A NOTE ON THE NETWORK ASSOCIATION WITH CONCRETE AND FELT SUCCESS FOR CHINESE ENTREPRENEURS

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This is a technical note on the network-success association documented in a series of reports on Chinese entrepreneurs. I take three points from the analysis: (1) In the earlier reports, indicators of business success were aggregated into a summary measure of success based on correlations among the indicators (factor analysis). When the indicators are aggregated here for their intercorrelation with each other and measures of felt success (canonical correlation analysis), the network-success association observed previously is about the same. Thus, the prior summary measure of concrete success captured respondent felt success, as intended. Nothing is gained by weighting the prior measure of success for feelings of success. (2) For these manufacturing businesses, profitability is a success dimension separate from concrete success indicators such as having many employees, having intellectual property in the form of patents, and enjoying a high level of sales. Although return on assets, like other indicators of success, has a strong negative association with network closure, return on assets is uncorrelated of the other success indicators considered here. (3) The two indicators of felt success used here are strongly correlated with each other, and similarly correlated with summary success factors, but they have inconsistent network associations with network structure. Felt success within society has the usual negative association with network closure observed here and elsewhere for measures of success, however, felt success within the entrepreneur's industry has no network association, raising questions about of the number of dimensions on which people experience the lack of success associated with network closure.

Research has cumulated over the last decade documenting the competitive advantage of network brokers in Chinese business. Batjargal offers a portfolio of studies reporting greater success for Chinese entrepreneurs who have larger networks richer in structural holes (Batjargal, 2007a, 2007b, 2010; Batjargal et al., 2013). Merluzzi (2013) reports similar results on Chinese and other Asian managers in a large software company, and Bian and Wang (2016) report cross-sector relations being helpful for raising start-up capital by self-employed respondents in an area probability survey of eight large cities in China. Concluding that returns to brokerage are exceptionally high in China, Batjargal et al. (2013: 1040) summarize as follows their analysis in China and Russia as adverse

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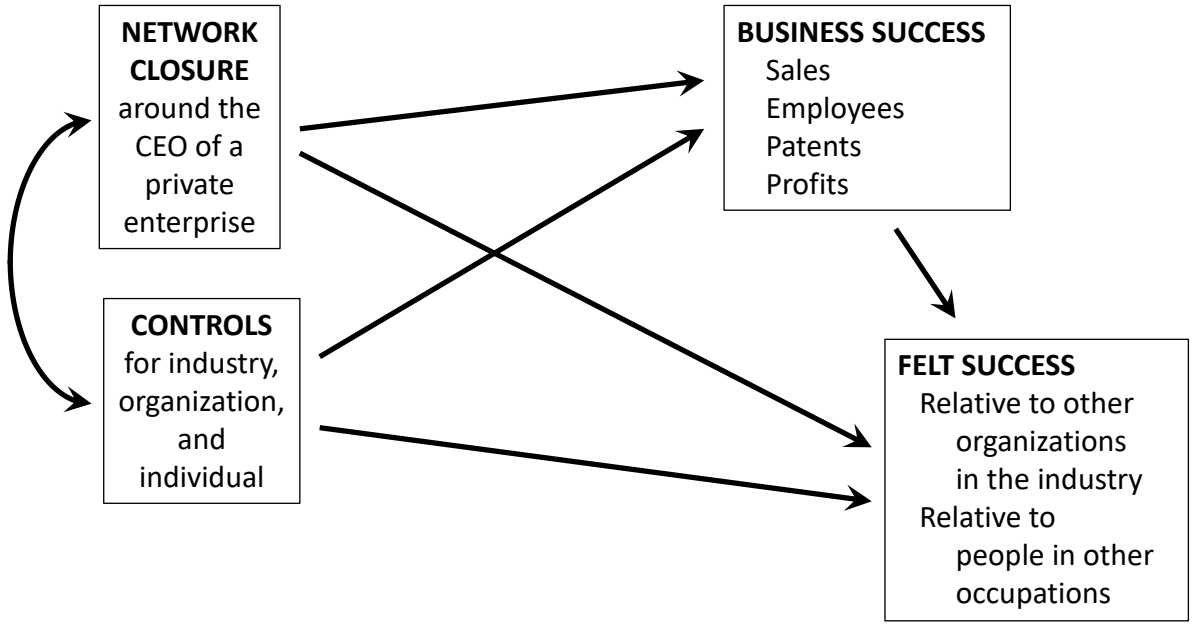


Figure 1. Elements in the Reported Network-Success Association

and uncertain environments (relative to France and the United States): "entrepreneurs benefit from their network's structural holes. However, those entrepreneurs who operate in settings where the entire institutional order is adverse and uncertain benefit more from their networks' structural holes." Together with various colleagues, I contributed to the growing body of research on network advantage in Chinese business with reports based on data from Professor Sonja Opper's 2012 area probability survey of CEOs of private enterprises in the Jiangsu, Shanghai, and Zhejiang provinces — regions that together accounted at the time of the survey for 20% of China's GDP and 32% of China's imports and exports (Burt and Burzynska, 2017; Burt and Opper, 2017; Zhao and Burt, 2018; Burt, 2019a, 2019b). Seven hundred private enterprises were drawn at random within three sampling strata: size (large, medium, and small enterprises), seven main cities, and five manufacturing industries (electronics, machinery, pharmaceuticals, textiles, and transportation equipment), then interviews were conducted with the head of each sample enterprise (Burt and Burzynska, 2017: Appendix).

DATA

This is a technical note written as a robustness check on the way business success is measured in the above-cited reports on Chinese entrepreneurs. Figure 1 shows the

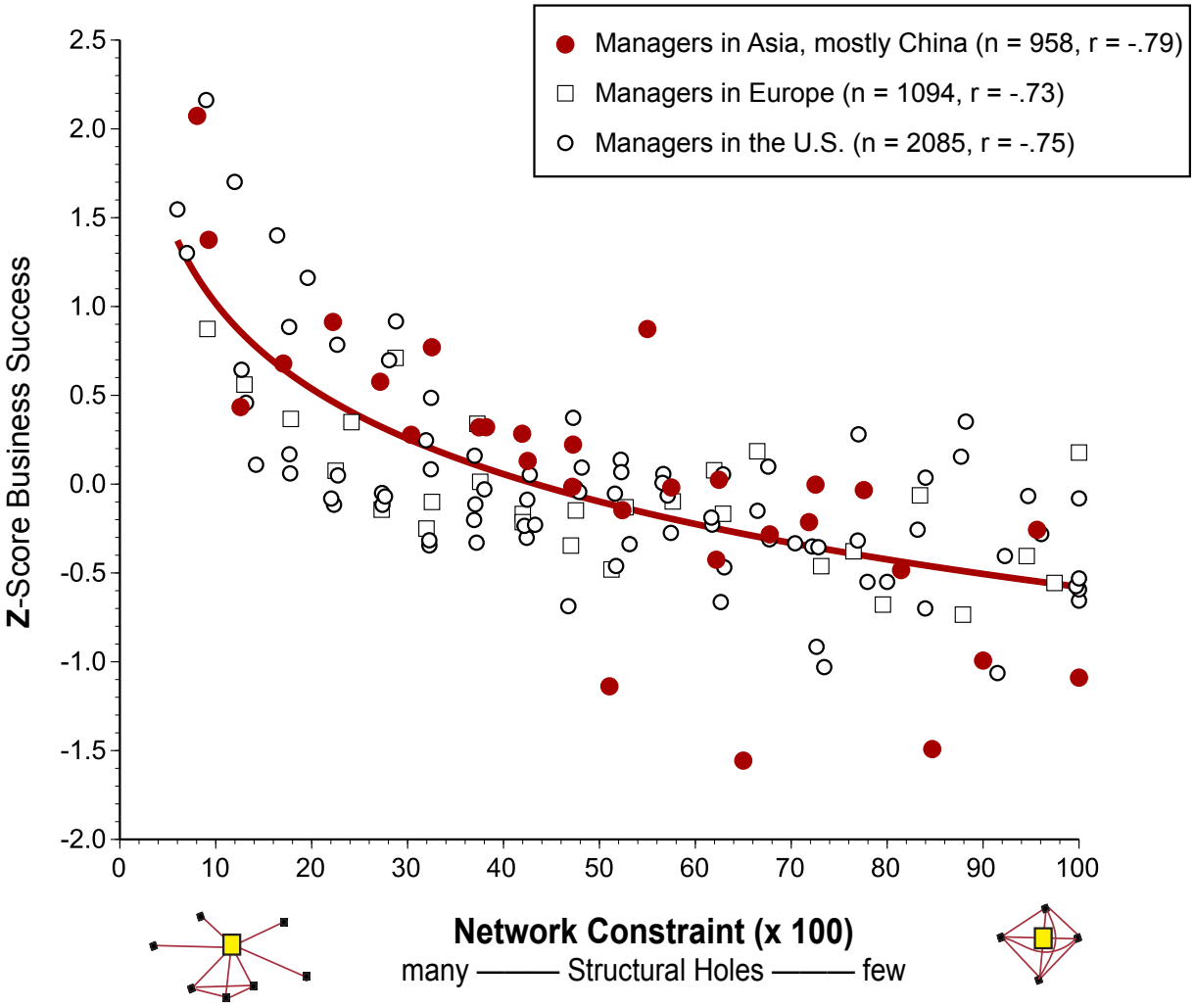


Figure 2. Network-Success Association

Data within each of 12 study populations are averaged
within five-point intervals of the network metric. Figure is from Burt (2019b).

data categories in the network-success association analyzed in the reports: network closure, business success, controls for industry, organization, and the individual respondent. Felt success is a category added here. Figure 2 displays the network-success association in the China reports, along with evidence of the association from similar reports in and outside China. The graph is taken from Burt (2019b), where the data are explained for the 12 study populations aggregated in the graph. A dot in Figure 2 indicates average scores on the horizontal and vertical axes for managers from one study population within a five-point interval on the horizontal. Of the 958 Asian managers aggregated in the graph, 700 are the Chinese CEOs of private enterprises to be analyzed here.

Network Closure

The horizontal axis in Figure 2 measures the extent to which the network of business contacts around a manager is closed. A person with less access to structural holes is assumed to have less access to the information breadth, timing, and arbitrage advantages of brokerage across structural holes, and that lack of access increases as the network around the person becomes more closed (Burt, Kilduff, and Tasselli, 2013; Burt, 2019a). Network constraint is the summary index used to measure closure (Burt, 1992), which increases from zero with the extent to which a manager has few contacts (size), those contacts are strongly connected directly to one another (density), or strongly connected indirectly through their connections to the same other person in the network (hierarchy or centralization). We multiply the fractional constraint scores by 100 to discuss points of constraint.

The network around each survey respondent is measured in the usual way by asking for the names of key contacts who were helpful in building and operating the

Table 1. Survey Network Items

Name Generator Items	Name Interpreter Items
(**Founding**) Who was the one person who was most valuable to you in founding the firm? (700 contacts cited)	Contact **Gender** (male, female)
(**Three to Five Other Events**) Now please do the same thing for each of the significant events you listed. The first significant event you listed was (say first event) in (say year). Who was the person most valuable to you during that event? (2,701 contacts cited)	**Emotional Closeness** to Contact (especially close, close, less close, distant)
(**Core Current**) Shifting now to business this year, and thinking about people inside or outside your firm, who are the three or four people who have been most valuable to your business activities this year? (2,357 contacts cited)	**Duration** of Connection with Contact (years known)
(**Difficult**) In contrast to people who help and are valued in your business activities, there are usually some people who make life difficult. Without mentioning the person's name, who was the most difficult person to deal with in your business activities this year? Just jot a name or initials in the box below. Only you are going to know who this person is. (700 contacts cited)	**Frequency** of Contact (daily, weekly, monthly, less often)
(**Employee**) Shifting to happier thoughts, who do you think was your most valuable senior employee this year? (700 contacts cited)	**Trust** in Contact (1 to 5, low to high trust) "Think about your trust level towards him/her. Please circle the closest option (1 least trust; 5 highest trust)." In Chinese: 想一想您对他/她的信任程度; 请在表意最接近的选项上画圈 (1最不信任-5最信任)
(**N.E.C.**) Now that you have a list of contacts on the roster worksheet, please look it over quickly. **Is there anyone particularly significant for your business who has not been mentioned?** If yes, please enter their name at the bottom of the list. There are many people you could mention. These would just be people particularly significant for your business. (16 contacts cited)	Contact **Role** (circle all that apply: family, extended family, neighbor, party, childhood, classmate, colleague, military, business association)
	Matrix of **Connections between Contacts** (especially close, distant, or something in between)

NOTE — Name generators, listed in order asked in interview, identify respondent contacts (number of cited contacts in parentheses). In total, 4,464 different contacts are cited. Name interpreters flesh out relationships with each cited contact, and define connections among the contacts. The name generators are asked first in the interview, followed by the name interpreters. Table is from Burt and Opper (2017:505).

business, then asking about the substance of the respondent's relations with each contact, and the strength of connections between contacts (Burt and Burzynska, 2017: Appendix). The name generator and name interpreter items are given below. Scaling the survey data for network metrics is discussed by Burt and Burzynska (2017: Appendix), and the survey instrument is available in the original English (http://faculty.chicagobooth.edu/ronald.burt/research). Varying from three to 12 contacts around a median of six, each respondent's network is a matrix of symmetric connections with and among contacts. Network constraint varies from 20 to 100 points, around a 56.61 mean and 55.20 median.

Business Success

Business success is measured on the vertical axis in Figure 2 by a z-score of residual performance: one or more indicators of success in a study population are regressed over a set of controls, leaving a studentized residual as the Figure 2 measure of a person's relative success within his or her study population. A score of zero indicates a manager whose success is what would be expected in his or her study population for someone with his or her characteristics. Positive numbers indicate managers ahead of expected, and negative numbers indicate managers below expected. Study-population controls and performance measures are given in the source data description (Burt, 2019b).

For the 700 Chinese survey respondents, business success in Figure 2 is measured as an entrepreneur experiences it in terms of sales, employees, and patents. The intuition is that a self-made man is a success to the extent that his business lets him be a big man among the people around him — making it so that (1) a lot of money passes through his hands, (2) jobs can be found for deserving friends, new contacts, or members of their families, and (3) there is some feeling of security from patent protection for the business. There is no assumption that the three variables measure the same condition, or that they capture all dimensions of success; only that they are correlated measures of what should make an entrepreneur feel like a success. In the initial report, a network measure of brokerage was used to predict each measure

separately, then jointly as a z-score factor variable (Burt and Burzynska, 2017: 229). Success was also predicted later in terms of profit return on assets — as a Western investor would want to experience it (Burt and Opper, 2017:534; Burt, 2019a:21), but the focus in the reports is on the summary measure of success in terms of sales, employees, and patents. In Figure 2, the measure of a Chinese entrepreneur's success is a factor score composite of the his or her business' current sales, employees, and patents, adjusted for key control variables (to which I return below). Positive values indicate a business more successful than expected.

Felt Success

Professor Opper included in her 2012 survey two measures of felt success adapted from the U.S. General Social Survey (see the GSS occupational prestige items, Smith, et al., 2013: 3012 ff.). Interviewers asked the Chinese respondents: "Imagine social position like a ladder on a scale from 1 to 10. Where do you think private entrepreneurs would be ranked in the thinking of people?" The respondent was then asked to indicate the social status of his or her organization within its industry: "Where would you think your firm ranks within your own industry?" I will refer to the respondent's opinion on the first question as felt success within society. I will refer to opinion on the second question as felt success within the respondent's industry.

Figure 3 shows the joint distribution of the two kinds of felt success. Means and standard deviations on the two variables are similar (7 is median on both, 6.49 versus 6.63 mean, standard deviations of 1.09 and 1.17), and there is a strong correlation between the axes in Figure 3 (.59, t = 19.26). People who feel their business is doing well within its industry believe entrepreneurs are respected in China. People who feel their business is not doing well believe entrepreneurs have low social status in China. At the same time, about two-thirds of the variance in felt success on either dimension is independent of the other (1 minus $.59^2$ is .65): There are respondents who feel that entrepreneurs on average are well respected in China, but the respondent is not a success within his or her industry. There are respondents who feel they are successful within their industry, but entrepreneurs on average are disrespected in China.

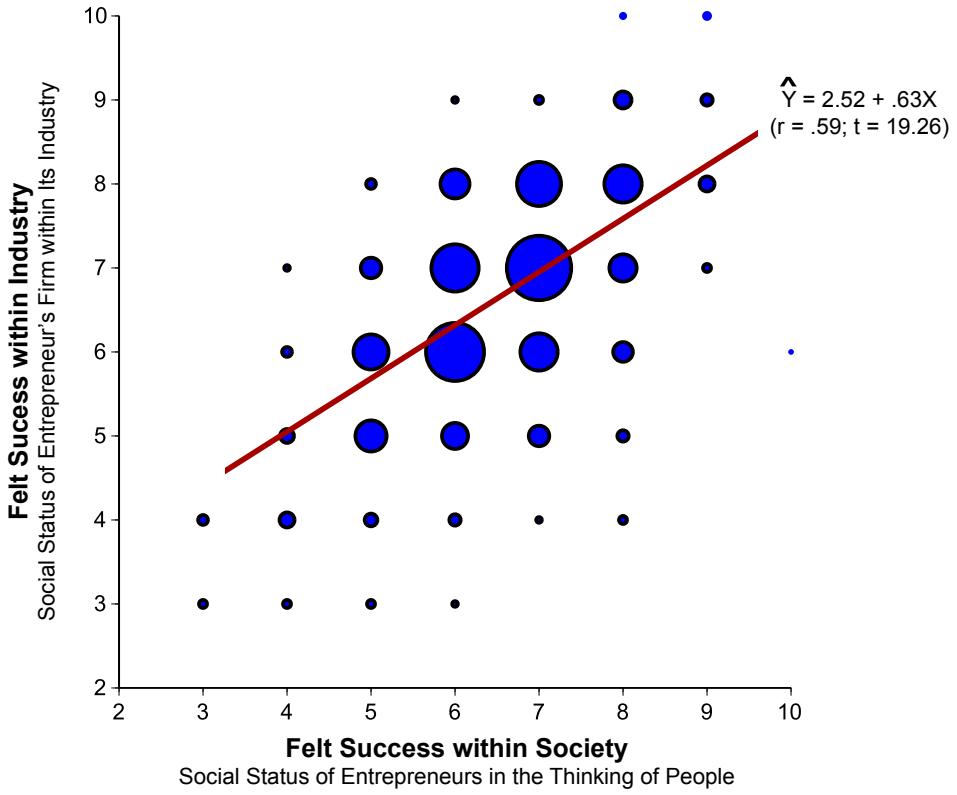


Figure 3. Felt Success

Dot size is proportional to number of respondents. X-axis: "Imagine social position like a ladder on a scale from 1 to 10. Where do you think private entrepreneurs would be ranked in the thinking of people?" Y-axis: "Where would you think your firm ranks within your own industry?"

RESULTS WITH INDICATORS OF CONCRETE SUCCESS

Table 2 shows network associations with indicators of concrete success. These results were presented in the earlier reports (adapted here from Burt and Burzynska, 2017:229, and Burt and Opper, 2017:521). Success in the columns of Table 2 is concrete in the sense that success is indicated by a condition that can be confirmed empirically: How many employees? How many patents? What is the volume of annual sales? What is the return on assets (net income divided by book value of assets)? "Concrete success factor" in the fourth column of Table 2 is the summary measure of success used in the earlier reports. The factor is the first principal component of employees, patents, and sales. Illustrated in Figure 4, the factor is a linear composite of the three concrete indicators — a linear composite that describes maximum variance in and between the three indicators.

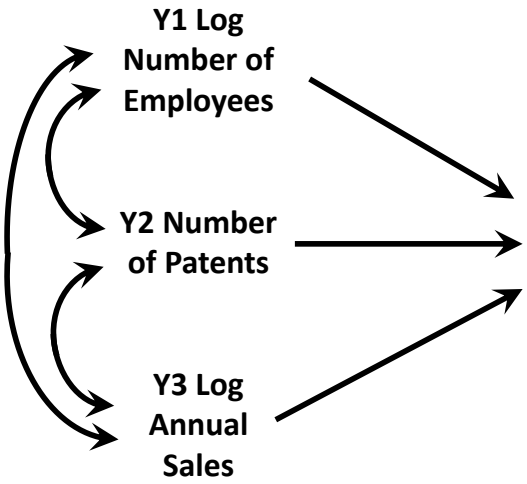
Table 2. Predicting Concrete Indicators of Success

	Y1 Log Employees	Y2 Number of Patents	Y3 Log Annual Sales	Concrete Success Factor	Return on Assets
Network Constraint (20 – 100)	-.364 (.112, -3.23)	-.988 (.183, -5.38)	-.290 (.149, -1.94)	-.413 (.114, -3.64)	-.269 (.095, -2.82)
Firm Age (years since founding, 1 - 30)	.045 (.006, 7.22)	.023 (.009, 2.63)	.048 (.008, 5.79)	.044 (.006, 7.09)	-.018 (.005, -3.45)
Business Has R&D Department (0 – 1)	.529 (.057, 9.13)	1.641 (.126, 13.06)	.691 (.077, 9.01)	.703 (.058, 12.04)	.216 (.051, 4.26)
Respondent Is Founder (0 – 1)	-.360 (.072, -5.00)	-.197 (.102, -1.93)	-.432 (.095, -4.54)	-.364 (.072, -5.03)	-.240 (.061, -3.92)
Baseline for Success (see note)	.429 (.029, 15.00)	.117 (.022, 5.23)	.489 (.038, 12.92)	.434 (.029, 15.07)	-.177 (.022, -8.12)
Electronics Business (0 – 1)	-.316 (.094, -3.35)	.498 (.156, 3.19)	-.137 (.125, -1.09)	-.141 (.095, -1.49)	.021 (.079, 0.26)
Machinery Business (0 – 1)	-.256 (.080, -3.19)	.719 (.139, 5.17)	.090 (.106, 0.85)	.007 (.081, 0.09)	-.022 (.068, -.32)
Medicine Manufacturing (0 – 1)	-.214 (.103, -2.08)	-.231 (.205, -1.13)	.174 (.137, 1.27)	-.077 (.104, -0.74)	.168 (.087, 1.92)
Transport Business (0 – 1)	-.218 (.081, -2.70)	.256 (.150, 1.71)	-.109 (.107, -1.02)	-.121 (.091, -1.48)	-.029 (.068, -.43)
Intercept	5.469	1.977	7.546	1.123	.963
R^2 (pseudo for patents)	.412	.185	.357	.447	.138

NOTE — OLS regressions predicting column variable from the row variables for 700 Chinese entrepreneurs. Employees, sales, and return on assets are measured as logs. Number of patents varies from zero to 5 or more, and is predicted by a Poisson model. Concrete success factor is the first principal component combining Y1, Y2, and Y3 (see Figure 4). Return on assets is net business income last year divided by book value of assets. Network constraint is measured as the log of 100 times constraint (horizontal axes in Figure 2). Firm age is 2012 minus the year in which the business was founded. Baseline for success is the success factor computed from employees and sales at the end of the first year after founding (log last-year assets when predicting return on assets). Textiles is the reference category for industry differences. Unstandardized coefficients are presented with standard error and test statistic in parentheses.

Table 2 displays three features from the earlier reports. First, the disadvantage of a closed network is evident across all of the success indicators. Coefficients in the first row of the table are all negative, least for sales, most for patents. The network-success association is that business success decreases systematically with the extent to which the network around the head of the enterprise is closed.

Second, the control variables are important. Industry differences are strong with respect to patents and the number of people employed, but usually in opposite directions, so industry differences are negligible for the summary measure of success (1.21 $F_{(4,690)}$, P ~ .30) and profits (1.50 $F_{(4,690)}$, P ~ .20). Businesses longer in operation tend to be more successful (second row of table), and businesses that include a research and development department are more successful (third row), but businesses still led by one of the business founders tend to be less successful (fourth row). Controlling for base-



Y1	Y2	Y3	Concrete Success Factor	Log ROA	
4.334	.733	6.948	0.000	-1.613	Mean
0.962	1.438	1.128	1.000	0.671	S.D.
1.00	.252	.771	.895	-.026	Y1
	1.00	.321	.550	.030	Y2
		1.00	.917	.069	Y3
			1.00	.029	Factor
				1.00	Log ROA

First principal component describes 65% of indicator variance.

Factor = -4.909 + .479 Y1 + .197 Y2 + .387 Y3

Figure 4. Factor Measuring Concrete Success

line success was neglected in Burt and Burzynska's (2017) analysis, but added in Burt and Opper (2017) and the later reports. The fifth row of Table 2 shows that baseline success is an important control. A business is founded when it is formally registered as a private enterprise. However, many of the sample businesses had been in operation before they were registered. Some operated under a different legal form. Others started operations, and even signed their first contract, without formal registration. In its first year as a registered private enterprise, the median business had 20 full-time employees and sales of 1,500,000 yuan (about 180 thousand U.S. dollars at the turn of the century). Without the control for success at founding, Burt and Burzynska (2017:229) report a -.440 regression coefficient for log network constraint with a .131 standard error. Table 2 shows that holding constant success at founding weakens the coefficient slightly, but shrinks the standard error more, resulting in a stronger test statistic for the network association with success (-3.64 here and in Burt and Opper, versus -3.36 in Burt and Burzynska).

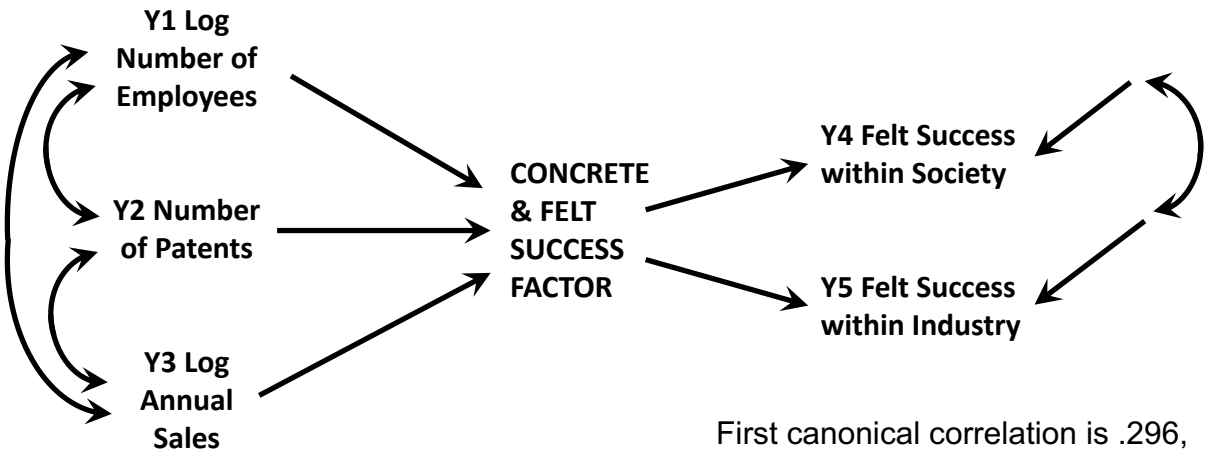
Third, profitability is its own dimension of success. Profit is measured in Table 2 by the return on assets (last year's net income divided by book value of assets).

Consistent with the other success indicators, profit is lower for businesses led by a CEO in a closed network (-2.82 t-test in first row of the table), but as income is invested back into the growing business, profit is lower for the now-larger businesses that have been in operation for many years (-3.45 t-test in second row versus positive test statistics in the row for other success measures), and lower for businesses that use more capital (-8.12 t-test in fifth row). Most important, the correlations with profit in Figure 4 show that return on assets is uncorrelated with the other indicators of concrete success. I re-computed the principal component factor in Figure 4 adding return on assets as a fourth indicator (results not presented). The resulting first principal component is correlated .9995 with the principal component, "Concrete Success Factor," in Figure 3 and column four in Table 2. The summary measure of concrete success is the same with or without profits included in the computation. If profits are included, the principal component analysis gives profits little attention on the dominant summary factor because profits are so little correlated with the other indicators. The result of adding profits to the computation is a low factor loading for profits on the first principal component (.059), and the emergence of a second principal component defined primarily by return on assets (.992 factor loading for profit).

RESULTS WITH INDICATORS OF CONCRETE AND FELT SUCCESS

Figure 5 shows an alternative summary measure of success that takes into account a respondent's felt success. The "Concrete & Felt Success Factor" is the linear composite of the three concrete success indicators that maximizes the factor correlation with the two indicators of felt success. The model was inspired by the "index of job desirability" proposed by Jencks, Perman, and Rainwater (1988:1330): people are asked rate how "good" their job is compared with others, then characteristics of their job are correlated with their ratings to construct a measure of the extent to which specific jobs on average are desirable. To create an analogous measure for the Chinese respondents, I use measures of felt success to weight characteristics of an entrepreneur's business into a summary measure of concrete and felt success. Hauser and Goldberger (1971)

Figure 5. Factor Measuring Concrete and Felt Success



First canonical correlation is .296,
which is 91% of the criterion variance.

Factor = -5.169 + .290 Y1 + .168 Y2 + .545 Y3

Table 3. Means, Standard Deviations, and Correlations with Felt Success

	Y4	Y5	Concrete & Felt Success
Mean	6.493	6.633	0.000
S.D.	1.089	1.172	1.000
Y1 Log Number of Employees	.232	.225	.852
Y2 Number of Patents	.098	.163	.526
Y3 Log Annual Sales	.229	.270	.957
Concrete Success Factor	.243	.277	.992
Log ROA	-.022	-.048	.046
Y4 Felt Success within Society	1.000	.589	.241
Y5 Felt Success within Industry		1.000	.281
Concrete & Felt Success Factor			1.000

NOTE — These statistics continue the table of means, standard deviations, and correlations in Figure 4. Y4 and Y5 are responses to the questions in Figure 3 that define the horizontal and vertical axes respectively. "Concrete & Felt Success Factor" is the canonical correlation factor in Figure 5.

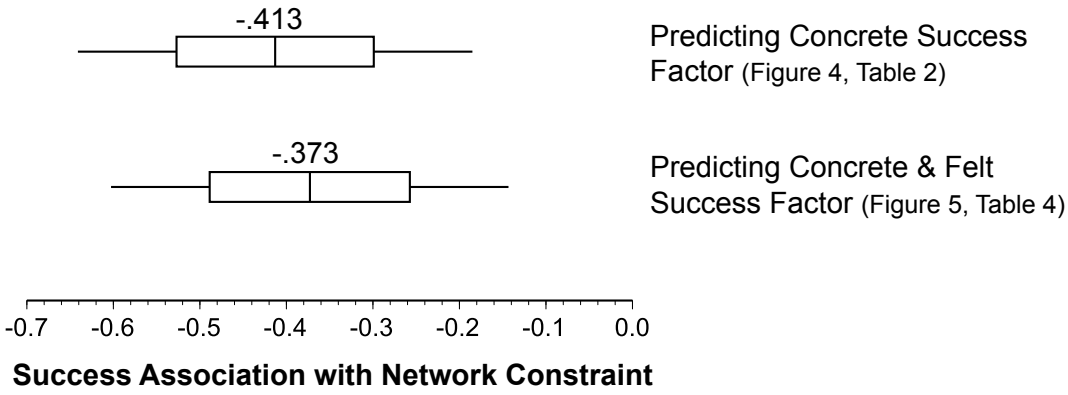


Figure 6. Network Association with Concrete and Felt Success

Box encloses estimate plus and minus one standard error.
Whisker extends to plus/minus two standard errors.

discussed details of the covariance model in Figure 5, but scores on the summary factor can be computed from a routine canonical correlation model, which is what I do here (see any good statistics text that covers canonical correlation). Two summary factors are possible since there are three predictors and two outcome variables defining the unobserved "Concrete & Felt Success Factor" in Figure 5. The first factor dominates the association, so I ignore the second factor (first canonical correlation is .296 versus .096 for the second).

Table 4 extends the prediction of concrete success in Table 2 to the measures of felt success in Figure 5. Two points are illustrated. First, the network association with the summary success factors in Tables 2 and 4 are almost identical (.992 correlation in Table 3 between the two success factors). Both success variables are standardized to zero mean and unit variance, so the regression coefficients predicting them are in comparable metrics. Figure 6 shows the two coefficient estimates surrounded by a box equal to plus/minus a standard error, with whiskers extending plus/minus two standard errors, which is a little wider than a 95% confidence interval. Both coefficients are significantly negative (-.413 and -.373), consistent with success being lower and less likely as the network around the person leading a business becomes more closed. The standard errors are almost identical (.114 and .115). In short, adding the two indicators of felt success has no effect on the network association with success.

Table 4. Predicting Indicators of Felt Success

	Y4 Felt Success within Society	Y5 Felt Success within Industry	Concrete & Felt Success Factor
Network Constraint (20 – 100)	-.462 (.163, -2.83)	.224 (.174, 1.28)	-.373 (.115, -3.22)
Firm Age (years since founding, 1 - 30)	.029 (.009, 3.23)	.035 (.010, 3.59)	.043 (.006, 6.73)
Business Has R&D Department (0 – 1)	.120 (.084, 1.44)	.282 (.090, 3.15)	.686 (.059, 11.56)
Respondent Is Founder (0 – 1)	.005 (.104, 0.04)	-.025 (.111, -.23)	-.361 (.074, -4.90)
Concrete Success at Founding	.097 (.041, 2.36)	.112 (.044, 2.52)	.425 (.029, 14.51)
Electronics Business (0 – 1)	.038 (.136, 0.28)	-.088 (.146, -.60)	-.112 (.096, -1.16)
Machinery Business (0 – 1)	-.006 (.116, -.05)	-.063 (.124, -.50)	.056 (.082, 0.68)
Medicine Manufacturing (0 – 1)	.052 (.149, 0.35)	.035 (.160, 0.22)	-.003 (.106, -0.03)
Transport Business (0 – 1)	-.067 (.116, -.57)	.114 (.125, 0.91)	-.100 (.082, -1.21)
Intercept	7.939	5.200	.953
R^2	.041	.051	.429

NOTE — OLS regressions predicting column variable from the row variables for 700 Chinese entrepreneurs. The two measures of felt success are given in Figure 2. "Concrete & Felt Success Factor" is the first canonical correlation variate combining employees, sales, and patents as they are associated with the two measures of felt success (see Figure 5). Network constraint is measured as the log of 100 times constraint (horizontal axes in Figure 2). Firm age is 2012 minus the year in which the business was founded. "Concrete Success at Founding" is the business success factor in Table 2 and Figure 4 computed from employees and sales at the end of the first year after founding. Textiles is the reference category for industry differences. Unstandardized coefficients are presented with standard error and test statistic in parentheses.

If anything, adding the indicators of felt success weakens the network association. The two felt success indicators are strongly correlated with each other (Figure 3, and .589 correlation in Table 3), have similar correlations with the concrete success factor in Figure 4 (.243 and .277 in Table 3), and have similar correlations with the Concrete & Felt Success Factor in Figure 5 (.241 and .281 in Table 3). However, the first row of regression results in Table 5 shows that they have very different associations with network structure — which is the second point illustrated in Table 4. Felt success in terms of society's respect for business entrepreneurs covaries with network constraint just like concrete success: The more closed the network around the CEO of a business, the lower his or her felt social standing in Chinese society (-2.83 t-test in Table 4). In contrast, the CEO's felt success within his or her industry has no association with the CEO's network (1.28 t-test).

I don't make too much of the inconsistency between the indicators of felt success because the two indicators are poorly predicted by the network and control variables that predict concrete success (compare the R^2 values for Y4 and Y5 in Table 5 with the higher values in Table 2).

Nevertheless, I looked more closely at the data hoping to find clues to explain the inconsistency. Data plots reveal no outliers or odd pattern to the association between felt success and network closure. There is a cloud of data around a negative association for felt success in society, and a cloud of data around a relatively flat non-association for felt success in the industry. The same is true for raw responses adjusted for the control variables in Table 4. Summary data illustrate these points in Figure 7. The data are mean values on the vertical and horizontal axes in each graph, averaged within 10-point intervals on the horizontal axis. Solid dots are mean raw responses on the two indicators of felt success (scores are displayed in Figure 3). Hollow dots are means for responses adjusted for the predictors in Table 4, excluding network constraint. There is little difference between the raw and adjusted responses, felt success within society decreases with increasing closure (-2.83 in Table 4), and felt success within the industry is relatively unchanging across levels of closure (1.28 t-test in Table 4).

I also looked at four individual differences that could be related to felt success. The first is gender. Popular opinion in China privileges men over women in business, and the opinions are reflected in the selection of business contacts by the people studied here (Burt, 2019b; 115 of the 700 sample entrepreneurs are women, 16%). Running a private enterprise could make a woman feel that she has risen above society's opinion of her role, or constant exposure to society's norms in business dealings could remind her that she has not. Age is another potentially relevant difference between people. Dramatic changes have occurred in China's recent history such that a given level of concrete success could make older respondents might feel more successful — relative to their aspirations back in the day — than would younger respondents — relative to their higher aspirations in contemporary society (respondent age varies from 24 to 74 years old, around a mean of 45.68). Family is a third and

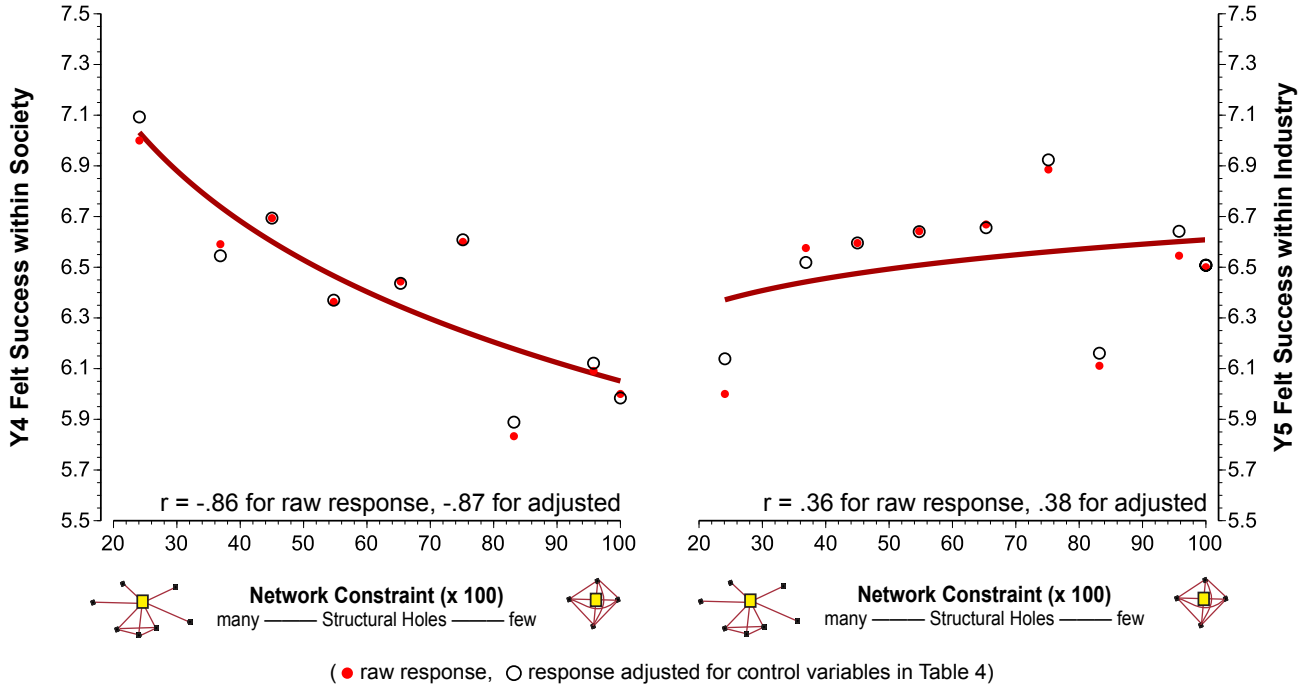


Figure 7. Felt Success with Increasing Network Closure

Mean values are plotted within 10-point intervals of network constraint. Solid dots are mean raw responses on the two indicators of felt success (Figure 3). Open dots are responses adjusted for the predictors in Table 4, except network constraint (adjusted score is given mean and standard deviation of raw responses to make the raw and adjusted responses comparable). Correlations in graph are computed from displayed scores

fourth consideration. A substantial minority of the sample businesses are family firms using the common definition of owner-operated firms in which the respondent's spouse or children are employees (e.g., Miller et al., 2007). By this criterion, 254 of the 700 businesses are family firms (36%). Even if a business is not a family firm in a conventional sense, the head of the business could be so embedded in his or her family that a felt sense of success depends on sentiments within the family. Therefore, I also looked at the proportion of a respondent's business contacts who are family (varies from zero to 80%, around a mean of 9.16%).

The four variables add nothing to the predictions in Table 4: 1.57 $F_{(4,686)}$ in predicting felt success in society, P ~ .18; 1.59 $F_{(4,686)}$ in predicting felt success within industry, P ~ .17; and 0.72 $F_{(4,686)}$ in predicting the Concrete & Felt Success Factor, P ~ .58). These results are consistent with the prior reports showing that gender, age, and family all matter in one way or another for trust and success in China, but are

independent of the negative association between success and network closure (Burt and Burzynska, 2017; Burt, Bian, and Opper, 2018; Burt, 2019a). A summary test comparable to the ones just cited is to add the four variables to the prediction of the summary Concrete Success Factor in column four of Table 2: $F_{(4,686)} = 0.82$, which gives a .51 probability to the null hypothesis of no contribution from the four additional predictors.

I am left with no explanation for the inconsistent results on felt success in Table 4 and Figure 7 — other than to say that the inconsistency is not due to something odd in the distribution of felt success across network closure, or to a respondent's gender, age, or family presence in the business. Felt success within society is associated with network closure as measures of success usually are, but felt success within the respondent's industry remains to be understood.

CONCLUSION

I take three points from the analysis: (1) In earlier reports on the data analyzed here, indicators of concrete success were aggregated into a summary measure of success based on correlations among the indicators (factor analysis). When the indicators are aggregated here for their intercorrelation with each other and measures of felt success (canonical correlation analysis), the network-success association observed previously is about the same (row one results in Tables 2 and 4). Thus, the prior summary measure of concrete success captured respondent felt success, as intended. Nothing is gained by weighting the prior summary measure of concrete success for feelings of success.

(2) For these entrepreneurial businesses in manufacturing, profitability is a success dimension separate from concrete success indicators such as having many employees, having intellectual property in the form of patents, and enjoying a high level of sales. Although return on assets — like other indicators of success — has a strong negative association with network constraint, return on assets is uncorrelated of the other success indicators considered here (table in Figure 4, and Table 3).

(3) The two indicators of felt success used here are strongly correlated with each other, and similarly correlated with summary success factors (Table 3), but they have

inconsistent associations with network structure (Figure 7 and first row of Table 4). Felt success within society has the usual negative association with network closure observed here and elsewhere for measures of success, however, felt success within the entrepreneur's own industry has no association, raising questions about of the number of dimensions on which people experience the lack of success associated with network closure.

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