

Agglomeration Economies and Innovation in Your Organization

When I first moved to Sorocaba Brazil many years ago, I was surprised to learn that salaries seemed to be at least one third lower than in the megalopolis of Sao Paulo, which is less than 100 kilometers distant. I always found it somehow unfair that a two hour bus ride could theoretically yield a 33 to 100% raise in my salary. In subsequent years similar facts have come back to haunt me and I have entertained a variety of explanations for this kind of disparity, most of which I have found unconvincing or at best partially convincing. In this letter I want to address what seems to me to be the most compelling and interesting explanation for this and related phenomena and assert that this same argument may provide some insights into how the incidence and success of innovations in firms might be enhanced.

For me, the best empirical clue for unpacking this, and a host of other provocative observations can be found in another, much better founded observation. A recent study by the Brookings institute states that one percent of the earth's landmass accounts for at least half of the world's economic growth. This amazing statistic is reinforced by other indicators like disparities in GDP per capita in large cities of from 30% to over 500% (in the case of China) over small cities. (This seems to be on par with other related disparities like the fact that less than one percent of the world's population owns over 90% of its wealth and an overwhelmingly large proportion of all patents are generated by a small fraction of the world's countries, but that is a conversation for another day.)

The study of so called "agglomeration economies" developed by geographic and urban economists seems to provide the most complete explanation. In a loose analogy to what happens in thermonuclear explosions, when highly developed skills, specialized goods and services, and related technologies are brought together in close proximity, a kind of critical mass ensues that generates an explosion of innovations brought about by a chain reaction caused by the intense collision of ideas, abilities, and resources.

So, to quote a now overused example, the juxtaposition of electronic microprocessing, network connectivity, graphic and audio digitalization, and satellite communication expertise around silicon valley came together to generate the smartphone and its associated innovations which effected major social and economic transformations (some of them quite negative) worldwide. In smaller urban environments in which these diverse fields do not have the same opportunities to concentrate and rub shoulders, the potential for this kind of synergy is much smaller. So in São Paulo with its 12 million souls, the literally trillions of possible contacts between diverse people with diverse skill sets, is much more likely to generate unique but viable combinations of resources than can Sorocaba with its 800,000 souls who are somewhat less diverse in their skill sets.

And the fact that the connectivity revolution has facilitated visual and audio communication between my small acreage in Sorocaba and my sister's house located in Oakland, California, just a short drive from Cupertino, where the iphone was conceived, does not seem to have solved the salary or other disparities identified above. Recent research suggests that the massive increase in disembodied electronic communication occasioned by the pandemic has not diluted the disparities in economic growth associated with population density at all. Nor has the fact that one of my nephews is a manger at Apple generate knowledge that help me boost my salary in Sorocaba.

Does this mean, then, that innovation is ecologically limited to urban areas that can sustain dense concentrations of the world's best minds and technologies funded by obscene capital flows? Well, in many ways probably. That said, a modest area of study I have been involved with over the years suggests that there may be ways to unleash analogous forces at the organizational and maybe even the community level of action, albeit, on a much smaller scale.

Decades ago I wrote my doctoral dissertation on a type of social innovation found in Jamestown, a small city in upstate New York. I discovered, contrary to my expectation, that the firms that were least integrated into the old boy network of the community, generated the most interesting and successful innovations, while the firms that were more closely knit together were involved in more modest and less frequent innovations. This is consistent with Harvard sociologist Mark Granovetter's "strength of weak ties" theory that states that people whose social contacts are generally weaker (i.e. less intimate, less frequent and less reciprocal) can maintain broader and larger networks that serve as conduits for novel information and innovation. By contrast, stronger ties have a much shorter reach.

Over time, I attempted to try out similar ideas inside of organizations and discovered a similar dynamic. In a multiyear study of some 60 organizations in the US and Brazil, we discovered that firms that worked in high growth, highly competitive industries where characterized by high volumes of weak contacts that cut across all department and hierarchical levels while firms in stable or stagnant low growth industries featured strong ties concentrated by department or other criteria. This concentration and isolation seemed to act as a break on communication and innovation.

The scale is of course massively different but the insight is similar. You may not be able to move your company to São Paulo or Cupertino to discover and exploit revolutionary synergies, but if your focus is innovation, you can at least broaden your social circles within and outside your firm by talking less to more people. Paradoxically it would appear that the critical mass that creates innovations does not arise from the social equivalent of massive pressures that force people together but by somewhat the opposite mechanism. A chemical explosion (say of natural gas) happens not when elements are highly concentrated but when they are combined in a looser mixture which permits optimal contact between diverse elements. This may be the reason that when I asked my nephew how he "manages" people at Apple, he said that essentially you have to find the pieces of a project in which the ideal mixture is not happening and identify a few hitherto unconnected people who need to "make friends." Put differently, innovation doesn't happen when you "light a fire under someone" but when you generate an ideal mixture and set off a spark.

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Further reading:

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Nelson, R. E., & Vasconcellos, E. (2007). Industry Environment, National Culture, and Verbal Networks in Organizations: An Exploratory Study. *Management Research*, 5(3), 135-148.

Nelson, R. E. (1986). Social Networks and Organizational Interventions: Insights from an Area-Wide Labor-Management Committee. *The Journal of Applied Behavioral Science*, 22(1), 65–76.