Brokerage Contingencies: Why Advantage Sometimes Isn’t

Appendices:
I. Strategic Leadership Exercise on Deploying Brokerage (pages 37-38)
II. Sources of Variation in 360 Evaluations (pages 39-40)
III. Research Design for Spillover versus Contagion (pages 41-42, from 2012, “Network-Related Personality and the Agency Question”)
IV. Personality & Network Advantage (pages 43-47, from 2012, “Network-Related Personality and the Agency Question”)
V. Other Contingencies (pages 48-52)
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For text on this session, see Chapters 1 and 2 in Brokerage and Closure (including adjunct bits from Neighbor Networks).
Substantial Differences in Individual Returns to Brokerage

Graph A below is from *Brokerage & Closure* and the previous handout showing achievement increasing with more access to structural holes. Circles are z-score residual achievement for 1,986 observations averaged within five-point intervals of network constraint in each of six management populations (analysts, bankers, and managers in Asia, Europe, and North America, see discussion of Figure 2.3 in Chapter 2; heteroscedasticity is negligible, $X^2 = 2.97, 1$ d.f., $P \sim .08$). Bold line is the vertical axis predicted by network constraint.

Graph B to the right shows the raw data that were averaged to create Graph A. Vertical axis is wider to accommodate more variable achievement. Heteroscedasticity is high due to achievement differences between advantaged individuals ($X^2 = 269.5, 1$ d.f., $P < .001$), but the association between achievement and network advantage remains statistically significant when adjusted for heteroscedasticity (Huber-White, $t = -8.49$).

A. Achievement Scores for People in Open Networks Are Higher than Peers on Average ($r = -.58, t = -6.78, n = 85$)

B. But Vary Widely between the Advantaged Individuals (overall $r = -.24$, $t = -9.98, n = 1,989$)

Figure adapted from Figure 1 in Burt (2012, "Network Related Personality," *American Journal of Sociology*).
Now the Social Network

Lines indicate frequent and substantive work discussion; heavy lines especially close relationships.

For Example, Are You the Right Age?

These are averages across 2,206 senior managers in six organizations in electronics, finance, software, and supply chain. The data are described and analyzed in Burt (2018, "Life course and network advantage," in Together Through Time, especially Table 1).

The top graph (from Figure 2 in the chapter) shows the age at which people have the most access to structural holes (more open networks at the top).

The bottom graph shows the age at which people have the greatest returns to brokerage. Vertical axis is test statistic describing the strength of association between a manager's relative achievement and his or her network constraint (calculate for each age group the returns to brokerage graph, re-displayed below).
Age is Not a General Caution; More a Function of Company Culture: "Peak" Periods in Manager Life-Cycle

Figure 3 in Burt (2018, "Life course and network advantage")

Manager Age (returns increase with age)
Manager Age (returns decrease with age)
Manager Age (returns increase & decrease)
Audience Effect, I: Broker's Job Status Reassures, or Lack of It Concerns, the Target Audience

Which means the network around a senior person is especially important for his or her achievement.

<table>
<thead>
<tr>
<th>Salary</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Manager 1</td>
<td>-31,099** (2,882)</td>
</tr>
<tr>
<td>Manager 2</td>
<td>-16,652** (2,745)</td>
</tr>
<tr>
<td>Manager 3 (reference)</td>
<td></td>
</tr>
<tr>
<td>Sr. manager</td>
<td>19,638** (3,782)</td>
</tr>
<tr>
<td>Executive</td>
<td>65,394** (4,522)</td>
</tr>
<tr>
<td>Purchasing</td>
<td>754 (1,351)</td>
</tr>
<tr>
<td>Age</td>
<td>338** (52)</td>
</tr>
<tr>
<td>Bachelor</td>
<td>1,610 (1,003)</td>
</tr>
<tr>
<td>Graduate</td>
<td>734 (864)</td>
</tr>
<tr>
<td>Hightech</td>
<td>3,516** (880)</td>
</tr>
<tr>
<td>Lowtech</td>
<td>-6,927** (1,481)</td>
</tr>
<tr>
<td>Urban 1</td>
<td>3,613** (1,046)</td>
</tr>
<tr>
<td>Urban 2</td>
<td>5,049** (1,010)</td>
</tr>
<tr>
<td>Network constraint</td>
<td>-7 (25)</td>
</tr>
<tr>
<td>Mgr2 × constraint</td>
<td>-19 (35)</td>
</tr>
<tr>
<td>Mgr3 × constraint</td>
<td>-47 (38)</td>
</tr>
<tr>
<td>SrMgr × constraint</td>
<td>-214* (75)</td>
</tr>
<tr>
<td>Executive × constraint</td>
<td>-681** (124)</td>
</tr>
<tr>
<td>N</td>
<td>673</td>
</tr>
</tbody>
</table>

Graphs for executives, managers, and junior managers to the right show z-score compensation relative to peers (controlling for background differences) across levels of network constraint. **Not only do more senior people have more open networks (on average), they earn higher returns to having open networks (also pay more if they don’t have an open network).**

Table to the left is from page 371 of Burt, "Structural holes and good ideas" (2004, American Journal of Sociology).

See pp. 156-162 and Figure 3.8 in Brokerage and Closure for general discussion showing the form of contingency functions.
Audience Effect, II: Broker's Network Status Reassures or Concerns the Target Audience

Network status is on the vertical axis of the top graph. Status is defined in the same way that price is defined in the general equilibrium model: $S_i = \sum_j z_{ji} S_j$, where $S_i$ is status of person $i$, and $z_{ji}$ is connection from $j$ to $i$. Like price, status is only meaningful in reference to the status of some numeraire benchmark person. Here, status is normalized at the mean, so a score of 1.0 indicates a person of average status in the network.

$S_i = \sum_j z_{ji} S_j$

Sociogram is Figure 3.2 in Neighbor Networks and the graphs are from Figures 1 and 2 in Burt & Merluzzi discussion of the link between brokerage and network status as a reputation measures (2013, "Embedded brokerage," Research in the Sociology of Organizations)
Brokerage-Achievement Association, Contingent on Network Status in Second Life

Achievement is the canonical correlation dependent variable in Model 15, Table S5. “High” status is above median. Scores on the y-axis are average achievement scores for avatars within integer intervals of nonredundant contacts (left) or five-point intervals of network constraint (right). Statistics are based on averages plotted in the graph. See Table S8 for regression results with controls showing higher returns to brokerage for individual avatars with high status.

Audience Effect, III: Reputation Can Substitute for Status, making reputation valuable as the key to being accepted as a broker.

Graph plots investment banker reputation by levels of network status. Reputation is measured by average colleague evaluation. Boxes span 25% to 75% with bold horizontal at the mean. Whiskers extend down to minimum reputation, up to maximum.

High Status Is a Good Signal of Positive Reputation.

Low Status Is an Ambiguous Signal

GENERIC DEFINITION: "Differences in detail aside, most social scientists agree upon two aspects of reputation: first, knowing a business partner's past behavior mitigates uncertainty about his future performance; second, reputation demonstrates the person's credibility as an honest business partner and reduces the uncertainty associated with trusting him." (Hillmann and Aven, 2011, AJS, page 485)
Audience Effect, III: continued

Graph plots relative banker compensation across levels of constraint in the banker’s discussion network. Compensation is averaged within intervals of network constraint, but the test statistic is for all 469 observations, holding constant job rank, peer evaluation, years with the organization, minority, and working in US headquarters (Burt, 2010:91-93).

There are two predictions: one for bankers with above-average reputations (solid squares), the other for bankers with below-average reputations (hollow squares). Network status is added to each prediction as a control for a banker’s social standing across all senior people in the bank.

As Rider (2009:578-579) explains for placement agents: “a broker’s reputation for consistently representing actors of high quality is a valuable, intangible asset that enables a broker to realize future rents on the brokerage position. . . If a positive reputation reduces the costs of assuaging potential exchange partners’ concerns, then the returns to brokerage should be positively related to a broker’s reputation.” Similarly, Nee and Opper (2012: 211) describe Chinese entrepreneurs building reputation in the course of brokering connections: “Through personal introductions and fine-grained information passed through social networks, the ‘broker’ typically signals trustworthiness and reputation of the prospective business partners. Moreover, it is in the broker’s interest to make good recommendations, as most business partners will tend to reward their networking contacts in one way or another. Such introductions can span the social gaps, or ‘structural holes’ between groups.

Figure 3.3 in Burt (2018, *Structural Holes in Virtual Worlds*). The boutique investment bank, Moelis — “Best Global Independent Investment Bank” in 2010 and “Most Innovative Boutique of the Year” in 2011 — nicely illustrates the competitive advantage of reputation as an entree to brokerage opportunities (download free Moelis case from www.sbs.oxford.edu/reputation/cases).
Most important, reputation enables a wider population of people to be brokers.

Relative to job rank and network status, reputation opens organizations and markets to the largest number of people with good ideas.

Horizontal axis ranks banker observations from highest status (hollow dots) or most-positive reputation (solid dots) to the opposite extreme. Vertical axis is the correlation between compensation and log network constraint for a sample of observations adjacent to each banker (24 of higher social standing plus 24 of lower). Displayed data are smoothed by averaging across 24 adjacent observations.
Rule 3, a Little More Concrete

Network brokerage involves moving sticky information from a source to a destination. You as a T-shaped manager are anchored in one group (home base) and connected into other groups (satellites), which defines four kinds of moves:

A - This is sharing information with colleagues who should already have most of the information. Creativity/Innovation/Advantage can be low, but you get nice-guy points for helping to lower inefficiency.

B - This is what most of us do for a living: share information from our area of expertise with people in a target (client) group. The question: Do you, or your homebase institution, have sufficient social standing to be a credible source of information in the target group? Often, social standing in the target group is higher than in the home base.

C - This is the basic arbitrage move: deliver information to homebase colleagues that we learn from time spent with an outside group. Think behavioral economics. The question: Do you, or the satellite source, have sufficient social standing in your homebase to be a credible source of information?

D - In contrast to B, which would be apt description of a lawyer or doctor providing expert knowledge to a client, D involves learning from one outside group and selling what you learned to another outside group. Think management consulting.

Within each cell of the table, a network broker can move information in three ways to his or her benefit (making the broker the “tertius gaudens,” the third who benefits) — each requires a kind of social standing sufficient to play the intended broker role:

- Eliminate the hole: introduce source and destination to one another (marriage broker, favor to a friend).
- Arbitrage the hole: translate source information into destination information without either having to see one another (this is the usual move because target groups don’t want to bother translating for themselves; e.g., Kellogg, “Brokerage profession and implementing reform in an age of experts” 2014 American Sociological Review).
ACTION IMPLICATION 1: Returns to network brokerage are a probability, not a certainty. Access to structural holes merely "increases the risk of productive accident."

Patent co-authoring network from Lee Fleming & Matt Marx, "Managing creativity in small worlds" (California Management Review, 2006; see Fleming et al. 2007 ASQ). 418 3-digit primary tech categories for filing patents (> 120,000 subcategories).

Robert Stewart, by facilitating the flow of information among three locally cohesive but insular clusters, turned Digital Equipment Corporation into a small world (though a small world that remained relatively unconnected to other firms). In contrast to Robert Stewart's bridging connection, the box illustrates highly clustered inventors.

Sometimes the Risk of Productive Accident is Low Because of Your Perspective

Modularity increases the risk of productive accident. This is the logic behind short courses (encourage breadth by lower cost to exploration).

Netscape’s Navigator was released under open-source license in March 1998 as Mozilla. It was re-designed for modularity to make it more attractive to contributors. Networks below show module dependencies before and after the re-design. "Propagation cost" is the average percentage of code that must be updated following a change in any one module.

**Mozilla version 1998-04-08**
propagation cost:* 17.35%

**Mozilla version 1998-12-11**
propagation cost: 2.78%

A Preliminary Is to Ask Whether the Situation Would Look Different from Another Perspective: Information arbitrage is about framing as much as content.

Problem vs. Paradox. What point of view, or frame of reference, will make the idea attractive to the target audience? The key is not to get "out of the box," so much as to see from within a different box. Failure here could be a good idea over there.*

Carl Segerstrom, in Chicago’s 2012 ADP, worked at Pfizer when the Viagra trials were run. Carl sketched the story: Trials showed that the new drug was a failure as a heart medicine, so the trials were shut down and the test samples were recalled. Subjects were asked to return the test samples, and they usually do, but in this case, an unusually high proportion of subjects did not return the test samples. Someone asked, “let’s find out why they aren’t returning the test samples,” which revealed the profitable side-effect.

*The "problem vs. paradox" point is nicely elaborated by David Doltish, Peter Cairo, and Cade Cowan in The Unfinished Leader (2014). The "out of the box" point is nicely elaborated by Luc de Brabandere (2005), The Forgotten Half of Change: Achieving Greater Creativity through Changes in Perception. See IDEO on the saying "fail often to succeed sooner," Stuart Firestein (2016) Failure, on the critical role failure plays in successful science, and Ludwik Fleck (1979) Genesis and Development of a Scientific Fact, on the critical role that proto-ideas play in successful science.

Originally, minoxidil was used exclusively as an oral drug (with the trade name ‘Loniten’) to treat high blood pressure. However, it was discovered to have an interesting side effect: hair growth. Minoxidil may cause increased growth or darkening of fine body hairs, or in some cases, significant hair growth. When the medication is discontinued, the hair loss will return to normal rate within 30 to 60 days.
Framing for Target Audience

Meaning derives in some part from the context in which an object, idea, or person is viewed.

At the height of his wealth and success, the financier Baron de Rothschild was petitioned for a loan by an acquaintance. Reputedly, the great man replied, “I won’t give you the loan myself, but I will walk arm-in-arm with you across the floor of the Stock Exchange, and you soon shall have willing lenders to spare.” [from un-attributed material in Cialdini (1989:45)]

There is a delightfully descriptive word in Yiddish, mishpokhe, that refers to people who are “one of us.” The word refers to extended family, but it is popularly used to refer to people who are one of us. Rosten (1989:338) illustrates with Chase Manhattan Bank’s advertising campaign built around the slogan “You have a friend at Chase Manhattan.” In a window of the bank next to a Chase Manhattan branch there appeared a sign; “— BUT HERE YOU HAVE MISHPOKHE!”
Network brokerage is a process by which people clear sticky-information markets. The rewards enjoyed by network brokers are compensation for clearing a market that would otherwise not clear.

In other words, variation between clusters/silos is essential to the value of brokerage. If there are no information differences between social clusters, then there is no value to moving information from one cluster to another.

Competition in theory eliminates variation, but social clustering in networks usually indicates variation in understanding and practice. For example, BP learning in the refining businesses.

Strong belief/culture/process/paradigm reinforce closed networks, and can obscure or blind people to variation between subgroups within the network. For example:

— Pfizer drug trial protocol
— Talent out of context (able musician in D.C. metro train station)
— INSEAD student teams
— Coca Cola as a distribution company versus custodian of the Coca Cola brand
— "Hard" sciences & the negative correlation between age and contribution
  look for use of right-wrong versus productive-unproductive or interesting-uninteresting

Personal experience is an insidious blinder. Personal experience enriches our understanding, but also limits it. People get trapped in their routines. They hear/believe/understand knowledge consistent with what they’ve already experienced. The power of fundamental principles, and framing problems in different ways, is that you can reason your way through challenges that involve experiences you have not yet had — making you valuable beyond whatever experience life has happened to give you personally. Getting out of our routines can be accomplished with deliberate action, but sometimes requires exogenous shock (Appendix VI).
Successful Framing

Going back to India in 1919, what are the implications of Gandhi framing his proposed aggressive response to the new British law as a “day of prayer and fasting,” versus Jinnah’s interpretation of the idea as a “general strike,” or Jinnah’s proposal for “direct action on a scale they can never handle”?

Graphic is from video clip shown in class, Gandhi, (1982, directed by Richard Attenborough, distributed by Columbia Pictures).
Building Strategic Leadership: Brokerage Contingencies

Discussion Meeting

Video Footage of Closed-Network Framing Failure

-Stills are from the British Steel video shown during the session. “He will win who knows when to fight and when not to fight.” (from Sun Tzu, in The Art of War, a melange of advisories assembled before the birth of Christ).
ACTION IMPLICATION 2: Network Effect Is Contingent on Personal Engagement — the Social Psychology of Network Advantage.

Statement: A way to obtain brokerage benefits quickly is to build connections with people who are already brokers.

True or False? Why?

Which manager, John or Jim, would you assign to provide local leadership in the transformation.
Spillover Clues to the Mechanism by Which Brokerage Creates Advantage

\[ IC = \sum_j C_j / N \]

**Global Processes** — Information retains meaning with some average probability when it moves through any relationship, so social capital is a function of access to more relations: *She is known far and wide.* Ego performance covaries with social capital in neighbor networks (defines ego’s reach) more than with social capital in ego’s immediate network. (Affiliate terms: explicit information, “Metcalf’s Law,” mature capital market, neoclassical market metaphor)

**Local Processes** — Information retains meaning through local relations but not through indirect connections beyond the local, so social capital is a function of more complete access to local relationships: *She is the leading person in the area.* Ego performance covaries with social capital in neighbor networks as it does with social capital in ego’s own network, but covariance decreases rapidly as neighbor networks go beyond the local. (Affiliate terms: tacit information, local institutions, Austrian market metaphor)

**Personal Processes** — Information flow is irrelevant to performance except as performance-enhancing cognitive and emotional skills develop from managing information in the immediate network: *She is wise.* Ego performance is independent of social capital in neighbor networks despite strong covariation with social capital in ego’s own network (the social interface ego manages). In short, social capital is a forcing function for human capital.

See Appendix III on testing for spillover versus contagion.

Figure 2.7 in *Neighbor Networks.*
The ostensible advantage is spurious, here illustrated predicting banker compensation from direct constraint (banker's own network) vs indirect (from neighbor networks).

<table>
<thead>
<tr>
<th></th>
<th>Total Annual Compensation</th>
<th>Bonus Only</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>Intercept</td>
<td>-1.63</td>
<td>-1.92</td>
</tr>
<tr>
<td>Direct Network Constraint</td>
<td>-.38 (.09) **</td>
<td>—</td>
</tr>
<tr>
<td>Indirect Network Constraint</td>
<td>—</td>
<td>-.39 (.11) **</td>
</tr>
<tr>
<td>Senior Job Rank</td>
<td>.73 (.08) **</td>
<td>.79 (.09) **</td>
</tr>
<tr>
<td>Peer Evaluation</td>
<td>.51 (.09) **</td>
<td>.58 (.10) **</td>
</tr>
<tr>
<td>Years with Firm</td>
<td>.02 (.01)</td>
<td>.03 (.01) *</td>
</tr>
<tr>
<td>Minority</td>
<td>-.05 (.19)</td>
<td>-.14 (.19)</td>
</tr>
<tr>
<td>US Headquarters</td>
<td>.28 (.11) *</td>
<td>.23 (.11) *</td>
</tr>
</tbody>
</table>

NOTE — Regression coefficients are presented for annual data pooled across three years (469 observations). Compensation next year is predicted from row variables this year. Network constraint is the log of constraint. Annual compensation includes salary and bonus. Compensation is measured as a z-score within each year to indicate relative annual compensation. Squared multiple correlations for the equations are .31, .28, .31, and .31 (zero-order correlations in Appendix E, Table E4). Standard errors, given in parentheses, are adjusted for autocorrelation within individuals across years (* p < .05; ** p ≤ .001).
In general, "secondhand" brokerage via neighbors has no effect on performance.

Within each of five populations (analysts, investment bankers, HR employees, product-launch employees, and supply-chain managers), a dot below indicates a population average on performance and network constraint within five-point intervals of network constraint. Correlations and routine test statistics are computed across 1,819 observations, with correction for repeated annual observations. See Appendix III for research design.

\[
P = b_2 \ln(\text{IC}) + b_3 X + R
\]

Correlation with Log Constraint
\[r = -0.26, t = -7.66\]

Lack of Structural Holes in Networks around Employee’s Contacts
(average network constraint on contacts, averaged within five-point intervals)

\[
P = b_1 \ln(C) + b_2 \ln(\text{IC}) + b_3 X + R
\]

Negligible Partial
\[r = -0.03, t = -1.26\]
Digging into the summary graphs, the lack of brokerage spillover occurs with respect to a well-connected boss.

Each dot is a population average on the Y axis and X axis for a five-point interval on the X axis (HR employees, product-launch employees, and supply-chain managers). Correlations and test statistics are estimated across individuals.
or a Well-Connected Colleague.

Each dot is a population average on the Y axis and X axis for a five-point interval on the X axis (analysts, bankers, HR employees, product-launch employees, and supply-chain managers). Correlations and test statistics are estimated across individuals with correction for repeated annual observations of the analysts and bankers.

Lack of Structural Holes in Network around Employee’s Least-Constrained Colleague
(network constraint on least-constraint direct contact, averaged within five-point intervals)

Figure 4.7 in Neighbor Networks
Field Experiment: Network Advantage Can Be Learned

from Figure 5 in Burt & Ronchi, "Teaching executives to see social capital: results from a field experiment" (2007, Social Science Research). These results are from a Chicago executive education program in which managers were followed for four years after graduation.
But Participation Matters

Figure 6 in Burt and Ronchi, "Teaching executives to see social capital" (2007, Social Science Research)
ACTION IMPLICATION 3: Active structural holes are reinforced so bridging them can be especially difficult regardless of value. Common reinforcing mechanisms are education, business function, legacy organization, culture, gender, age, race/nationality, along with others. If you have a good idea for brokerage, ask why the good idea has not already been implemented. Something is preserving the status quo. First bridge is critical precedent for spanning active structural hole. “Local action” and displayed structural equivalence can be significant facilitators.

<table>
<thead>
<tr>
<th></th>
<th>PASSIVE</th>
<th>ACTIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structural hole</td>
<td>NOTHING. No one is interested in preserving or eliminating the disconnect between the groups.</td>
<td>SOMETHING: Hole (1) provides opportunities for insiders on one side to exploit outsiders on the other side (e.g., Asian “compradors”), (2) permits insiders to hoard opportunities from outsiders, (3) makes it easier for insiders to launch organizations in which insiders are advantaged, or (4) daily routines and valued relations have adapted to the hole (e.g., Clendenin at Xerox, New England cotton early 19th).</td>
</tr>
<tr>
<td>Maintained by:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Difficulty building the bridge</td>
<td>LOW. No interests oppose the bridge, so the bridge should easily absorb into the surrounding social structure, and support should be in proportion to bridge value.</td>
<td>HIGH. Bridge is opposed so partners might be required to legitimate the bridge, regardless of the bridge’s value (e.g., American in France).</td>
</tr>
<tr>
<td>Threat of Imitators</td>
<td>HIGH because bridge difficulty is low. Bundle the bridge with other benefits to be the high-value broker.</td>
<td>LOW because bridge difficulty is high. Broker monopoly can trigger abuse by brokers (e.g., Asian “compradors”).</td>
</tr>
</tbody>
</table>

And Social Context: Where did US time zones come from?

Until 1883 each United States railroad chose its own time standards. The Pennsylvania Railroad used the "Allegheny Time" system. By 1870 the Allegheny Time service extended over 2,500 miles with 300 telegraph offices receiving time signals. However, almost all railroads out of New York ran on New York time, and railroads west from Chicago mostly used Chicago time, but between Chicago and Pittsburgh/Buffalo the norm was Columbus time, even on railroads which did not run through Columbus. The Northern Pacific Railroad had seven time zones between St. Paul and the 1883 west end of the railroad at Wallula Junction.

In 1870 Charles F. Dowd proposed four time zones based on the meridian through Washington, DC for North American railroads. In 1872 he revised his proposal to base it on the Greenwich meridian. Sandford Fleming, a Canadian, proposed worldwide Standard Time at a meeting of the Royal Canadian Institute on February 8, 1879. Cleveland Abbe advocated standard time to better coordinate international weather observations and resultant weather forecasts, which had been coordinated using local solar time. In 1879 he recommended four time zones across the contiguous United States, based upon Greenwich Mean Time.

The General Time Convention (renamed the American Railway Association in 1891), an organization of US railroads charged with coordinating schedules and operating standards, became increasingly concerned that if the US government adopted a standard time scheme it would be disadvantageous to its member railroads. William F. Allen, the Convention secretary, argued that North American railroads should adopt a five-zone standard, similar to the one in use today, to avoid government action. On October 11, 1883, the heads of the major railroads met in Chicago at the Grand Pacific Hotel and agreed to adopt Allen's proposed system. ... Standard time was not enacted into US law until the 1918 Standard Time Act.*

*Text comes from October 24, 2015 Wikipedia entry for "Standard time" (five zones include one east of Eastern zone). Map is Dowd's 1884 fifth version advocating to railroaders the adoption of standard time zones. Engraving of William Allen is from Frank Leslie's Popular Monthly (April 1884). For details on bureaucratic infighting over standard time, see Bartky, Selling the True Time (2000, Stanford University Press).
ACTION IMPLICATION 4: Don’t Count on Personality

Network Entrepreneur Personality Index

Select the phrase under each item that better describes you (circle A or B). Select only one phrase per item. If you disagree with both phrases, select the one with which you disagree less. With so few questions, it is important to select phrases that describe how you actually operate, rather than how you feel you should or would like to operate. There are no right or wrong answers. When you are finished, you should have a total of ten phrases circled. To get your score, see the answer key on page 43, then use the graph below to determine your personal disposition toward being a network broker.

1. When evaluating opportunities, I am likely to look . . .
   A. for a chance to be in a position of authority
   B. for the long-run implications

2. My strength lies in the fact that I have a knack for . . .
   A. being easygoing
   B. getting a point across clearly

3. In discussions among peers, I am probably seen as . . .
   A. an outspoken advocate
   B. motivating people to my views

4. I believe that people get into more trouble by . . .
   A. being unwilling to compromise
   B. not letting others know what they really think

5. In a leadership role, I think my strength would lie in the fact that I . . .
   A. won people over to my views
   B. kept everyone informed

6. In evaluating my aims in my career, I probably put more emphasis on . . .
   A. my ability to create an aura of excitement
   B. being in control of my own destiny

7. As a member of a project team, I . . .
   A. seek the advice of colleagues
   B. closely follow the original mandate of the group

8. Others are likely to notice that I . . .
   A. let well enough alone
   B. let people know what I think of them

9. In an emergency, I . . .
   A. take the safe approach
   B. am quite willing to help

10. I look to the future with . . .
    A. unshakable resolve
    B. a willingness to let others give me a hand

from Figure 1.6 in Brokerage and Closure
Personality differences are associated with the networks built by these staff officers, but only below managerial rank (clerical and technical staff), where there is no social capital association with performance.

For the purposes here, an employee has an entrepreneurial network if his or her network constraint score is no more than the average for all respondents.

\[
P(\text{entrepreneurial network}) = \frac{1}{1 + e^{-f}} ; \quad f = -2.71 + 2.52S + (0.59 - 0.59S)INDEX
\]

(2.7) (2.5) (-2.4)

S is a dummy variable distinguishing employees in senior ranks.

from Burt, Jannotta, and Mahoney, "Personality correlates of structural holes" (1998, Social Networks)
More Important, Is there Evidence of Personality Affecting Network Advantage?

The evidence to the right shows personality affecting network advantage. It would be important — when estimating the returns to brokerage in this population — to hold personality constant (in terms of however personality manifests as a preference for closed rather than open networks).

The horizontal distinguishes people who prefer to work in a closed network (left) versus those who prefer to work in an open network. Each group is then divided into those whose current project is a closed versus an open network.

Z-score relative performance is measured by the columns over each category.

Notice that people who prefer closed networks perform better in a closed-network project and people who prefer an open network perform better in an open-network project.
Network Advantage Is Not Contingent on Kind of Person. It Exists Independent of Personality.

But the evidence on the previous page doesn't exist. Network effect is evident when people are assigned at random to networks (see Leavitt experiment in Appendix VII in first handout), and there is no evidence of an interaction between personality and network advantage, as illustrated in graph to the right.

Open versus closed networks are distinguished at median levels of current network (N) and usual network (network-relevant personality, P). Network index is number of nonredundant contacts.

Bars indicate average z-score character level achieved. Number of characters is given in parentheses.

Dark portion of each bar is the mean z-score level when player experience is held constant (notice the statistically negligible tendency for a larger experience effect when person is not operating within his or her usual network).

From Figure 7 in Burt, "Network-related personality and the agency question: multirole evidence from a virtual world" (2012, American Journal of Sociology). For more detail, see Appendix IV on network-related personality, and Appendix VI in first handout on national differences in business culture.
Returns to Brokerage Are Contingent in Known Ways on Situation and Behavior

- RULE 3 of Social Capital: Do you have social standing sufficient to be accepted as a broker? To the extent that a broker is proposing something new, there is no guarantee that the proposal will work in our market, with our company processes, staffed by our people. There is risk to accepting the proposal. Will you be accepted by the target audience as a source of the risk? The third rule seems to be multiplicative rather than additive (advantage = brokerage x social standing) in that the returns to brokerage usually disappear for people of low social standing (as indicated by low job rank, low network status, or poor reputation).

- ACTION IMPLICATION 1: Not all bridges are valuable and social standing is variable: Brokers depend on cluster variation to make framing valuable, playing against a risk of productive accident. Bridges as by-product of structural equivalence: local action, rotation, workshop, shadowing, committee/council

- ACTION IMPLICATION 2: Personal engagement is critical. There is negligible benefit from second-hand brokerage.

- ACTION IMPLICATION 3: Active structural holes are reinforced so bridging can be difficult regardless of value. Bridging active holes is especially sensitive to timing and legitimacy: show value in first bridge. If this is such a good idea, why hasn’t it already happened?

- ACTION IMPLICATION 4: Don’t count on personality. Network advantage affects manager success independent of personality.

- Appendix V: Don’t be greedy. Collateral brokerage grows the surrounding economy.

- Appendix V: Don’t try to connect everything. Bridges require structural holes: Don’t eliminate holes so much as manage them.

- Appendix V: Securing the Bridge: Where is the positive anchor?

**Sociogram of Directors in Chicago Index Companies** — Dots in the above sociogram are the 1,380 Chicago directors in S&P 1500 firms, 1999-2003. Gold indicates a member of Chicago’s Commercial Club (concentrated in the center, 13.2 t-test). Lines indicate directors connected through an interlocking directorate between Chicago companies or by sitting on a company board together outside Chicago. Isolate dots are the 818 people who sit on one Chicago board or one Chicago board plus outside boards containing no other Chicago elites.
Three Summary Points on Brokerage Contingencies

RULE 3 of Social Capital: Contingent Brokerage-Achievement Association

To the extent that a broker is proposing something new, there is no guarantee that the proposal will work in our market, with our company processes, staffed by our people. There is risk to accepting the proposal. Chains of command broken in service of company interests can just as easily be broken in service of personal interests, or in service of well-intentioned but strategy-eroding interests. Social standing in the form of job rank, network status, or reputation is the way would-be brokers overcome the suspicions with which brokers can be viewed. Reputation is particularly valuable. It enables the largest number of people for successful brokerage. Achievement then turns on identifying productive bridges (risk of productive accident), and effectively framing ideas to be attractive to target audiences.

Personal Engagement is Essential to the Advantage

Reinforcing the third rule, there is no advantage or disadvantage to affiliation with network brokers. Advantage comes from personal access to structural holes. Advantage does not result from access to the information of diverse contacts so much as it results from personal skills developed when translating information between diverse contacts. Brokers develop skills of analogy and metaphor for seeing and communicating across social clusters, “tribes” of people. The social capital of brokerage affects performance less for who you know than for who you are. Social capital is a forcing function for human capital, making people stronger than they would otherwise be.

Other Cautions and Considerations

The brokerage-achievement association holds for all people, regardless of personality. Strong bridges are often a by-product of joint action rather than the direct goal. Bridges across active structural holes require more care in planning early returns to the bridge. Allowing others to be brokers expands group returns, and thus your share of the expanded returns. Beware of eliminating future innovation and growth by securing dense networks across all current structural holes. When projects are all led by network brokers, variable performance can occur because of the “positive anchor,” the person who imposes reputation costs within the network around the broker’s colleagues.
Appendix Materials
Appendix I: Strategic Leadership Exercise on Deploying Brokerage

Describe a place in your business where you believe the business would benefit from more network brokerage.

(A) Diagram the situation to communicate to others the brokerage you have in mind.

(B) In brief, what benefits do you expect for the business?

(C) Given the benefits, why is the situation the way it is? (history, preserving forces)

(D) Discuss 2-3 difficulties to be overcome before you'll see the expected benefits. Be sure to consider external costs, how you would manage the brokers, and where you would locate them in the business.
Strategic Leadership Exercise, Process

10 minutes: Do items A, B, C individually in the main room.

5 minutes: Assemble as group.

20-25 minutes: In a brisk discussion, have each person in the group succinctly, quickly, describe their A-B-C.

5 minutes: Select an idea to be presented in the main room. The selection is up to you. Perhaps multiple people had similar ideas, or the idea situation is interesting because it so clearly requires network management, or the situation involves an interesting difficulty to be overcome before the idea would have value. Any idea is attractive that is likely to generate engaging and productive discussion back in the main room.

10 minutes: Select presenter(s) and outline the A-B-C presentation, covering primary difficulties to be overcome before you'll see the problem resolved. Be sure to consider external costs, how you would manage the brokers, and where you would locate them in the business.

5 minutes: Return to the main room.

In the remaining time available, teams will be called out to present their work for general discussion.
Appendix II: Sources of Variance in 360 Evaluations

Most of the variance in evaluations is about the way two people work together, not their averages as individuals.

The below pie charts describe the variance explained in regression models predicting ego's evaluation of alter from ego's average rating of colleagues [rater variance] and alter's average rating from colleagues [reputation variance].

Banker Relationships  
(N = 12,640)

- 25.1% Rater Variance (qualities of the person making the evaluation)
- 61.5% Dyad Variance (qualities specific to the subject-respondent dyad)
- 13.4% Reputation Variance (qualities of the person evaluated)

Staff Officer Relationships  
(N = 2,304)

- 18.4% Rater Variance (qualities of the person making the evaluation)
- 52.2% Dyad Variance (qualities specific to the subject-respondent dyad)
- 29.4% Reputation Variance (qualities of the person evaluated)
and Good versus Bad is the Primary Dimension to Evaluations

I focus on good versus bad as a reputational quality that assuages audience concerns about a would-be broker. The focus is in contrast to studying reputation in terms of specific behaviors for which a person is known. Statistically significant correlations are likely to occur with details of reputation for specific behaviors, but it will be difficult to generalize the correlations into construct-validity hypotheses about reputation because of the diversity that studying details allows and wide confidence intervals around current measures of reputation. My focus on good-bad is based on the knowledge that good versus bad is the primary dimension to human evaluation in general. There are other dimensions, but good-bad is the primary one. In the interest of replicable results, I focus on the primary dimension for the time being.

Initial evidence for the primacy of good-bad was given in Osgood, Tannenbaum, and Suci (1957, *The Measurement of Meaning*) based on factor analyses of semantic-differential data from diverse populations. They find three recurring dimensions to evaluations of words and phrases: a good-bad contrast (termed the primary "evaluation," 69% of common variance), a strong-weak contrast (termed "potency," 15% of common variance), and an active-passive contrast (termed "activity," 13% of common variance). Note here that dimensional analyses of network data show managers distinguishing relations primarily on a good-bad dimension of closeness and secondarily on a personal-impersonal dimension (e.g., Burt, 2010:287). Osgood et al. (1957:38) emphasize that the good-bad contrast, "plays a dominant role in meaningful judgments, here accounting for almost 70 per cent of the common (extracted) variance, and this impression will be confirmed in subsequent studies to be reported."
Appendix III. Research Design for Spillover versus Contagion

I propose to add indirect network constraint (measuring a manager’s indirect access to structural holes in the networks around his contacts) to the usual regression model in which manager performance is predicted from direct network constraint (measuring manager access to structural holes in his own network) and controls for manager differences on other performance factors, such as job rank, seniority, and so on:

\[ P = b_1 \ln(C) + b_2 \ln(IC) + BX + R, \]

where \( P \) is a measure of manager performance, \( R \) is a residual score of unpredicted performance, \( C \) is network constraint on the manager from direct contacts (first column of the table on next page), and \( IC \) is the indirect network constraint on the manager from connections among indirect contacts (second column in the table on the next page).

If this were a contagion analysis, I would predict — with controls for individual differences in experience and kind of work — manager \( i \)'s performance from the performance of her contacts (\( \Sigma_j \delta_{ij} P_j \) where \( \delta_{ij} \) measures the extent to which person \( j \) is a close colleague for manager \( i \); see equation G1 in Appendix G). The model is general in that it includes all factors responsible for performance similarity between manager and contacts. Specific factors are not distinguished. Their aggregate effect is the correlation between manager performance and contact performance (also discussed as a spatial, or network, autocorrelation, e.g., Ord, 1975; Doreian, 1981; Dow, Burton and White, 1982). The correlation describes the extent to which performance is homogeneous within the immediate network around a manager; able managers discussing work with other able managers, unable managers finding solace in one another’s company.

Predict performance from direct and indirect network constraint, subject to controls for human capital and organizational factors.

This isn’t a contagion study in which all covariation between outcome response is measured subject to controls.

Only brokerage spillover is measured. It is possible for a strong contagion process to leave no evidence of brokerage spillover.
Figure 2.3 in Neighbor Networks. More detail on computing network constraint is given in Appendix IV of the first handout.
Appendix IV: Network-Relevant Personality (P)

Given \( N_k \), an index measuring ego’s network advantage in role \( k \), average ego’s network scores across \( K \) roles to describe ego’s average network advantage in the \( K \) roles:

\[
P = \frac{\sum_k N_k}{K}. \tag{1}
\]

I will refer to \( P \) as ego’s “network-relevant” personality. Role-specific network scores can be predicted from \( P \):

\[
N_k = b_n + b_{np}P + b_{nx}X_k + U_k, \tag{2}
\]

where \( X_k \) is one or more control variables for role \( k \), \( b_n \) is an intercept term adjusting for means on the control variable(s), and \( U_k \) is the role-specific network index not predicted by ego’s average across roles. The “how much does personality matter for network advantage” agency question can be answered by estimating Eq. (2) for a study population: To the extent that personal preferences determine the network advantage measured by \( N_k \), each of ego’s role-specific network scores will equal her average across roles, so ego’s average score, her network-relevant personality \( P \), will describe close to 100% of the variance in her role-specific scores. To see how much network-relevant personality matters for predicting achievement from network advantage, add \( P \) to the network prediction:

\[
A_k = b_a + b_{ap}P + b_{ax}X_k + b_{an}N_k + R_k, \tag{3}
\]

where \( A_k \) is a measure of ego’s achievement in role \( k \), \( b_a \) is an intercept term, \( P \) is ego’s average network score across roles (Eq. 1), \( X_k \) is one or more control variables for the role, and \( R_k \) is a residual term. Coefficient \( b_{ap} \) measures the extent to which achievement in role \( k \) depends on network-relevant personality, and \( b_{an} \) measures the extent to which achievement depends on network advantage specific to the role.

From Burt, “Network-related personality and the agency question” (2012, AJS)
People build similarly open or closed networks in the roles they play.
(32% to 38% of network variance; 7,150 people playing 25,610 roles)

Figure 5 in Burt, "Network-related personality and the agency question" (2012, AJS)
But the network consistent across a person's roles makes almost no contribution to predicting achievement. Achievement depends on role-specific experience and the network you build in the role. (88% to 90% of predicted achievement variance)

Figure 6 in Burt, "Network-related personality and the agency question" (2012, AJS)
And the conclusion is robust across consequential differences between people.

<table>
<thead>
<tr>
<th></th>
<th>Percent Variance in Network Around Character (Figure 5)</th>
<th>Percent Predicted Variance in Character Achievement (Figure 6)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NonRedundant Contacts (Model 7)</td>
<td>Network Constraint (Model 8)</td>
</tr>
<tr>
<td>All Characters (n = 25,610)</td>
<td>32</td>
<td>38</td>
</tr>
<tr>
<td><strong>Role Strain, Too Little Focus</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Person’s primary characters (n = 15,117)</td>
<td>48</td>
<td>61</td>
</tr>
<tr>
<td>Person’s secondary characters (n = 10,493)</td>
<td>12</td>
<td>24</td>
</tr>
<tr>
<td><strong>Role Strain, Difficult Combinations</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Person’s characters all same gender (n = 15,947)</td>
<td>34</td>
<td>38</td>
</tr>
<tr>
<td>Gender mix also played by others (n = 6,851)</td>
<td>31</td>
<td>38</td>
</tr>
<tr>
<td>Rare gender mix (n = 2,812)</td>
<td>25</td>
<td>37</td>
</tr>
<tr>
<td><strong>Role Strain, Overlapping Constituents</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High percent multi-character contacts (n = 10,783)</td>
<td>34</td>
<td>37</td>
</tr>
<tr>
<td>Low percent multi-character contacts (n = 14,827)</td>
<td>28</td>
<td>29</td>
</tr>
</tbody>
</table>

Note — Rows distinguish subsets of characters more or less likely to display network-relevant personality. Network-relevant personality is computed as an average across characters in the same row. The column regression model is estimated for characters in each row as described for Tables 4 and 5, from which percentage contributions to variance are computed as described for Figures 5 and 6.

Table 6 in Burt, "Network-related personality and the agency question" (2012, AJS)
Network-Relevant Personality, Conclusions

The multi-role research design used here has data requirements more demanding than the usual single-role design, so it is not suggested as a replacement for the usual single-role design. But where appropriate data are available, the multi-role design allows more general conclusions, like the two drawn from this analysis:

- There is clear evidence of people having a network-relevant personality. They tend to re-create the same network across the roles they play, which accounts for about a third of the variance in network advantage (Figure 5).
- But that variance has little to do with achievement. The dominant factors predicting achievement in a role are role-specific: a person’s experience in the role and the network advantage the person built up in the role (Figure 6).
- The two conclusions are robust across substantively significant differences in the mix of roles combined in a multi-role network (too many roles, difficult combination of roles, roles played to overlapping audiences, or roles overlapping in time). (Table 6).

In sum, agency differences captured by network-relevant personality are more relevant to style than success. People do tend to build similar networks in the different roles they play, but their network consistency across roles has little to do with achievement. Network models of achievement can focus on role-specific experience and network advantage.

The fact remains that people vary widely in their benefit from access to structural holes. The analysis in this paper has not explained that fact, only ruled out individual differences in personality as the explanation.

From Burt, "Network-related personality and the agency question" (2012, AJS)
Strategic Leadership

Brokerage Contingencies (page 48)

Don't Be Greedy: Collateral brokerage is brokers facilitating the brokerage of others.

Bars measure the extent to which a kind of organization is central in the local network of biotech alliances. Where a biotech cluster emerges (three cities to the left; based on patent activity and 50% of firms) you see collateral brokerage: central broker organizations foster the new brokers. Initial brokers facilitate project diversity and exchange across projects, which results in spin-off broker organizations.

Where a cluster does not emerge (four cities to the right) you see the initially central organizations maintain their dominant position in the network. Nothing new develops.

Bridges Require Structural Holes: Don't eliminate so much as manage. Holes provide variation needed for innovation. Holes emerge from a division of labor, but there is value to explicitly cultivating them.

"Le vide" between product labs at Rhone-Poulenc:
Have you noticed that really top scientists get their best ideas from people outside their own discipline? "Shock comes when different things meet. Le vide has a huge function in organizations. If you don't leave le vide, you have no unexpected things, no creation. There are two types of management. You can try to design for everything, or you can leave le vide." (Jean-René Fourtou CEO Rhone-Poulenc, explaining why two Rhone-Poulenc chemists won the nobel prize for Chemistry; quoted in 1996 Fortune, November 25)

Secrecy between product labs at Apple: "We have cells, like a terrorist organization. Everything is on a need-to-know basis." (Jon Rubinstein, formerly Apple's senior hardware executive; quoted in 2012 Fortune, January 18; org chart from 2011 Fortune, May 23)

Also, it can be unproductive to close holes: see Kellogg, “Brokerage professions & implementing reform in an age of experts,” 2014 ASR.

Critical role of "disconnected" cities in emergence of jazz music:
Central cities like Chicago and New York produced the largest number of early jazz recordings, but the pieces most often re-recorded across markets as jazz classics came from "disconnected" cities like Memphis, Louisville, St. Louis, and Buenos Aires (tango & jazz). "Boutique beer" is analogue. Sociogram below is from Damon Phillips (Shaping Jazz, p. 15, Princeton U. Press 2013, which was initially on p. 439 of his article, "Jazz and the disconnected" in the 2011 AJS). Arrows indicate volume of bandleaders from source city recording in the target city, 1930-32.

FIGURE 1.1. The network of cities connected by musician mobility (1930–32). Cities that are not listed here did not produce jazz from 1930 to 1932.
Appendix V (cont.)
Bridges Require Structural Holes:
The optimum balance between integrating operations and preserving differentiation is contingent on the industry in which a firm operates.

In the classic piece of research summarized to the right, firm profitability in the plastics industry increases with both integration across the three functions (sales, production, and research), and differentiation (structural holes) between the three functions. This is an illustration of Jack Welch’s “integrated diversity.”

Data are from pp. 40 (performance), 36, 50 (differentiation), and 47, 50 (integration) of Lawrence and Lorsch (1967, 1986), Organization and Environment; (see pp. 258-260 of the book for methodological details).
Appendix V (cont.)
Bridges Require Structural Holes: The optimum balance between integrating operations and preserving differentiation is contingent on the industry in which a firm operates.

But where firms compete primarily on price, differentiation (structural holes) has no value. It is best to tightly integrate operations across functions. To the right, container firms compete primarily on price (e.g., tin can producers). Low- and high-performing container firms have low differentiation. High-performers are distinguished by their integration across functions.

"Because our customers typically use the products we sell in a chemical reaction, we have a relatively high level of control over the suitability of our product to the customer. ... Consequently, we have a hundred markets, each different in requirements because of the customers’ processing needs."

"Prices are important in this industry only in the sense that you must meet them. Also, product specifications are standardized, ... so we are producing a very undifferentiated product. Obviously, you have to sell something else. ... The customers, because of the speed at which they run their lines, are very concerned about imperfect containers. They keep detailed records of their losses and whose containers caused them."

"As far as this business is concerned, there is no innovation. If you really want to grow in this business, you ... have just got to have good delivery service to the customer, optimizing the flow of you material into his plant."

Quotes are from pp. 25-26, 89-90, in Lawrence and Lorsch (1967, 1986), Organization and Environment. Graph is from page 103 of the book (plastics high-performer scores are averages of the two high-performing firms and low-performer scores are averages of the two low-performing firms).
Securing the Bridge: Higher Remission Levels Emerge in Hospitals where QI Discussion Is More Clustered

Where QI discussion clusters — that is to say, where people with many QI discussion partners are connected to colleagues who have many QI discussion partners — we know that social norms and reputations emerge to drive coordination.

The stronger peer support provided by clustered QI discussion is visible as a higher hospital IBD remission rate. (Correlations exclude the hospital indicated by the white dot.)

Average number of QI partners cited by colleagues = \[ \frac{\text{Sum}_j w_{ij} QI_j}{\text{Sum}_j w_{ij}} \]

where \( w_{ij} = 1 \) if \( i = j \), else \( w_{ij} = c_{ij} / [\text{max } c_{ij} \text{ for } i] \)

Figure 6 in Burt, Houghton, Lyttle, Meltzer, and Margolis (2013) “Network brokers and positive anchors in IBD medical care.”
The Wisdom of the Naskapi Indians (Weick, The Social Psychology of Organizing, 1979:262-263): The Naskapi Indians of Labrador survive primarily by hunting. Each morning the adult males gather to ask: “Where should we hunt today?” An unusual procedure is used to answer the question: The men take the shoulder bone of a caribou, hold it over a fire until the bone cracks, then hunt in which ever direction the crack points. The procedure works. The Naskapi almost always find game, which is rare among hunting bands.

Why do you think they are successful?


1. It isn’t good enough.
2. It’s only an experiment.
3. Surprises should be question marks.
4. All dissents and warnings have some validity.
5. Collaborators who disagree are both right.
6. What does a stranger think strange?
7. All causal arrows have two heads.
8. The converse of every proposition is equally valid.
Sometimes structural holes occur exogenously, as in a merger, or immigration, or a significant personal event.

Scan the roster of history’s intellectual and artistic giants, and you quickly notice something remarkable: Many were immigrants or refugees, from Victor Hugo, W.H. Auden and Vladimir Nabokov to Nikolas Tesla, Marie Curie, Sigmund Freud, and Albert Einstein. That is especially true of the U.S., a nation defined by the creative zeal of the newcomer. Today, foreign-born residents account for only 13% of the U.S. population but hold nearly a third of all patents and a quarter of all Nobel Prizes awarded to Americans.

It isn’t the immigrant’s ambition that explains her creativity but her marginality. Uprooted from the familiar, immigrants see the world at an angle, and this fresh perspective enables them to surpass the merely talented. And it isn’t necessarily new ideas from the outside that directly drive innovation. It’s their presence as a goad. Some people start to see the arbitrary nature of many of their own cultural habits and open their minds to new possibilities. Once you recognize that there is another way of doing X or thinking about Y, all sorts of new channels open to you. “The awareness of cultural variety helps set the mind free.” Exceptionally creative people such as Curie and Freud possess many traits, of course, but their “openness to experience” is the most important.

That seems to hold for entire societies as well. Consider a country like Japan, which has historically been among the world’s most closed societies. Examining the long stretch of time from 580 to 1939, Dean Simonton compared Japan’s “extra cultural influx” (from immigration, travel abroad, etc.) in different eras with its output in such fields as medicine, philosophy, painting and literature. Dr. Simonton found a consistent correlation: the greater Japan’s openness, the greater its achievements.

History bears this out. In ancient Athens, foreigners known as metics (today we’d call them resident aliens) contributed mightily to the city-state’s brilliance. Renaissance Florence recruited the best and brightest from the crumbling Byzantine Empire. Even when the “extra cultural influx” arrives uninvited, as it did in India during the British Raj, creativity sometimes results. The intermingling of cultures sparked the “Bengal Renaissance” of the late 19th century.

Not all cultural collisions end happily, of course, and not all immigrants become geniuses. The adversity that spurs some to greatness sends others into despair. But as we wrestle with our own immigration and refugee policies, we would be wise to view the welcome mat not as charity but, rather, as enlightened self-interest. Once creativity is in the air, we all breathe a more stimulating air. (The text is from an article by Eric Weiner in the Wall Street Journal (1/15/16), elaborated in the displayed book.)