The passion and the interests in life science venturing
Choosing economic insecurity and creative challenges over predictable careers
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Abstract
Purpose – Passion and interest are the two principal drivers of competitive capitalism, and reconciling the two is conducive to a dynamic and welfare-generating economic system. On the level of the individual, the same categories can be applied to examining, for example, career choices, at times violating propositions regarding rational expectations as some categories of work include lower economic compensation or higher levels of risk than would be attractive to the median job applicant. The purpose of this paper is to examine how venture workers, employees of life, thinly capitalize science ventures, justify their career choices and how they act in order to create economic security for themselves and their families.

Design/methodology/approach – The study is based on a qualitative data collection methodology and reports on empirical research material from a study of co-workers at life science start-ups. The sample includes salaried employees working at venture capital-backed start-up companies in the life science sector.

Findings – The study indicates that passionate preferences regarding, for example, meaningful work in collaboration with peers, and the ability to participate in the creation of a new venture, have overshadowed the downside risks and the lower level of economic compensation vis-à-vis comparable work. Such findings indicate that deeply meaningful work is a useful analytical category, and that combinations of the favorable market pricing of skills and experiences, as well as state-funded welfare mechanisms, cushioning some of the market risk that employees are exposed to, will provide opportunities for venture labor, i.e. work done at thinly capitalized firms, such as start-ups, per se contributing to a dynamic industry.

Originality/value – The study contributes to the innovation management literature as it examines the key role of salaried venture workers, i.e. workers that do not hold contracts, granting them the right to compensation when venture capital investors make an exit. In addition, the study also discusses the literature on deeply meaningful work, stressing that this is a useful analytical category.

Keywords Economic compensation, Life science, Meaningful work, Start-up firms, Venture labour

Paper type Research paper

Introduction

Effort is felt only where there is a conflict of interest in the mind. James (1950, p. 451)

A tendency in industry is that large-scale and divisionalized corporations are downsizing (Budros, 1999), outsourcing (Davis-Blake and Broschak, 2009) and offshoring (Milberg and Winkler, 2010) many of their production activities in order to reduce costs and cut down on slack (Love and Nohria, 2005); in many cases, under the influence of shareholder activism (Davis, 2016; Jung, 2016; Goranova and Ryan, 2014). Corporate restructuring (Dencker and Fang, 2016; McKinley and Schere, 2000) leads to network-based industry structures wherein individual workers operate on the basis of short-term contracts as so-called free agents (Pink, 2001) or contract workers (O’Mahony and Bechky, 2006). In this new industry structure, substituting internal labor markets for external labor markets, contract workers and other categories of self-employed workers, or the employees of thinly capitalized firms, dependent on external venture capital investment on a regular basis, are expected to nourish and embrace an enterprising image of the self, rooted in the ethics of self-sufficiency and autonomy (Neff, 2013; Lane, 2010).
Furthermore, to remain attractive and “employable” in the network economy, contract workers and the employees of thinly capitalized firms need to remain “passionate” about their work while also having to tolerate the economic and social uncertainties under which they operate. Being passionate, originally a theological term (Hirschman, 1977), denotes the capacity to maintain one’s curiosity and intense willingness to further develop one’s skills and capacities. Paul Rabinow (1996), an anthropologist examining San Francisco Bay Area biotech companies, found that curiosity, a specific form of passion, was widely treated as a mark of excellence in the community of life scientists. Tom White, one of Rabinow’s (1996) interlocutors and a biotechnology researcher, argued that “boredom” is the greatest threat to a researcher’s career, in that it was “like death in a scientist” – the moment when the ability “to solve new problems isn’t there” (p. 162). Passion is, therefore, one of the key capacities animating the professional worker, in science and elsewhere.

While this heightened sense of commitment and an accompanying curiosity are qualities that are widely praised, the new generation of employees and contract workers are expected to demonstrate self-interest, a concern for the self that is “expected and even encouraged” (Hendry, 2006, pp. 270-271). In Hendry’s (2006) view, this emphasis on self-sufficiency mirrors “the rules of the market,” which provide the structures for the new regime of employment relations and work contracts. Drawing on Hirschman’s (1977) dichotomy of the passions and the interest, being the two primary forces in competitive capitalism and effectively brought into equilibrium within this specific economic regime on the basis of a combination of legislation, regulatory control, norms, practices and “market devices,” for example, contracts, this paper reports on a study of how employees of life science start-ups are capable of combining, bridging and negotiating their “passions” and their “interest” in their day-to-day work. Hirschman (1977) saw passion and interest as two ideal-typical categories that jointly propelled competitive capitalism as a superior market-based economic model, providing both opportunities for enterprise and defined market rules that kept these “passions” under control. Similarly, life science start-up co-workers are actively constructing themselves as agents who balance their own personal passions, i.e. the demand for an intellectually intriguing job, preferably “making a difference,” a goal pursued in joint collaboration with peers, with more instrumental interests, i.e. ensuring that they receive adequate compensation for their work and that they are not exposed to unreasonable economic risks that jeopardize their own and their families’ economic security. However, within the field of life science venturing, characterized by an endemic perceived shortage of venture capital and qualified venture capital investors capable of detecting the best investment opportunities, balancing passions and interest is not a trivial matter but something that demands both sangfroid and a hard-nosed entrepreneurial attitude, demonstrating a solid faith in the individual and the collective capacity to bring the ongoing activities to a close. That is, in the new regime of the network-based life science industry, passion is a significant quality, but it needs to be embedded in reasonable self-interest, as prescribed by the rules of the market, or else professional competence may be undermined or even destructed in the case of otherwise skilled professional life science workers exposing themselves to excessively high economic risks. Expressed differently, the passion of life science venturing is contingent on the market conditions at hand, for example, the supply of venture capital for financing the firm’s development projects. Operating in network-based industries demands an intuitive, or learned, capacity to handle this situation.

The remainder of this paper is structured accordingly: first, the concepts of passion and interest, whereby the latter denotes more strictly calculative rationalities, are discussed. The literature on “deeply meaningful work” is examined and related to the domain of life science start-ups. Second, the methodology of the study is discussed, and then the empirical material is presented. Finally, some implications for the innovation management literature are discussed.
Passionate work in self-interested milieus
Passions and interest as economic categories

Hirschman (1977) advances the thesis that competitive capitalism, a specific economic regime based on private ownership, corporate legislation and business charters with limited liability as some of its principal components (Weber, 1999, p. 48), has evolved over centuries of economic activity to reconcile and bring into harmony the passions of individuals, i.e. their behavioral drives and emotional dispositions, and their rational, instrumental calculations – their interests. This thesis, similar to Weber’s (1992) influential work on the role of the “Protestant ethic,” prescribing wealth accumulation as an expression of praising God as a primary driver of competitive capitalism, suggests that economic affairs are deeply seated in, as well as determined by, social and cultural conditions. One of the propositions derived from Hirschman’s work is that commercial activities have the unintended consequence of providing mechanisms that channel aggression and animosity in meaningful ways, making trade, for example, an activity that pacifies agents and turns them into welfare-generating agents by default. Using the French term douceur, a mild or gentle attitude, as a concept that apprehends all “the fine attitudes” which, for example, trade nourishes, Hirschman (1982, p. 1466) accounts for how seventeenth- and eighteenth-century scholars and commentators have praised commercial activities in terms of being both embedded in moral beliefs and something that is supportive of refined morals.

Hirschman’s (1977, 1982) claim, that economic activities, accentuated in the regime of competitive capitalism, are rooted in passions and interest, two distinct genera, is of relevance to the economic theory, gradually forking into behavioral theories recognizing the passions, and a variety of theories, underlining the rational calculation of the economic agent (Amadae, 2003). For instance, entrepreneurship scholars frequently emphasize the “entrepreneur passion” (Chen et al., 2009) as one of the predictors of successful entrepreneurship (alternatively Gielnik et al., 2015) regard such passions as being more of a by-product than the actual spark of entrepreneurial activities). This ethics of self-sufficiency places the enterprising individual in a situation whereby passionate engagement is encouraged, even mandated, whereas rational calculations of the risks involved in pursuing passionate career choices are expected to be made and carefully assessed. Operating under a variety of behavioral “biases,” well documented in, for example, behavioral economics research (e.g. overconfidence bias, “hyperbolic discounting,” wherein long-term objectives are downplayed vis-à-vis short-term interests, and akrasia – the “weakness of will”; Kamenica, 2012) and within economic horizons that are complicated to predict, such calculative practices are, nevertheless, beset by difficulties. In the end, therefore, enterprising agents are left with a series of decisions that are far from trivial (say, as Merluzzi and Phillips (2016) show, the choice between whether to acquire specialized skills or to develop more generalist skills), and in most cases made under uncertainty.

Despite such concerns, passions and interests remain a core set in organization studies of career choice and planning, with a host of studies emphasizing how human interests are sources of what Bunderson and Thompson (2009) refer to as “deeply meaningful work.” Such career choices are made regardless of the lower life income calculated, i.e. passions trump interests in terms of higher expected economic compensation being traded for “meaningful work.” At the other end of the spectrum, studies of, for instance, Wall Street finance institutes and elite law firms demonstrate that elite university graduates – the primus inter pares – are ready to submit themselves to years of so-called “grunt work,” in order to make significant amounts of money (Ho, 2009, p. 99). Depending on perceived career opportunities and individual abilities to compete over attractive positions, the passions and the interests are weighted differently, in turn, leading to different career choices.

Deeply meaningful work and the ideal of the passionate employee or entrepreneur
“Actors are assumed to construct rationales for their behavior on the basis of how they view the world,” claims Fliqstein (1990, p. 11). Fliqstein (1990) continues by suggesting that the goals and
strategies of actors result from their views of the world and are therefore “not the product of an abstract rationality”; instead, the “construction of courses of action” depends greatly on the position of actors within “the structure of the organization, which forms the interests and identities of actors” (p. 11). In addition, as Anteby (2008, p. 214) stresses, the actors’ “aspirations” are at “odds with the organization’s need for control.” No organization permits its actors to act without coordinating organizational activities (even though some firms today commit weekly time slots to “creative work,” with no predefined output expectations), with such coordination easily stymying “the passions.” However, certain jobs provide work opportunities that coincide with individual passions, thus constituting “deeply meaningful work” (Bunderson and Thompson, 2009). “[W]ork done solely for economic or career advancement reasons is unlikely to inspire a sense of significance, purpose, or transcendent meaning,” argue Bunderson and Thompson (2009, p. 32), adding that research indicates that individuals “who view their work as a calling” are “more satisfied with their work and career.” The term calling carries heavy-handed connotations regarding the duties derived from God-given gifts and talents (Greeley, 2004; Hughes, 1958), but more recent conceptualizations tend to emphasize “self-actualization and personal passion,” suggest Bunderson and Thompson (2009, p. 34).

Studying zookeepers, a relatively poorly compensated job with few career opportunities, yet highly attractive to individuals with a passionate interest in animals, Bunderson and Thompson (2009, p. 48) demonstrate that zookeepers, as a group, “tend to experience high levels of calling, duty, meaning, importance, and sacrifice.” That is, zookeepers are more pleased with their work, and regard it to be more meaningful than other occupational groups both at the bottom of and higher up in the life income expectancy pyramid. Furthermore, these zookeepers acquired an occupational identity and assumed a moral duty “to do good” in their day-to-day work, including the vow to protect the animals they were handling from, for instance, inadequate or harmful managerial decisions. The moral duty inherent in the work of the zookeeper was thus characterized by “vigilance and suspicion” (Bunderson and Thompson, 2009, p. 52), at times translating into conservative or anti-managerial sentiments. Therefore, conclude Bunderson and Thompson (2009, p. 52), “deep meaning does not come without real responsibility.” In this view, deeply meaningful work is, of necessity, embedded in moral economies (e.g. Fontaine, 2014), whereby the passions of the actor or employee have to be balanced by organizational interests and managerial decision making, expressing wider instrumental interests.

Deeply meaningful work in the life science ventures

The enormous growth in basic life science research and the development of what Gittelman (2016, p. 1581) refers to as “the Silicon Valley model of entrepreneurship,” whereby academic researchers’ scientific results are made available for venturing through the vehicle of the charted start-up business, fueled by venture capital, have strongly influenced academic research over the last four decades (Berman, 2012; Sunder Rajan, 2012; Colyvas and Powell, 2007). Before the mid-1970s, life science researchers could choose between academic research careers or careers in the pharmaceutical industry; however, after Stanford University had patented recombinant DNA in the mid-1970s (Smith Hughes, 2001), paving the way for the legal protection of intellectual assets derived from tax-funded projects, new venturing possibilities emerged. Life science researchers are frequently put forward as representatives of passionate scholarship, whereby sophisticated scientific methods and theoretical development are combined with the aim of making a difference – to cure, heal or prolong human life and to otherwise ease the pain and suffering of human beings. These are noble aspirations and, consequently, life scientists are deeply respected for their skills and their ability to commit considerable chunks of their lives to solving scientific problems and developing therapies. In many cases, life scientists are heavily committed to their work and regard it as inherently
meaningful and rewarding: “For me it is more than a vocation. Science absolutely consumes my life. That’s all I do, I don’t do anything else. I have no hobbies. I have no relationships. I just work,” said one UK-based bioscientist (cited in Holden, 2015, p. 34).

Vallas and Kleinman (2008, p. 284) argue that the success of the life science venturing model, whereby “pure science” mingles with venture capital under the auspices of profit motives and improved clinical efficacy, has also gradually penetrated the university system, now putting pressure on scientists to not only deliver scientific result but also to anticipate the economic and even financial significance of their research findings:

"The profit imperative threatens to erode the freedom and autonomy of scientific inquiry, erect institutional constraints (through patenting and licensing conventions) to the flow of knowledge and information and allow pressures to engage in revenue generation to shape the questions that researchers are likely to pursue. (Vallas and Kleinman, 2008, p. 284)"

Vallas and Kleinman (2008, p. 287) claim that this tendency is amplified by declining public support for higher education, causing university administrators to look at “market-based sources for much-needed material support and legitimacy.” As a consequence, academic scientists have been actively encouraged to “adopt entrepreneurial orientations,” i.e. to pursue other goals than to comply with the traditional production of discovery-oriented research findings (Haeussler and Colyvas, 2011). That is, in order to promote personal and research team-based careers, academic virtues such as collegiality and scientific knowledge production, in terms of being ends in themselves, are now competing with other commercial interests. Fochler (2016b), studying life science start-ups in Vienna, Austria, testifies to a similar tendency in continental Europe:

"Changes in the governance of academic careers in recent years have been quite successful in turning both faculty and junior researchers into entrepreneurs – not necessarily entrepreneurs interested in commercializing their research, but entrepreneurial managers of their own careers, publications, and grant portfolios. (Fochler, 2016b, p. 924)"

As traditional academic virtues are now under pressure of being marginalized within the university system, there is some interesting “two-way traffic,” suggest Vallas and Kleinman (2008), between start-up life science firms, today providing a space for team-based and discovery-oriented work, and academic institutions, increasingly being managed as if they were corporations responsive to shareholder expectations regarding financial performance. That is, while traditional academic virtues take refuge in start-up life science firms, academic institutions understate or even abandon the very same academic virtues, leading to a flight toward start-up firms since these can now provide better opportunities for meaningful work:

"Several of our industrial scientists [in the sample] had grown disenchanted with the pressure to generate revenue and elected to leave desirable academic positions in favour of commercial employment. These scientists felt compelled to work for corporations – ironically enough, precisely to escape the entrepreneurial pressures they encountered within the academy. (Vallas and Kleinman, 2008, p. 293)"

Using the term epistemic capitalism, denoting the accumulation of capital on the basis of research, both within and without academia, Fochler (2016b, p. 924) points at the new career choice opportunities emerging, adding the start-up firm as a complementary choice instead of Big Pharma and the academy. Life science researchers with a background in the pharmaceutical industry and now working at start-ups, appreciated the “control over the research agenda,” and the “flexibility of the organizational structures,” i.e. these researchers believed they now had better opportunities for planning their work. For the life science researchers with a background in academic institutions, in contrast, “working on a team” was the most frequent answer given when asked why they had sought employment at a start-up, arguing that the pressure to get papers into print in scholarly journals, and raising funds to finance further research work, did not promote collegiality or a sense of shared
goals and joint accomplishment. In brief, the start-up firm did provide meaningful work in ways that neither large corporations, riddled by managerial turf wars and shifting strategic agendas, or academic institutions, characterized by a fierce struggle over academic prestige and economic resources, could:

In a company, you move big things, things a single person could never do. In academia, you always have to be wary: [...] where am I on the author list? First, last? If not, then your contribution is not worth anything, really. You have to look after yourself in academia much more than in companies. And that’s a great thing about companies. You don’t have to work at building ten individual careers – you can work together on one big thing. (Life Science Company Scientist, cited in Fochler, 2016a, p. 271)

As a consequence, summarizes Fochler (2016a), start-up firms provide attractive work opportunities despite the economic insecurity deriving from their thin capitalization and from the various scientific, clinical and market-based uncertainties involved in development work.

Drawing on the work of Hirschman (1977), and the passion/interest duality, as well as the concept of deeply meaningful work proposed by Bunderson and Thompson (2009), life science start-up companies provide attractive work opportunities for researchers who no longer tolerate the disruptive managerial decisions of the pharmaceutical industry, or the status struggle and the cronyism of the academic community. As the empirical material reported below indicates, collected from Swedish life science start-up companies, life science researchers are acutely aware of the “calculated risks” they were exposed to; in many cases, they are actually working hard to balance passionate inspiration with concerns regarding their ability to provide for their families. Furthermore, in many cases, life science start-up researchers either acquire the funding to support their “risky work,” or they are at a stage of life where they “can afford” to expose themselves to the risks entailed by their career choices. Ultimately, however, their willingness to expose themselves to economic insecurity, for the benefit of being able to pursue deeply meaningful work, is based on the calculated possibilities of acquiring a new job if their current employer were to default; life science researchers in the sample estimate that their expertise and entrepreneurial experience will have a market value that protects them from long-term unemployment and its accompanying economic hardship. This finding, in turn, calls for an analysis of the broader institutional framework wherein enterprising and entrepreneurial work is pursued (see e.g. Braunerhjelm and Henrekson, 2013).

Methodology of the study
Design of the study
Venture labor is salaried work that is not fully compensated, given the systemic market risk borne by the employee (Neff, 2013, p. 16). In many cases, such risks are complicated to estimate and/or are never realized since the employer manages to raise money in order for work to continue; however, the perceived economic insecurity per se is a concern in venture labor. The life science industry, and start-up firms in particular, constitute an industry characterized by a considerable degree of non-parametric risk, i.e. uncertainty. Such uncertainties derive from incomplete theoretical mappings of biological systems, including the human body, in turn, making clinical trials the “moment of truth” when the efficacy of a new candidate drug reveals itself for the first time, as well as from venture capital investors’ difficulties assessing various investment opportunities on the basis of such biomedical uncertainties. Thinly capitalized life science start-ups, primarily based on their access to advanced professional know-how, thus make good sites for studying venture labor.

Three incubators and one science park in two Swedish cities were approached in order to identify suitable firms to include in the study. First, these firms had to be financed by either private or public venture capital and be undergoing a development phase, i.e. they should not
yet be reporting any positive cash flow. A letter explaining the research project and listing a few research questions was sent to the firm’s representatives, as identified by the incubator and science park directors. The research design is based on what Eisenhardt et al. (2016) refer to as an “inductive method,” i.e. the construction of theory on the basis of first-hand data. Inductive and interpretivist approaches are based on the credo of providing a “faithful and authentic representation of people’s perceptions of their lived experience” (Eisenhardt et al., 2016, p. 114), thus interviewing (Holstein and Gubrium, 2003; Alvesson, 2003) has been the primary data collection method used. This data collection method is consistent with previous studies of venture labor (Neff, 2013) and contract work (Lane, 2010), and studies of life science start-up companies (Fochler, 2016a; Vallas and Kleinman, 2008).

Data collection
The sample included five start-up firms in two different cities where there were major universities with extensive and internationally renowned life science research activities. A total of 16 interviewees took part in the study. For a summary of the interviewees included in the study, see Table I.

The majority of the interviewees were male, probably constituting a representative sample of the pool of venture labor workers. The age-span of the interviewees was between the late twenties and early sixties. All the interviews were conducted in situ, at the life science companies’ offices. A semi-structured interview guide was developed, balancing practical issues with more theoretical research questions derived from the literature. This interview guide was structured into four sections, i.e. background information (e.g. educational background, previous work experience), questions pertaining to choice of career in the life sciences (e.g. what the interviewee’s rationale is for working in the industry, what the main benefits are vis-à-vis other industries), questions regarding issues pertaining to economic security and private financial planning (e.g. how the interviewee anticipates and buffers economic risk), and a section including more general questions regarding views of the entrepreneurial climate in Sweden, and Europe more generally, and what policy-making initiatives the interviewees deem necessary or desirable. A considerable proportion of the questions asked were follow-up questions aimed at making the interviewees speak about issues they regarded to be concerns pertaining to their firms and their careers. The median duration time for the interviews was one hour, which was the time stipulated when the interviewees agreed to participate in the study. All the interviews were digitally recorded.

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<tr>
<th>Interviewee no.</th>
<th>Position and company</th>
<th>Incubator/investor</th>
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<td>1</td>
<td>Vice CEO, Company A</td>
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<td>Product developer, Company B</td>
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<td>3</td>
<td>Product developer, Company B</td>
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<td>4</td>
<td>CEO, Company A</td>
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<td>5</td>
<td>Product developer, Company C</td>
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<td>6</td>
<td>Product developer, Company C</td>
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<td>7</td>
<td>Director, several start-up companies</td>
<td>Incubator A</td>
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Table I. Interviewees included in the sample
Data analysis

The recorded interviews were transcribed verbatim by a professional writing bureau. A few minor lapses in the transcripts, mostly highly technical and detailed matters, were corrected. During the first round of coding, empirical categories (e.g. “economic compensation,” “the innovation work,” “sources of motivation”) were used to categorize the individual interview excerpts. During the second round of coding, these individual interview excerpts were co-located in a separate document, aligning shared themes across the interviews. These categories constituted the core of the empirical material as they would hopefully reflect the interviewees’ views of their day-to-day work and employment conditions. During the third round of coding, the empirical categories were structured in accordance with relevant theory (e.g. theories about venture labor, contract work, theories about economic security, etc.), and structured into a narrative about the nature of work at life science start-up firms.

Passionate work within scientific communities: the case of life science start-up researchers

Passionate work with colleagues at life science start-ups

Regarding the motivation of the life science start-up co-workers, it is possible to distinguish between “positive” and “negative” motivations, whereby the former denotes a set of conditions that were treated as rewarding, conducive to desirable learning opportunities, and specific to the life science start-up, while the latter denotes a number of conditions that were perceived to be “equally bad or worse” at other firms, primarily large pharmaceutical companies, where many of the start-up co-workers had spent part of their careers. Several of the interviewees returned to the question of how their contribution to the life science industry served to motivate them, and to justify their career choice: “It’s easier for me to justify things to myself when I’m developing a device that monitors the breathing of newborn children, rather than developing a carburetor for a car,” said one of the interviewees (Chief Engineer II, Life Science Company B). Another interviewee, a development engineer at Life Science Company C said, “I believe the temptation [...] the real temptation is that what you do here actually makes a difference.” He continued:

Ultimately, this is all about actually making a difference and changing how new drugs are developed. If we’re successful and manage to market our product, this means that the process of developing new drugs can be shortened, and that we can save lives. (Development engineer, Life Science Company C)

Work at the life science start-ups was thus propelled by dreams not only about making money but also about informing clinical work and the life quality of patients, distant at present but still recognized. Another interviewee underlined this motivation in terms of being integral to his career choice:

I’ve realized that it matters to me to work with something with a slightly “higher value.” This may sound like a cliché, but it’s important to me that this makes a difference [...] I could have a problem working in the video game industry for instance. That can be very innovative and so forth, but I think I’d appreciate something that’s a little closer to my heart. (CEO, Life Science Company A)

In addition to the requirement of serving a higher goal than merely making a profit or making an intellectually intriguing and well-compensated career, several of the interviewees also stressed how life science start-ups provided sufficiently complex work assignments to enable them to fulfill their professional potential. The CEO of Life Science Company D stressed how the job demanded the full commitment of the co-workers:

At these small life science companies, your competence is better utilized. You can do all of this at a large company too, but I believe the intrinsic motivation is higher when you notice that you need to take the full responsibility for making things work. At Big Pharma, you can loaf around for a day or two, and no one will notice. (CEO, Life Science Company E)
Part of this task complexity also included substantial learning opportunities, especially for more junior co-workers, who were given considerable responsibilities from day one: “This is an environment conducive to learning; there aren’t so many companies where you enter as a novice and become part of the core team developing a product intended for pharmaceutical companies all over the world” (Development engineer, Life Science Company C). According to this development engineer, work experience gained at a life science start-up entails a hands-on, jump-started career that offers many benefits to individuals with enterprising qualities and aspirations: “If you work here, you’ll gain much broader experience. You’ll participate in more things, overview the entire process [...] You’ll be likely to acquire leadership skills very quickly and have the competence to create a start-up.”

Regarding the “negative motivation,” several of the interviewees had work experience from a multinational pharmaceutical company, whose expertise and track record in developing new drugs they recognized and admired, while, at the same time, being portrayed as a milieu wherein work becomes contingent on managerial decision-making processes and top management strategies which are never fully transparent, nor possible to inform or anticipate. This, in turn, makes the work done at such organizations safe and well compensated in economic terms, yet unattractive to individuals with some degree of enterprise, argued the interviewees. One of the more senior interviewees addressed how the authority of the scientists employed by the firm was gradually being reduced as line managers started to make decisions independent of the scientists’ opinions:

“At [the Big Pharma company], I had this frustrating experience – my competence wasn’t really being fully utilized. It was a culture, a form of paradigm-shift, where the researchers, the ones who were leading the work, were by-passed by the line managers. They made decisions in important issues and ignored us. That was terribly frustrating. (Senior scientists, Life Science Company A)

“In the old days,” continued the senior scientist, “the conventional wisdom was that research demands debate.” Top management thought the scientists were “a bit annoying at times,” but top management also “knew that there would be no good research unless you have a skeptical attitude” (Senior scientists, Life Science Company A). Unfortunately, this culture of critical and open-ended discussions regarding scientific challenges tended to lose its importance as the corporation was not so much being managed on the basis of scientific and clinical agendas but more on the basis of managerial concerns: “There were all these euphemisms about ‘keeping the patient in focus’ [circulating around the company], but in the end, it was all about the shareholders, of course” (Senior scientists, Life Science Company). In the senior scientists’ view, a large-scale firm easily loses contact with its original goals due to a variety of new managerial and organizational factors surfacing and demanding attention; in the process, scientific work becomes yet another production factor to be monitored. An IT expert, with work experience from the same company, argued that managerial decision making was complicated both to predict and anticipate; in many cases, decisions were complicated to decode, in both cases leading to much frustration: “When I stopped working for [a Big Pharma company], I was really frustrated. I wanted to improve things and change things, but there was all this illogical resistance. They [top and middle management] didn’t care about the company’s best interests, they were pursuing other goals” (IT expert, Life Science Company C).

In addition to the undesirable consequences of working for large organizations, several of the interviewees argued that, today, work in the highly profitable pharmaceutical industry is also tending to become insecure, no longer serving as a career-long safe haven for well-compensated and attractive work. “It doesn’t matter if you’re the CEO of a big pharma company, because there are still no opportunities for autonomous decision making, but there are all kinds of people having their say. There’s plenty of politics, personal agendas, personal vendettas,” remarked this IT expert (Life Science Company C). While multinational pharmaceutical companies have considerable cash flows, the new drug
development process is costly (with the total, aggregated cost of a new registered drug now being in the range of 7 billion dollars, on average). The financial situation is monitored in detail, leading to lay-off decisions every now and then: “Suddenly, there’ll be this announcement from head office that we have to wind up this local facility” (IT expert, Life Science Company C).

In contrast, the start-up firm was characterized by short decision-making routes and a sense of both joint and shared responsibilities, in combination with a sense of collegiality that easily disappears in a hierarchical corporate structure. The chief engineer of Life Science Company B celebrated the opportunity to approach a scientific and technical problem from a broad perspective, and to get a full overview of the challenges at hand: “If you work at a start-up company, you’ll be given very broad responsibilities. You’ll also be given great freedom, and that suits me very well. You can control your own work time. I could value that higher than money” (Chief Engineer, Life Science Company B). His colleague emphasized the "organic" structure of the work, whereby all the employees were involved in development work, thus making it an environment conducive to collegiality:

Since it’s only a small company, there are no designated roles or assignments, but you do need to do a variety of tasks and learn very many things. At the same time, you’ll be given a lot of responsibility for a variety of things. That’s great! And it’s great working with people who are committed. (Chief Engineer II, Life Science Company B)

Furthermore, in addition to development work per se, the life science start-up provides valuable learning opportunities for individuals with entrepreneurial drive; some of the interviewees remarked: “It’s enjoyable and a challenge to build up a company, to create a team, to recruit, to find new work routines and to work effectively. I have lots of experience and things that I want to improve,” argued the development engineer at Life Science Company C. “We’re a nine-man company delivering products and services to some of the world’s largest corporations,” he continued, taking pride in the accomplishment of this small-sized firm, still in its infancy.

Given these conditions, the life science start-up provides both stimulating and interesting work assignments, a sense of collegiality and a purpose; in short, work conditions that compensated for the economic insecurity and the relatively poor economic compensation that the start-up co-workers receive for their work. “I think this is the perfect job. And I have fairly high standards regarding what I want to do,” said the development engineer (Life Science Company C), summarizing his views of his employer.

Economic interest and the negotiated level of economic security
According to start-up representatives, small entrepreneurial firms do provide a set of qualities and opportunities conducive to passionate work, i.e. work which is intellectually stimulating, which is pursued with regard to ends that are not strictly financial or economic but still “make a difference,” and which are supportive of collegiality and friendship more broadly. Yet, most of these start-ups are thinly capitalized and therefore commit considerable resources to the work of raising new venture capital to finance ongoing and anticipated development work. That is, to work at life science start-ups is to pursue a career under the Sword of Damocles of firms having to default in the event of not being successful in attracting new venture capital. In order to be able to endure this economic and operative uncertainty, and to procure a tolerable level of economic security for their families, the start-up co-workers followed various strategies. First of all, the start-up co-workers had to determine both their own and their families’ level of resilience to economic insecurity to be able to take adequate action as regards containing and anticipating the consequences of such insecurities. As in all economic ventures, different individuals express idiosyncratic “risk-aversion functions” (to use the micro
economics vocabulary), ranging from great resilience to economic insecurity to being more concerned. For instance, the chief engineer of Life Science Company B expressed only some degree of concern regarding economic insecurity, giving personal motivation greater weight when making a career choice:

Q: Is there any other motivation than making a career and acquiring a stable income?
A: That’s precisely what doesn’t motivate me.
Q: So that’s way down the list?
A: Well, I’ve realized that this is perhaps not the best choice of career [...] I do this because it’s rewarding and meaningful. That motivates me! (Chief Engineer, Life Science Company B)

His colleague expressed a similar view, equally unconcerned about the financial uncertainty of the firm employing them: “[If the firm were to default], it would be sad because I like working with the project and I like working with my colleagues. I can be a bit nervous about losing that, but I’m not worried about my income” (Chief Engineer II, Life Science Company B). Other interviewees expressed a somewhat more cautious attitude in terms of having some private funds and savings, and paying for insurances that would block some of the more severe consequences of lost income, otherwise never thinking of shifting to more secure (and better compensated) work on the basis of perceived economic insecurity:

I have all these family income insurances. But it’s clear to me that I want to receive a salary for my work [...]. If I had to run my own company, it would have been quite another matter. But here, I’m a small business owner among some other small business owners. For me, it’s important to say that I can’t work for free. (CEO, Life Science Company A)

As indicated by the quote from the CEO of Company A, for many (but not all) of the interviewees, ownership of the firm was one way of receiving economic compensation for the economic insecurity and below-market-rate salaries; however, as the economic value of shares can only be realized in a relatively distant future, ownership of the firm only played a marginal role in day-to-day work, argued the interviewees. For instance, the CEO of Company A did not primarily regard his stake in the firm as an economic incentive, instead treating it as a contractual relationship that made him more credible in the eyes of presumptive venture capital investors since he had some “skin in the game,” i.e. was incentivized to work hard for the company he was trying to make the owners of capital invest in:

For me, it’s important to hold a stake in the company. But the size of the stake is not that important. I’m not so concerned about ownership being watered down, I want to build a company for the future. But it’s really important for me as the CEO, when communicating with my investors too, to own shares and also have an incentive to remain in the company X years down the line. (CEO, Life Science Company A)

His colleague at Company A related to his ownership of the firm in a similar way, being more similar to a yet-to-be-capitalized asset which only marginally influenced day-to-day work:

I think I relate to it the same way I did to bonuses. I was part of a bonus system [at a major pharmaceutical company]. I never really cared about it, I thought about it like some special benefit that might materialize. My co-ownership here doesn’t really motivate me so much. I could think, “What if we can make a successful exit a few years from now and I get a lot of money?” Ultimately, it’s not that idea that motivates me. (Senior scientist, Life Science Company A)

In other words, for many of the interviewees, ownership of the firm is less a matter of holding liquid assets and more a mechanism for creating commitment to the firm and signaling commitment to external stakeholders. At the same time, despite being a relatively
moot question, as ownership of thinly capitalized firms with no cash flow or product on the market does not entail any economic benefits for the time being, the question of the dilution of the founding entrepreneurs’ holdings remains an issue to consider. The IT expert at Life Science Company C stressed this debate, which surfaces from time to time:

There are advantages to contracting individuals [by means of stakes] that I am personally interested in learning how the company develops. There are also disadvantages, like debates regarding the distribution of ownership, like “Why is that person getting such a big share of the pie?” It’s a matter of this person entering the firm at an early stage and taking a considerable risk. (IT expert, Life Science Company C)

According to the IT expert, this question entailed significant policy implications; he indicated that the Swedish model was unfavorable in terms of securing the founders’ incentives across a series of venture capital investment campaigns: “You cannot dilute the founders’ stakes too much, but they need the incentives to continue developing the firm. In this area, the innovation system programs need to be much sharper and more comparable to how they work in other countries.” (IT expert, Life Science Company C).

The life science start-up co-workers not only had to endure periods of economic uncertainty – at one of the companies, after being in financial distress for a period of time, the co-workers accepted working for free for one month, and receiving compensated in stock options – they were also frequently compensated below the present market rate and were unable to count on any generous benefits, or to take advantage of administrative support working day-to-day. In most cases, this lower level of compensation, and the lack of any additional benefits, was accepted out of hand due to work providing other perceived benefits. The chief engineer at Company B estimated receiving approximately two-thirds of the average market-rate salary: “It’s harder to find a senior person who’ll work for that amount of money. They want the salary they’re used to,” he remarked, thus indicating that not all professionals are equally tolerant of reduced levels of economic compensation. The chief analytical scientist at Life Science Company C said that he and his three original partners were running their firm with no prospect of economic compensation for more than two years before sufficient funds could be raised to actually pay themselves for their work. The IT expert at Company C, himself reporting a salary “substantially lower than the market-rate,” emphasized that it was complicated to negotiate higher salaries when firm are being run on venture capital, for example, business angels’ finance capital – “other people’s money”: “I don’t really think I can claim a higher salary when we’re being funded by venture capital. For as long as you’re being financed by venture capital, there will be red figures.” A scientist at Company D regarded economic insecurity as a major concern for the life science start-up industry, which did not always provide long-term and predictable income for its core workers, highly skilled professional researchers:

I see people that are forty and have a lot of experience, super skilled, super smart, living on a three-month contract every time, and they have small kids or maybe a mortgage on a house. They know that they have a job today, but they don’t know what [the managers] might be telling them tomorrow. Maybe they’ll say: We’re not going to renew your contract. (Scientists, Life Science Company D)

Apparently, working at a start-up firm is not entirely different to parental responsibilities or, more generally, being in the position of a fiduciary, whereby concern for the firm, child or benefactor trumps personal interests. This in turn, needless to say, demands a significant level of trust between the core actors of the venture since they all share the predicament of having to cut down on personal economic compensation for considerable periods of time. The development engineer at Company C addressed this tolerance of uncertainty and the lack of additional resources thus: “Regarding benefits, at larger companies that have more resources, more money, there’s more space. But that doesn’t bother me, it’s not important to me. You have to sacrifice something, don’t you.”
In addition to determining the level of economic insecurity, and the sacrifice in terms of personal economic compensation, the life science start-up co-workers had to keep an eye on alternative employment opportunities in case of a default. In all cases, the interviewees had university degrees and valuable work experience, not least from start-ups firms, meriting them for either similar work at other start-ups or life science firms in a more mature stage of development. By and large, the interviewees, who were all highly skilled professionals with sought-after job experience and track records, were aware of their market value and were not worried they would have a hard time finding new employment, especially since they were now being undercompensated for their work:

My salary is enough for me to do what I want to do. Even if I lost this job six months from now, I'm completely convinced I'd be able to get another one. I'm not providing for anyone, so I'm not concerned about my pay. Money was never a factor for me. (Chief Engineer II, Life Science Company B)

Alternatively, many of the interviewees regarded consultancy work, preferably at an individual firm, as an exit option. This kind of work was less attractive as it would entail shorter and more narrowly defined assignments with a series of clients, providing few opportunities to oversee entire projects, and not being a platform for the collegiality the start-up co-workers appreciated:

As I see things now, I'd primarily see if it was possible to work at some other Medtech company [in the unfortunate event of a default]. Working as a consultant would only be a temporary solution [...]. The possibility of working in really small teams, with clear goals, is very attractive. (Chief Engineer II, Life Science Company B)

In the end, the interviewees had a realistic and tempered view of the kinds of jobs they could secure, knowing that their expertise and experience was highly valued and that their ability to endure both economic and operational uncertainty is an entrepreneurial virtue (in most, but not all, cases), a mark of being made of “the right stuff,” an attractive quality for the pool of start-up companies seeking employees. As the CEO of Company A remarked: “You need to be aware of the risks. The probability [of the company being successful] is quite low. So I'm motivated by these milestones, being able to advance the venture step-by-step, to get closer to clinical applications.” Since “success” in life science venturing is rarely understood in terms of being able to develop an entirely new drug or technology for the market or the end user, but in terms of adding a few meaningful pieces to lengthy and uncertain puzzle that is development work, the interviewees primarily enacted their work as a series of practical difficulties to be handled en route. Life in the woods of life science venturing, beset by considerable scientific, clinical, financial and market-based difficulties, is possibly best approached with modest expectations, but with a passionate attitude that is supported by an understanding of the parametric risks involved.

Discussion
The empirical material, collected at Swedish life science start-ups, indicates that life scientists, including engineers and information technology experts, regarded the start-up firm as a site where meaningful work is conducted in collaboration with peers, with decisions being made in a manner that is both transparent and intelligible. As opposed to the academy, offering few such opportunities due to academic careers being heavily geared toward academic journal publications, in turn, engendering a strict hierarchical organization wherein academic status is the core selection mechanism, and the pharmaceutical industry and other large-scale companies, riddled by disruptive managerial decisions and structural inertia arising from these companies’ size, the start-up firm was a preferred site for passionate work. The downside to this is that such small-scale firms, commonly employing only a handful of co-workers, are thinly
capitalized, and participate in venture capital raising campaigns on a regular basis. This means that work done at start-ups is economically uncertain, frequently providing below-market-rate compensation and including few of the benefits that more mature companies can offer. Moreover, stakes in start-ups, one mechanism which, in theory, creates economic incentives for co-workers, seem to play only a moderate role in motivating these co-workers.

Expressed in the terms Hirschman (1977) proposes, the passions and interests of the start-up co-worker are biased in favor of passionate work – work that is deeply meaningful and promises to make a difference. As start-up firms are an important species in the life science industry, serving as the bridge between basic research work – the “lab bench” – and the clinical application of research findings, start-up co-workers carry out a class of professional work that is important in order to capitalize on governmental and private investment in basic research. As this work is apparently propelled by a passionate commitment to jointly conducting meaningful work, institutional conditions and economic factors outside of the focal start-up business per se need to be considered. It is reasonable to also assume that actors expressing a preference for meaningful work, instead of economically secure and well-compensated work, still have a limit as regards how much they have to forsake in order to pursue the career they would prefer, all things being equal. Therefore, the willingness to expose oneself to economic insecurity and lower levels of economic compensation, when doing passionate work, is a function of personal confidence and a belief in the attractiveness of personal skills and experiences, as well as institutional conditions, i.e. the passionate start-up worker takes calculated risks and estimates that he/she will be able to receive new offers if his/her current employer defaults. This estimation is based on the assessment that work experience and professional expertise are valued both in the life science industry and the wider labor market for engineers and IT specialists, and that there are wider welfare provisions and institutional conditions supporting these “high-risk” career choices in terms of buffering some of the downside risks. As Braunerhjelm and Henrekson (2013, p. 125) remark, speaking about entrepreneurship more widely, “[t]he effect of institutions on entrepreneurship and innovation hinges on a coherent design over different policy areas.” As a consequence, continue Braunerhjelm and Henrekson (2013, p. 125), the functioning of venture capital in “propelling entry, innovation, and growth” is critically dependent on “the legal environment, including contract law, taxes, and employment legislation.” This, in turn, calls for policy discussion and potential industrial policy reform.

The perceived shortage of venture capital in the Swedish life science industry is putting downward pressure on salaries, something which, in turn, can undermine the capacity of start-up firms to recruit the critical competencies needed for development work. Fortunately, there is a pool of skilled professionals who tolerate economic insecurity and lower levels of economic compensation, not least because of the institutional setting of the Swedish welfare state, which provides basic welfare provisions, and the market conditions whereby the willingness to conduct passionate but insecure work is appreciated by labor market actors, ready to recruit professionals who have enterprising experience and who demonstrate a low level of risk-aversion. In this view, the passion/interest trade-off (or continuum) is embedded in institutional conditions that determine the capacity of actors and entrants to make career decisions involving considerable risk. That is, some of the risks involved in venture labor (Neff, 2013), work conducted by thinly capitalized firms where ownership rights only partially compensate for lower salaries and higher default risks, are borne collectively through the mechanisms and transfer systems of the welfare state. Furthermore, favorable market assessments of the virtues and experience deriving from venture labor in, for example, life science start-ups, partly separated from and yet correlating with the welfare state’s role as
risk-bearer, reduce (but do not eliminate) the risk faced by start-up co-workers. Passionate work, by no means, wholly separated from economic interests, is therefore enabled by the welfare state’s role of cushioning risks on the individual level, and by a market that prices entrepreneurial experience and other relevant skills favorably. In economic terms, welfare provisions serve as an insurance policy that pools risks in ways conducive to risk-taking and economic well-being (Posner and Weyl, 2012; Levy, 2012). At the same time, the provision of mechanisms that bring a sense of basic economic security may not be sufficient when it comes to optimizing the output from original investments in basic life science research. Policymakers thus have to consider ways of increasing the inflow of venture capital in order to better assist thinly capitalized firms, but without inflating the market value of start-up companies, or by transferring tax money into privately owned firms without stipulating responsibilities. One way of balancing various interests is ensuring the supply of qualified venture capital investors is informed about all the mechanisms of the venting process, including the scientific, clinical and financial facets of life science venturing. In a society that abounds with finance capital that seeks productive investment opportunities (as indicated by the ballooning of the finance industry, and the securities industry in particular), qualified venture capital investors remain in short supply. Exactly how new policies like these are to be designed is beyond the scope of this paper.

This research finding has implications for the study of life science start-ups, and entrepreneurship more widely, indicating that a more developed venture capital market (as in the case of the US venture capital market, as portrayed by the Swedish interviewees), as well as more elaborate and generous welfare provisions, can actually be combined in various ways that are conducive to a vital life science start-up industry. Furthermore, the study adds to the literature on passionate and meaningful work (Bunderson and Thompson, 2009) by demonstrating that certain individuals are, in fact, willing to trade off higher levels of economic uncertainty and lower levels of compensation against more meaningful and peer-based work. That research finding indicates the existence of a variety of preferences and “risk-utility functions” among professional workers; it also provides a source of additional scholarly research and underlines the significance of terms such as “deeply meaningful work,” a conceptualization of work that is not rooted in religious faith or in other ethical convictions (see e.g. Fischer, 2004) but recognizes, for example, the value of a sense of community and collegiality in highly specialized and intellectually demanding work too. However, as opposed to the findings of, for example, Bunderson and Thompson (2009), the passionate work of the start-ups did not lead to any anti-managerial attitudes – what Bunderson and Thompson (2009, p. 52) refer to as “vigilance and suspicion” – among the co-workers as the managers and the investors were treated like business partners and participants in the pursuit of contributing to the greater good based on life science expertise. At the start-up companies, the co-workers enacted themselves as entrepreneurial subjects conducive to efficient team production activities.

Third, and finally, the study adds to the literature which stresses how large-scale organizations are today increasingly being replaced by network-based industry structures (Davis, 2016), leading to the growth of contract-based work (O’Mahony and Bechky, 2006) and the work done at thinly capitalized firms (Neff, 2013), two conditions that transfer economic risks from the employer to the employee (Bidwell et al., 2013; Hacker, 2004). Such tendencies further emphasize, for example, the welfare state’s role in stabilizing and buffering perceived and actual risks. In an entrepreneurial economy, characterized by risk-taking, enterprise and dynamic renewal, qualities widely praised in competitive capitalism and during the late-modern period, the role of the welfare state increases rather than declines, at least if defined levels of economic welfare are to be maintained – a policy arguably aligned with the median voter preferences.
Conclusion
Life science start-up firms are sites where basic life science research findings are further developed and translated into “proofs of concept” and other “product-like” entities, eventually amenable to market pricing and acquisitions. Such start-ups are commonly dependent on external venture capital investment; as such investment is acquired only after competing with other firms trying to raise venture capital, there is downward pressure on the economic compensation paid to start-up co-workers. In addition, under these conditions, work at life science start-ups includes significant economic insecurity; the question is, therefore, which employment conditions, as provided by life science start-ups, attract professional workers, many of whom could find more secure and better compensated work. Using Hirschman’s (1977) conceptual framework, including the terms passion and interest, the empirical material demonstrates that life science start-up co-workers are willing to tolerate less secure work conditions as they are now able to overview the entire work process and firms’ strategies, to conduct work that is meaningful in collaboration with their peers and to gain work experience that is not easily provided elsewhere (e.g. building and developing a new venture).

In addition to these “passionate preferences” that guide career decisions, start-up co-workers do recognize instrumental and pecuniary interests, but they also provide a series of arguments that justify and substantiate their more insecure career choices. The welfare state serves to buffer some of the individual risks, and a dynamic life science industry is understood to price work experience favorably, thus lowering the medium- to long-term risk of unemployment and loss of income. In summary, passion and interest are useful analytical categories, emphasizing different genera as well as the role of various cognitive faculties and incentives. Yet, in practical terms, passionate work is embedded in the institutional and market-based conditions that individual life science start-up co-workers survey in detail when calculating the risk they are exposing both themselves and their families to when choosing this more uncertain career path.

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Further reading

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