

PROPOSAL

I am a Ph.D. candidate in Strategic Management at HEC-Paris where I expect to graduate in June 2014. My dissertation research is at the intersection of strategy, innovation, and entrepreneurship. Below I elaborate on my past, current, and future research direction.

Past Research

My past research revolves around academic entrepreneurship, technology transfer, and university commercialization policy. In a joint work with Professor Thomas Åstebro I systematically reviewed prior research on academic entrepreneurship and the impact of universities on local economic development through commercialization of university research. This exhaustive literature review was published as a chapter in the *Handbook of Research on Entrepreneurship and Regional Development* by Edward Elgar Publishing in 2011. In another joint project with Professor Thomas Åstebro and Professor Serguey Braguinsky I investigated the often overlooked role of startups by recent university graduates (students) for local economic development through empirical analysis of the magnitude, quality, and economic impact of entrepreneurship by recent university graduates compared to startups by faculty and staff. The results of our research concluded that startups by recent university graduates are more than spinoffs by faculty and staff by at least an order of magnitude, and that graduates' spinoffs are of high quality. This research paper appeared in *Research Policy* in 2012.

Current Research

My dissertation research explores the relationship between two features of the labor market, namely *sorting* and *matching* on the mobility and entrepreneurship of individuals. Regarding the former, I ask why prominent firms (e.g. Apple and IBM) disproportionately spin-off more entrepreneurs than other firms. In particular I aim to disentangle the effect of learning from labor market sorting. I take an economic lens and bring the dynamics of the labor market into attention by building a simple principal-agent model with information asymmetry that predicts mobility of employees between firms of different quality and entrepreneurship by employees. My model generates three propositions: 1) the likelihood of entrepreneurship increases with the quality of the parent firm. 2) the likelihood of entrepreneurship increases with the quality of employees. 3) good workers sort themselves into good firms. These propositions help me test two opposing views on employee entrepreneurship. First advocates of contextual effects on employee entrepreneurship argue that prominent (high quality) firms influence entrepreneurial behavior of employees. On the other hand two-sided matching logic suggests that labor market matches best employees with best firms and therefore the entrepreneurial spawning of employees may also be attributed to this two-sided matching process beyond any influence from prominent firms.

In the second essay of my dissertation I investigate the relationship between matching in the labor market and the entrepreneurial transition of employees from paid work. Matching theory in labor economics does not elaborate on the labor market outcomes of employees beyond turnover and wage growth. To completely understand the consequences of matching on the labor market outcomes of employees I embed entrepreneurship into the turnover process. I argue that match quality affects entrepreneurial transition from paid employment through changing the composition of human capital. Mismatched employee invest in general skills which is both valuable in entrepreneurship and other firms whereas well matched employees invest in firm specific skills which has limited value in other firms but can be replicated in a spinoff firm. The model predicts a U-shape type transition to entrepreneurship with respect to match quality. In addition the transition to self-employment is dominated among mismatched employees whereas transition to incorporated spinoffs is dominated among well matched employees. Moreover as the quality of the match increases the likelihood of intra-industry spinoffs and team entrepreneurship increase as well.

Empirically I test these effects using an unusually rich employer-employee matched dataset from Sweden. This longitudinal dataset covers all the population of Swedish individuals and firms from 1985 to 2009. The matched dataset lets me track individuals' career histories back in time and enables me to construct the mobility pattern of individuals throughout their career, an important feature for investigating sorting and matching. Also I use two novel empirical methodologies to decompose the individual productivity into person specific, firm specific, and match specific components. The first method is called the orthogonal match fixed effect methodology which achieves identification based on the orthogonality of the match effect with other two sets of fixed effects. The second method does not impose this restriction and instead estimates the best linear unbiased predictors (BLUP) of all the three sets of effects based on a random effects model with the restricted maximum likelihood estimation. I then insert these estimated effects in a mobility and entrepreneurship regression to investigate the relationship between matching and sorting on the likelihood of entrepreneurship. My preliminary analysis suggests that labor market sorts high quality employees into high quality firms. Employees of high quality firms are more likely to transition to entrepreneurship than employees of low quality firms. High quality employees are more likely to transition to entrepreneurship. And matching has a positive and substantial effect on the likelihood of entrepreneurship by employees. This latter result is an intriguing addition to the literature on matching and turnover and highlights a dark side to matching where employees with high match quality may spinoff to start a competing firm.

Outside of my dissertation research, I have recently initiated another research project with Professor Corey Phelps about the effect of organizational exploration and exploitation on employee entrepreneurship. The motivation for this study is the lack of attention of organizational theory and organizational learning literature on micro-consequences of firms' innovation strategy on employment and entrepreneurial outcomes of employees. In contrast to past research that argues that an organization's stock of knowledge creates an opportunity set on which employees can tap on to found new ventures, we step back and ask how knowledge generation process by means of exploration and exploitation affect entrepreneurial spawning? Building on organizational learning and entrepreneurship literature, we argue that it is not merely the stock of knowledge that gives entrepreneurial opportunities to employees but it is the structure of the knowledge base (that is created by means of exploration and exploitation) that affects the idle opportunity set, and the motivation of employees to spinoff. Our theory suggests that exploration within existing knowledge domains diminishes the likelihood of entrepreneurial spawning whereas exploration across new knowledge domains increases the risk of entrepreneurial spawning. For the empirical analysis we construct a database by extracting relevant information from Venture Source database, Capital IQs people intelligence database, COMPUSTAT, and NBERs patent database. We test the theoretical model with a sample of publicly traded firms in the medical devices industry from 1985 to 2006. Our preliminary results are in line with our hypotheses suggesting that the idle opportunity set on which employees can tap on to start their own business is shaped by the "fit" between the new knowledge and firms' complementary assets to use that knowledge internally.

Future Research Direction

For future research and during my time at NBER I intend to focus my research on economics of innovation and entrepreneurship. In particular I am interested to build on my knowledge on academic entrepreneurship and answer various questions regarding university innovation policy and commercialization of university research. For instance one interesting research avenue is to investigate which inventions are trapped into the Ivory tower and which inventions are commercialized outside academia.

In addition, I am interested to extend my research on employee entrepreneurship by investigating various firm level antecedents that may lead to employee spinoffs. One of these antecedents is corporate culture. Strong corporate culture implies greater behavioral consis-

tency among employees that may consequently push creative and entrepreneurial employees outside the firm. In addition I would like to understand how spinoff firms differentiate themselves from their parents in product markets by asking what the competitive consequences of product market differentiation are on both the spinoffs and the parent firms. Medical device industry provides a good setting to investigate these questions. In addition I would like to understand how collaborative network structure affects employees' likelihood of entrepreneurship. This can be done at both the individual and the firm level. Regarding the latter there is an extensive research documenting the organizations' network structure on various firm level outcomes such as performance and innovativeness, however, very little is known about the effect of firms' collaborative network on the outcomes of their employees' and in particular entrepreneurship by employees. I believe that this is an extremely interesting research area that would bridge network literature and entrepreneurship literature.

Moreover, I am interested to extend my current line of research to entrepreneurial finance as well. In particular I would like to understand how different entrepreneurs match with different venture capital firms. This is essentially a search and matching problem. I hope to bring my current knowledge on employee entrepreneurship into this line of research and look at differences in entrepreneurs' career background and prior organizational affiliations to determine the matching between different VCs and entrepreneurs. Within entrepreneurial finance I also think there is a lack of integration between network research and finance. Network research emphasizes the importance of individuals' network structure and social capital for various individual outcomes such as innovativeness, creativity, and labor market outcomes. However, what remains an open question is how the network structure of individuals and their social capital affect the matching of entrepreneurs and investors.