicator. With negative differences, we found high-ranking military officials and elderly candidates tend to have a college tie. It signifies the necessity to control these variables when analyzing the relationship between promotion and college relations.

3. Regression analysis

3.1. Base Specifications

1. $Ismember_{it} = \beta_0 + \beta_1 Collegetie_{it} + \epsilon_{it}, \text{ where } 1 \leq i \leq 1283, 8 \leq t \leq 19$

In this model, we conduct a simple linear regression to capture the effect of college ties on the likelihood of promotion, which assumes observations are independent and identically distributed. ϵ_{it} is the error term and clusters at the candidate-level. If candidates are more likely to be promoted when they are from the same college as Politburo members, β_1 will have a positive estimate.

Referring to Table 2, the estimated coefficient on the lag of college tie is 0.0223. On average, holding all else constant, the possibility of promotion is 2.23 percentage points higher for those with a college connection with the Politburo member from the previous term. Candidates are about two percentage points more likely to be promoted if connected in the college aspect. When compared to a base level of around 6.7 percent for candidates without college ties, our estimate indicates a modest increase in the chance of promotion. The 95% confidence interval for the coefficient is [-0.016, 0.06], which means we are 95% confident that the actual effect of college connection on promotion probability will fall in this range. Along with the zero-included confidence interval, the estimate is statistically insignificant with an enormous p-value of 25%. Hence, we do not have evidence against the null hypothesis of no association between Politburo college ties and candidate election probability. However, as described in the summary statistics, SLR.4 may be violated as omitted variable biases exist from confounding variables like age that we needed to control to generate a better estimate. To illustrate, an elder will have a higher probability of being elected because they tend to be more experienced. Similarly, they are more likely to relate to the incumbent in the educational background due to fewer universities in the past.

2. $Ismember_{it} = \beta_0 + \beta_1 Collegetie_{it} + \beta_c X_{cit} + \epsilon_{it}, \text{ where } 1 \leq i \leq 1283, 8 \leq t \leq 19$

In this model, we carry out a multiple regression model with the inclusion of a set of individual control variables (log(Age), prior candidacies, provincial, military, four-party secretary, princeling, male, master, doctor) to partial out the effect of these variables on college tie. X_{cit} s are the control variables while β_c s are the estimated coefficients for them. We keep the assumption as the first spec and assume all the OVBs result from omission of these control variables.

The estimated coefficient on college ties in this specification falls to 0.0177, meaning candidates with college ties will have a 1.77 percentage point higher probability of being elected. The shrinkage implies that the control variables explain part of the upward effect. For instance, two statistically significant variables positively impact the election possibility: the prior candidacies (0.052) and four-party secretary (0.716). To interpret, with an additional term the candidate been Politburo-eligible, there will be a 5.2 percentage point increase in the promotion probability on average. If the candidates were the party secretary of one of the municipalities, they would benefit from a 71.6 percentage point higher likelihood on average than those who were not. In other words, candidates with longer eligibility terms and experience as municipal secretaries will have a higher chance to be elected. Nevertheless, the positive effect of college tie on promotion probability still suffers from a larger than 5% p-value, implying no evidence to reject the null hypothesis of no association between promotion and college connection.

However, we have sufficient grounds to believe the estimated college-tie coefficient still suffers from OVB. For instance, we needed to consider the loss of independence across observations as the data includes repeated observations on the same candidate. For the Politburo-eligible members we analyzed, their college differences will remain the same over time and have correlations with explanatory variables. For instance, for some prominent universities like Tsinghua, candidates who graduated there tend to have more distinguished work capabilities, contributing to higher promotion chances. Accordingly, they are more likely to be connected with incumbent Politburo members due to the same educational background. Then we may conclude candidates with college ties are more likely to be elected, creating biases. We defined undergraduate universities as the college fixed effect, which will not vary with time since it is unlikely these eligible candidates will take another undergraduate diploma. Thus, we need to control for these time-invariant college-level fixed effects.

$$3. \text{Ismember}_{it} = \beta_0 + \beta_1 \text{Collegetie}_{it} + \beta_c X_{cit} + \alpha_i + \epsilon_{it}, \text{ where } 1 \leq i \leq 1283, 8 \leq t \leq 19$$

In this model, we add a fixed effect on colleges α_i to control for specific impacts that different

universities may bring to the candidates. As described above, the college-level fixed effect is entity-specific and time-invariant, which captures heterogeneities across entities. We keep previous assumptions and assume that the remaining OVBs are due to differences across colleges.

Referring to Table 2, the estimated coefficient on college tie changes the sign to negative and has a larger absolute value with the inclusion of the fixed college effects, which is -0.063. Meanwhile, the R^2 of the model increases tremendously from 0.1% to 14.7%, indicating that most variations in the promotion probability come from differences across colleges. To interpret the estimate, holding all else constant, the promotion probability is 6.3 percentage points lower on average for candidates with college ties than those who do not. With a base level of 6.7 percent for candidates without college ties, our estimate indicates that candidates with links will be punished with almost no chance of promotion. However, the result is statistically insignificant. With a p-value of 5.6%, we do not have enough evidence against the null hypothesis that there is no association between the same probability of being elected and college tie. Hence, we conclude no differences in the likelihood of promotion between people with and without college ties.

Nevertheless, the model still suffers from OVBs with time-varying confounders that exert the same influences on each candidate. For instance, the Central Committee members may differ by each term. According to Fisman (2020), the committee's size has grown over time, suggesting a lower probability of being elected as the term passes. Meanwhile, there would be more candidates with no college ties as the size of the pool increases. As a result, we may conclude candidates without college ties bear a lower promotion probability, while the effect within each term applies the same to everyone. Thus, we need to control for these individual-invariant timed fixed effects.

$$4. \quad I_{smember}_{it} = \beta_0 + \beta_1 Collegetie_{it} + \beta_c X_{cit} + \alpha_i + \theta_t + \epsilon_{it} \\ , where 1 \leq i \leq 1283, 8 \leq t \leq 19$$

In this model, we add a time fixed effect on terms θ_t to control for specific effects that varying terms exert on candidates. The fixed-term effect is time-specific and entity-invariant, which captures heterogeneities across time. We keep previous assumptions and assume that the remaining OVB was due to differences across terms.

As exhibited in Table 2, the estimated coefficient on college ties decreases from -0.063 (spec 3) to -0.093 with the inclusion of the fixed term effect, while the model's R^2 increases by 1%. With such minor changes, we can conclude that the term fixed effect omission did not lead to a significant bias, conditioning on fixed college effect. The estimate means that when holding all

else constant, the promotion probability is 9.3 percentage points lower on average for candidates with college ties than those who do not. Compared to the base level of 11.8% for members without relations, the connection penalty is quite massive where connected candidates only have a rate of 2.5% of being elected. The result is statistically significant with a 95% confidence interval of [-0.16, -0.027] that does not include zero and a small p-value of 0.6%. We have strong evidence to reject the null hypothesis of no association. Therefore, we conclude that college ties will adversely affect the likelihood of promotion.

We also conduct an F-test on excluding all individual control variables and get an F-statistic of 12.23 with a corresponding p-value close to 0. Thus, we have evidence to reject the null hypothesis that all nine individual control variables do not jointly affect the likelihood of promotion at a 5% significance level. In other words, the model would have more explanatory power when including these control variables.

3.2. Extension

$$5. I_{member_{it}} = \beta_0 + \beta_1 Collegetie_{PSC_{it}} + \beta_2 Collegetie_{nonPSC_{it}} + \beta_c X_{cit} + \alpha_i + \theta_t + \epsilon_{it}$$

, where $1 \leq i \leq 1283, 8 \leq t \leq 19$

In this model, we further explore the relationship between college connection and the likelihood of promotion. Specifically, we divide the tie into two types as there are two groups in the Politburo, PSC (Politburo Standing Committee¹) and non-PSC. From our conjecture, non-PSC members would avoid competitions and rumors about their integrity by limiting candidates that seem connected with them. In our specification, it would be an education tie. Hence, we expect both β_1 and β_2 to be negative while the latter term would have a larger absolute value to embody its penalty. Additionally, we maintain all the assumptions as in base spec 3.

Referring to Table 3, the estimated coefficients are negative while non-PSC tie (-0.0801) shows a more significant effect than PSC tie (-0.055). We can interpret the estimates as candidates will endure an 8 percentage points lower probability in the promotion if they have college ties with non-PSC members and a 5.5 percentage points reduction if tied with PSC members, keeping all else constant. Compared to a base rate of 16.5% for candidates without any ties, a connection with the non-PSC member will reduce the probability by half, which is quite substantial. Also, candidates with relationships with PSC members only will undergo less penalty with a 3

¹ PSC (Standing Committee of the Central Political Bureau of the Communist Party of China) is the decision-making body with the highest power, consisting of the top leadership of CCP. Non-PSC members are a natural pool for the PSC positions.

percentage points higher likelihood than those connected with non-PSCs. The results match our conjecture on more severe punishments from non-PSC members.

However, the coefficient estimate for the PSC tie has a p-value of 19.4%, which is much larger than the 5% threshold. With this statistical insignificance, we fail to reject the null hypothesis that candidates received the same promotion probability with or without ties to PSC members. For non-PSC links, the estimate is statistically significant with a 2% p-value, suggesting differences exist for candidates if they have a connection with non-PSC members. We then test the null hypothesis that candidates with PSC ties receive the same level of penalty as those with non-PSC ties and produce an enormous p-value of 67%. Therefore, we do not have evidence to reject the null hypothesis. Like spec 3, we conclude that there is a negative impact on the likelihood of promotion for candidates with college ties with Politburo members. At the same time, there is no difference between whether the link is with PSC or non-PSC members.

4. Limitations

One limitation may come from the definition of college ties. This report used candidates' undergraduate institutions as the only place where connections are established. Empirically, we should also consider the master's and doctor's institutions. For instance, it is reasonable to assume that a candidate with a master's degree in Tsinghua may have a college connection with a Politburo member with undergraduate studies in Tsinghua. As long as they have a shared educational background, we should consider it a resemblance of ties. Hence, those who have attended different prestigious universities may have a higher chance of being connected to a Politburo member or have a more solid connection. Thus, they should not be treated the same as those who only have one tie. We should redefine the variable and collect more background data for further analysis.

5. Conclusion

In conclusion, we observe that eligible candidates will have a lower likelihood of being selected if they have college ties with Politburo members. The results verify Fisman's findings on the connection penalty from shared backgrounds. Specifically, candidates with college ties with either the Politburo Standing Committee or non-PSC received the same punishment for the connection. This indicates that non-PSC members will not restrain candidates with similar backgrounds from entering to avoid competitions, suggesting fairness in the election process. Therefore, we can conclude that there is no connection benefit associated with the likelihood of promotion, while candidates with ties will even be punished with a lower probability.

References:

1. Wooldridge, Jeffrey M. *Introductory Econometrics a Modern Approach*. South-Western, Cengage Learning, 2020.
2. 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.
3. Shih, Victor. 2016. "Efforts at Exterminating Factionalism under Xi Jinping: Will Xi Jinping Dominate Chinese Politics after the 19th Party Congress?" In *China's Core Executive: Leadership Styles, Structures and Processes under Xi Jinping*, edited by Sebastian Heilmann and Matthias Stepan, 18–21. Berlin: MERICS.

Table 1: Summary Statistics by Politburo College Ties

	(1)		(2)		(3)
	<u>College Tie</u>		<u>No College Tie</u>		<u>Difference</u>
	mean	sd	mean	sd	b
Elected to Politburo	0.09	0.29	0.07	0.25	-0.02
log(Age)	4.09	0.08	4.06	0.12	-0.03***
Prior Candidacies	0.71	0.93	0.67	0.91	-0.03
Provincial	0.21	0.41	0.26	0.44	0.04
Military	0.27	0.44	0.17	0.37	-0.10**
Four Party Secretary	0.02	0.13	0.01	0.11	0
Princeling	0.03	0.17	0.02	0.15	-0.01
Male	0.95	0.22	0.94	0.25	-0.02
Master	0.31	0.47	0.26	0.44	-0.06
Doctor	0.10	0.3	0.08	0.27	-0.02
Observations	245		1112		1357

Notes: *Elected to Politburo*: whether the Central Committee member was elected to the Politburo. *Prior Candidacies*: number of previous terms that the candidate has been an eligible Central Committee member; *Provincial*: whether the candidate was provincial governor at the time of election; *Military*: whether the candidate was a high ranking military officer at the time of election; *Four Party Secretary*: whether the candidate was the party secretary from Beijing, Shanghai, Tianjin or Guangdong; *Princeling*: whether the candidate's parents ever being a Politburo member; *Male*: whether the candidate's gender is male; *Master*: whether the candidate has completed master's degree at the time of election; *Doctor*: whether the candidate has completed a doctoral degree at the time of election.

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

Table 2: 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)
College Fixed Effects	No	No	Yes	Yes
Term Fixed Effects	No	No	No	Yes
R-squared	0.00111	0.147	0.314	0.327
Observations	1357	1357	1357	1357

Standard errors in parentheses

Notes: The dependent variable in all specifications is an indicator variable denoting whether the Central Committee member was elected to the Politburo. Independent variables include *CollegeTie*: whether the candidate had the same undergraduate university background with a Politburo member at the time of election; *log(Age)*; *Prior Candidacies*: number of previous terms that the candidate has been an eligible Central Committee member; *Provincial*: whether the candidate was provincial governor at the time of election; *Military*: whether the candidate was a high ranking military officer at the time of election; *Four Party Secretary*: whether the candidate was the party secretary from Beijing, Shanghai, Tianjin or Guangdong; *Princeling*: whether the candidate's parents ever being a Politburo member; *Male*: whether the candidate's gender is male; *Master*: whether the candidate has completed master's degree at the time of election; *Doctor*: whether the candidate has completed a doctoral degree at the time of election. Standard errors clustered by candidate in all regressions.

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

Table 3: Politburo College Ties (PSC & Non-PSC) and Candidate Election Probability

	(1)
CollegeTie_PSC	-0.0550 (0.0424)
CollegeTie_nonPSC	-0.0801* (0.0345)
Controls	Yes
College Fixed Effects	Yes
Term Fixed Effects	Yes
R-squared	0.326
Observations	1357

Standard errors in parentheses

Notes: The dependent variable is an indicator variable denoting whether the Central Committee member was elected to the Politburo. Independent variables include *CollegeTie_PSC*: whether the candidate had the same undergraduate university background with a Politburo Standing committee member at the time of election; *CollegeTie_nonPSC*: whether the candidate had the same undergraduate university background with a Politburo non - Standing committee member at the time of election. Individual controls include age, gender, education degree, previous eligible terms, indicator variables for military officers, party secretaries, provincial leaders, and whether parents ever being a Politburo member. Standard errors clustered by candidates in the regression.

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