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Spinoffs and Entrepreneurial Talent

Mili Shrivastava*

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Abstract

Spinoffs firms are an important source of industry dynamics and innovation. While an emerging body of literature identifies strategic disagreements and ideas as determinants of spinoffs, neither of them can completely explain the spinoff process. Mere disagreements or brilliant flashes of ideas do not always lead to spinoffs. This study brings individual level determinants at the forefront in spinoff formation. Based on insights from the occupational choice theory, we argue that spinoff process is a distinctive class of entrepreneurial entrants and entrepreneurial talent is a major determinant in formation of spinoffs. Entrepreneurial talent modulates the impact of strategic disagreements and ideas on the decision to spinoff.

JEL Classification: D00, J24, L2

Keywords: Spinoffs, Entrepreneurship, Occupational choice, Disagreements

1 Introduction

Firms that are formed by ex-employees, the spinoffs, are very successful and constitute a significant proportion of new entrants across industries such as auto (Klepper, 2002), tire (Buenstorf and Klepper, 2005), modern semiconductors (Brittain and Freeman, 1986), disk drive (Franco and Filson, 2006; Agarwal et al., 2004) and the laser (Klepper and Sleeper, 2005).[1]

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[1]In this paper, we refer spinoffs as firms founded by ex employees of some firm in the industry with no connection with the parent firm.

There are two main streams of literature that theoretically analyze spinoffs formation. One body of literature identifies strategic disagreements (Klepper and Thompson, 2006) as the root cause behind spinoffs. Another body of literature discusses quality of ideas (Chatterjee and Rossi-Hansberg, 2007) as a driver for spinoffs. However, it is observed from many spinoff examples that disagreements and ideas do not always lead to spinoffs; nor are all spinoffs caused by disagreements or ideas. This leads to two important questions: First, amongst those employees who have disagreements or brilliant ideas, why do only some choose the spinoff trajectory? Second, is a spinoff firm's performance linked to the founder employee's reason of leaving the parent firm?

This paper goes to the root of the spinoff process and bring individual ability into the discussion on spinoffs to examine why some employees choose to spinoff while others do not. A compelling body of occupational choice literature suggests that entrepreneurial choice is not independent of individual characteristics. In particular, personal characteristics such as risk aversion (Kihlstrom and Laffont, 1979; van Praag and Cramer, 2001), optimism (Fraser and Greene, 2006) and entrepreneurial ability (Lucas, 1978; van Praag and Cramer, 2001) influence the decision of selecting into entrepreneurship.

In this paper, we propose that individual's entrepreneurial talent is a major determinant of the spinoff process. Entrepreneurial talent is referred as all the characteristics required for entrepreneurial activity. Following Ferrante (2005), we define entrepreneurial talent as the ability to discover, select, process, interpret and use the data necessary to take decisions in an uncertain world and to exploit market opportunities. The main factors affecting this ability are innate traits like creativity, imagination, degree of risk aversion, alertness and competence acquired through formal education (codified knowledge) as well as through job experience. The secondary element is tacit knowledge embedded in the environment available to the individual.

This paper proposes that private information of entrepreneurial talent acts as a catalyst in making employees spinoff. Employees may spinoff even in the absence of disagreements with employer or new ideas. Conversely, every employee who has a disagreement with employer or a new idea may not necessarily spin off. Thus existing theories of spinoffs who observe the role of disagreements and ideas alone cannot explain the spinoff process completely. It is in this context that the role of individual characteristics that enable employees in occupational decision making have been ignored. To the best of our knowledge, this is the first study to assert the role of individual characteristics for the spinoff process.

In the model developed here, given disagreements or ideas employees make decisions based on their entrepreneurial talent. Spinoffs are founded by employees who have entrepreneurial talent above a threshold value. New ideas or disagreements pull this thresh-

old value of entrepreneurial talent down and make employees more vulnerable to spinoff. An important result in this paperis the link between the event that triggers the spin off and the resulting spinoff firm's quality. Spinoffs that are founded based on new ideas have the highest quality in terms of equilibrium firm size.

The next section reviews existing literature on disagreements and ideas in the context of spinoffs and discusses the missing role of entrepreneurial talent in the current literature. The third section presents a simple model of spinoff. The fourth section presents results from analysis. The last section presents conclusions.

2 Strategic Disagreements and Ideas

A growing theoretical literature on spinoffs attempts to address why spinoffs emerge and which type of firms spawn spinoffs. A prominent theory of strategic disagreements by Klepper and Thompson (2006) argues that the strategic disagreements with employer lead employees to spinoffs. Spinoffs occur when employees disagree sufficiently from their employers and are ready to bear the cost of forming new firms. Klepper and Thompson (2006) argue that various cases of spinoffs in automobile, semiconductors and lasers are explainable by theory of strategic disagreements. However, strategic disagreements seem to provide an incomplete explanation for spinoff process as indeed not all disagreements lead to spinoffs and not all spinoffs are caused by strategic disagreements. An employee may spinoff without having any disagreement with employer if he considers his entrepreneurial talent high enough to be an entrepreneur. For talented individuals, entrepreneurship is a viable option to utilize human capital acquired over career life cycle. Ford's first leading spinoff, Hupp Motor company, was formed by Robert Hupp who initially worked for Olds motor works as assistant superintendent at Ford always aspired to be an entrepreneur. Spinoff firms are distinctive class of entrepreneurial entrants and the role of entrepreneurial talent has been ignored for spinoff process till now.

Hellmann (2007) suggests that when employees get new ideas they face tradeoff between continuing on their tasks or exploring new ideas. On one hand, a good idea may give greater returns than wage employment. On the other hand, pursing an idea externally is risky and involves forgoing a secure wage employment. Chatterjee and Rossi-Hansberg (2007) propose a new theory of firm dynamics where private information about the mean returns of ideas leads to an adverse selection problem in which the best ideas give a worker incentives to set up new firms. Employees reveal ideas to their employer but if the idea is very good then they leave wage employment to start their own firms. Thus, the best ideas result in spinoffs and not so good ideas are sold to existing firms. Moreover, Friebel and Giannetti (2009) suggest that employee's expected loss increases when an idea has a

high expected payoff but gets rejected from employer. Thus, these studies bring the role of ideas in decision to spinoff to the fore. However, a question still remains if good quality ideas are sufficient for the formation of spinoffs and if spinoffs decisions are independent of individuals' entrepreneurial traits.

2.1 The Role of Entrepreneurial Talent in Spinoffs

Generation and implementation of ideas are two aspects that drive change. Entrepreneurial insights do not always translate into entrepreneurial action. Shane (2000) argues that discovery of an opportunity is a necessary condition for entrepreneurship but it is not a sufficient condition. After the recognition of an idea, a potential entrepreneur must decide to exploit the idea. Spinoff process is an example of getting entrepreneurial insights and realizing them.

From the existing theories of spinoffs (Klepper and Thompson, 2006; Chatterjee and Rossi-Hansberg, 2007) it is apparent that some employees decide to spinoff when they either disagree with their employer or when they posses high quality ideas that give them enough motivation to find their own firm. But their own entrepreneurial capabilities which make them spinoff after disagreement with their employer or recognition of a new idea have been undermined. On the one hand, if some employee has a very good idea but does not believe that he has the calibre to implement it in the market, he would not spinoff. He would either try to sell his idea to his employer or just drop it. On the other hand, if an employee disagrees with his employer, unless he believes on his entrepreneurial capabilities, he would not leave a secured wage employment to set up his own venture.

When an employee switches to entrepreneurship, he leaves his secured income and employment to try new ideas in an uncertain world. Occupational choice literature suggests that individuals compare the relative reward structure of occupations given their capabilities (Lucas, 1978). Some individuals have a comparative advantage in entrepreneurship and have higher entrepreneurial talents. In Lucas (1978), managers are endowed with different talents for managing and this plays a crucial role in the allocation of the workforce among them. Talent for managing enters the production function as an additional another factor of production whose price is determined by the interaction of supply and demand. Talent has a huge impact on output as it acts as a multiplier in production function. The individual's talent determines the choice of an individual to be a worker or an entrepreneur. Following this literature we argue that the role of individual talent in spinoff process is very important. Entrepreneurial talent together with the disagreement or possession of a new idea determines who may spinoff.

3 Model

Employees are heterogeneous in their entrepreneurial talent. Every employee has private information of his ET. There is no screening device so there is asymmetric information between employer and employee regarding employee's entrepreneurial talent. Employees are homogeneous in terms of productivity thus they receive wages independent of their ET.[2] We assume a perfectly elastic supply of capital, labor and entrepreneurs organize only labor and analyze a one period decision making by an employee to switch from wage employment to entrepreneurship based on private information of his ET, disagreement with the firm's management or having a new idea. Let $S = (\psi_1, , , , , \psi_n, , , ,)$ be a technology set whose elements are ordered by low to high returns. This technology set consists of those technologies that are used by existing entrepreneurs.[3]

Employee's problem: An employee with talent τ_i has disutility of being a worker denoted by $g(\tau_i)$. Here g is a monotonically increasing function of τ_i and $g(0) = 0$. The disagreements with employer cause additional disutility when working in that firm. Thus, the utility of an employee, $u_i = f(w, \tau_i, D_i)$, is a function of his wage (w), the entrepreneurial talent (τ_i) and his disagreement with employer (D_i). The utility function of the employee is $u_i = w - g(\tau_i)$ in the absence of any disagreement. In the presence of a disagreement with employer, the utility is $u_i = w - g(\tau_i) - D_i$.

Entrepreneur's problem: An entrepreneur with ET τ who owns firm i implements technology ψ_i and employs labor L. The entrepreneur's optimization problem is $\Pi_i = \tau.\psi_i.L^\gamma - w.L$. γ is the returns to scale of production process (decreasing i.e $0 < \gamma < 1$). First order condition gives optimal labor $L^* = (\frac{w}{\tau.\psi_i.\gamma})^{1/\gamma - 1}$

Spinoff Criteria for an employee: At the end of period, employee faces four possibilities :

Case 1: No disagreement: An employee with entrepreneurial talent τ_i, without a disagreement has utility, $u_i = w - g(\tau_i)$. The indifference condition, assuming $g(\tau_i) = \tau_i$ is

$$\tau_i.\psi_i.(L^*)^\gamma - w.L^* = w - \tau_i \tag{1}$$

The employee will spinoff if he finds a technology such that $u_i < E(u_{ent}) = E(\Pi_i)$, that is, if

[2] This assumption, though is a limitation, is usual in literature (Lucas, 1978; Prescott, 2003; van Praag and Cramer, 2001).

[3] New technology and a new idea is used synonymously in remaining text. The technology set may be related to the stage of industry life cycle (ILC). For example, in immature phase of industry life cycle, this set will be of high cardinality as many different technologies are implemented by entrepreneurs.

$$\tau_i > \tau^* = \frac{w(1+L^*)}{1+\psi_i(L^*)^\gamma} \tag{2}$$

if As Figure 1 shows, if $u_i = E(\Pi_i)$, then an individual is indifferent between staying in the firm and becoming an entrepreneur.[4]

Case 2: Disagreement: If the employee has some disagreement with his employer on issues such as business strategy of firm, acquisition, change in the organization structure, or change of CEO.[5] The disagreement causes a disutility D_i of working in the firm. Thus, employee's utility of working in the firm becomes:

$$u_i = w - g(\tau_i) - D_i \tag{3}$$

As employee has some disagreement with the employer but does not have a new idea, he may spinoff by replicating his firm's technology or some similar technology.

In this case, the employee will spinoff if he finds a technology such that $u_i < E(\Pi_i)$, that is if

$$\tau_i > \tau_D^* = \frac{w(1+L^*) - D_i}{1+\psi_i(L^*)^\gamma} \tag{4}$$

As Figure 2 shows, if $u_i = E(u_{ent})$, then an employee is indifferent between staying in the firm and becoming an entrepreneur.

Case 3: New Idea: When an employee gets a new idea while working in the firm, let us say, this new idea increments some existing technology which can be referred as an idea premium and takes the form $\psi_i + I_i$. The production function becomes, $\Pi_i = \tau.(\psi_i + I_i).(L^*)^\gamma - w.L^*$, where L^* is now the optimal labor for new idea. The employee may or may not reveal the idea to the employer. This leads to two possible cases.

a) Employee does not reveal idea to the employer : The new idea brings additional expected profit. The utility as an entrepreneur increases by I_i. Now expected profit to switch to entrepreneurship is $\Pi_i = \tau_i.(\psi_i + I_i).(L^*)^\gamma - w.L^*$. Thus, an employee with a new idea will spinoff if $u_i < E(u_{ent}) = E(\Pi_i)$, that is if,

$$\tau_i > \tau_I^* = \frac{w(1+L^*)}{1+(\psi_i + I_i)(L^*)^\gamma} \tag{5}$$

b) Disagreement with employer because of new idea : The employer is assymetrically informed about the ET of employee and may be unable to properly assess the idea quality.

[4]For the calculation of thresholds refer to the appendix.

[5]Assuimg that every disagreement is of intensity D_i.

Difference between perceived profitability from idea between employee and employer leads to a disagreement. With disagreement, utility of staying in the firm is $u_i = w - g(\tau_i) - D_i$. While expected profit from idea is $\Pi_i = \tau_i.(\psi_i + I_i).(L^*)^\gamma - w.L^*$. If $u_i < E(\Pi_i)$, that is if,

$$\tau_i > \tau^*_{ID} = \frac{w(1 + L^*) - D_i}{1 + (\psi_i + I_i)(L^*)^\gamma} \tag{6}$$

then the employee will spinoff. However, if the employer accepts the idea and offers a new wage to the employee, the employee would continue in the firm if his expected profit from the new idea is less than or equal to the new wage offered by the employer. In case of an offer of higher wage by the employer, the utility of employee to stay in the firm becomes $u_i = w_{new} - g(\tau_i)$, and even then if $u_i < E(\Pi_i)$, then the employee will spinoff.

4 Results

The following propositions synthesize the analysis and explain when employees spinoff and how disagreements and ideas effect the spinoff process in addition to entrepreneurial talent. The analysis further shows the link between the event of disagreement or idea and spinoff firm quality.

Proposition 1: Spinoff firms are started by employees who have entrepreneurial talent above the threshold given by the indifference condition, holding technology constant.

The threshold level of ET for a given technology is the level of talent where an employee is indifferent between staying in the firm and the entrepreneurial option. From Equation 2, Equation 4, Equation 5, Equation 6, employees whose ET is greater than threshold entrepreneurial talent are likely to spinoff. There are different threshold levels of entrepreneurial talent in different cases. The potential spinoffs are employees with ET, $\tau_i \geq \tau^*$.

Proposition 2: The threshold level of ET with disagreement, τ^*_D, is lower than threshold without disagreement, τ^*, holding technology constant.

From Equation 4, the threshold in case of disagreement is, $\tau^*_D = \frac{w(1+L^*)-D_i}{1+\psi_i(L^*)^\gamma}$ and without disagreement, the threshold is $\tau^* = \frac{w(1+L^*)}{1+\psi_i(L^*)^\gamma}$. As $\tau^*_D < \tau^*$, a disagreement with the employer makes an employee more likely to spinoff. An individual who is indifferent or better off as an employee without disagreement, may be better off as entrepreneur after a disagreement.

Proposition 3: A new idea pulls the threshold level of entrepreneurial talent to the left.

With a new idea, the indifference condition becomes $\tau.(\psi_i + I_i).(L^*)^\gamma - w.L^* = w - g(\tau_i)$. Now a higher expected profit by spinning off is compared to the utility of continuing

as an employee. Thus without a new idea, an individual who was better off as an employee, becomes better off as an entrepreneur with a new idea. The threshold of ET when employee does not reveal the idea, is $\tau_I^* = \frac{w(1+L^*)}{1+(\psi_i+I_i)(L^*)^\gamma}$. If employee reveals idea to the employer but employer disagrees with employee, the threshold of ET becomes, $\tau_{ID}^* = \frac{w(1+L^*)-D_i}{1+(\psi_i+I_i)(L^*)^\gamma}$. Both threshold levels, τ_I^* and τ_{ID}^* are to the left of τ_i^*.

Proposition 4: An employee may spinoff even in the absence of a new idea or disagreement.

The employees who have high ET according to their own private information face disutility of just being an employee. In the absence of new ideas such employees may replicate the parent firm's technology or some technology in the neighborhood of the parent firm. This observation may explain a well known empirical regularity about spinoffs that not all the spinoff firms pursue new ideas, but still are good performers.[6]

Proposition 5: An individual with new idea is more likely to spinoff if he reveals the idea to the employer and faces a rejection from the employer.

If employee reveals his idea to the employer, one possibility is that employer rejects the idea, another possibility is that employer approves the idea but offers wage or bonus lesser than what the employee expects. In both cases there is disagreement with the employer, and the disutility caused by disagreement gives the threshold τ_D^* (see Equation 4). If the employee does not reveal the idea, he would not have a disagreement with the employer. The threshold is $\tau_{ID}^* < \tau_I^*$, holding technology constant.[7]

Result 1: The order of thresholds of ET in various cases is, $\tau_{ID}^* < \tau_D^* < \tau^*$ and $\tau_{ID}^* < \tau_I^* < \tau^*$

An employee who does not have any disagreement with his employer or a new idea has a higher threshold of ET to spinoff than employees who have a disagreement with their employer or a new idea. This shows that employees are more likely to spinoff in case of disagreements or new ideas. As ideas and disagreements bring the threshold level of ET down, an individual who was better off as an employee in the absence of disagreement or idea may become better off as an entrepreneur in the presence of disagreements or new ideas. Interestingly, the order of thresholds shows that an employee is most likely to spin off when he faces both an idea and a disagreement compared to the presence of either of an idea or a disagreement.

[6] many spinoff firms replicate parent firm's technology (Bhide, 1994).

[7] Similar result holds for disagreement and $\tau_{ID}^* < \tau_D^*$.

4.1 Disagreements, Ideas and Spinoff firm's Size

To spinoff, an individual must have optimal utility level as an entrepreneur to be higher or equal to the optimal utility as an employee. A disagreement with an employer brings down the utility of being an employee and threshold to spin off comes down(see Equation 4). Any technology which gives expected returns atleast equal to this depreciated utility of being in the firm can be implemented by the employee to spin off. As a disagreement depreciates the utility as an employee, lesser utility level as an entrepreneur is required to switch to entrepreneurship in case of a disagreement. Spinoffs in such contexts may be only self employers and not the spinoffs in the legacy of "the innovators".

From Figure 2, a new idea leads to an increase in the expected profit by the idea premium. This higher level of utility to become an entrepreneur with a new idea is compared to the utility of being an employee. By putting threshold τ_D^* in utility function of employee with disagreement, we get U_D^*. Similarly by putting τ_I^* in utility function with idea, we get U_I^*. Putting threshold without disagreement and idea τ^* in utility function gives U^*. From Figure 2, we see that $U_D^* < U^*$ and $U^* < U_I^*$. Thus, an employee who spins off because of a new idea would found better spinoff firm than employee who spin off only because of disagreements with employer.

Result 2: The spinoff firm quality is highest when employee spins off because of new idea. The spinoff firm quality is lowest when employee spins off only because of disagreement with employer.

Following from the analysis above, $U_D^* < U^* < U_I^*$. The substitution of thresholds τ_D^*, τ_I^*, τ_{ID}^* in respective utility function gives another order of optimal utilities, $U_D^* < U_{DI}^* < U_I^*$. Whether U_{DI}^* lies left or right of U^*, depends on the intensity of D and I. If I is large and D is small, it will lie on the right of U^*, or other way around, if I is too low and D is too high. Thus, a spinoff firm based on a new idea has highest quality while a spinoff firm based on only disagreements has lowest size. The spinoff firm founded because of an idea and disagreement has higher quality than spinoff firm based on disagreements but lower quality than a spinoff firm based on new ideas.

The analysis shows that $\tau_D^* < \tau^*$ and $\tau_I^* < \tau^*$; thus, both the thresholds of disagreement or idea are to the left of τ^*. Whether $\tau_D^* < \tau_I^*$ or vice versa, depends on the relative intensity of idea and disagreement. If $\tau_I^* > \tau_D^*$, it means that disagreement is of higher intensity than new idea.[8] It is observable that $L^*(\tau_I^*) > L^*(\tau_D^*)$. This suggests that if disagreement is drive behind spinoff firm, it tends to be of lower size that spinoff firm founded based on new idea.

If $\tau_D^* > \tau_I^*$, idea is of higher intensity than disagreement. In this case, it can be seen

[8] In other words, when an employee has a new idea, he still is better off as an employee but when he has a disagreement, he becomes better off as an entrepreneur.

that $L^*(\tau_I^*) > L^*(\tau_D^*)$, if $\frac{\psi_i}{\psi_i+I_i} < \frac{\tau_I^*}{\tau_D^*} < 1$. This suggests that when new idea, $\psi_i + I_i$ is a radical idea or very distinct from old technology ψ_i, then the spinoff firm from this new idea will be of higher size than spinoff firm founded becaouse of disagreement even though threshold level of talent from disagreement is higher.

4.2 Cummulative Disagreement

Let us assume that disagreement with the employer has a cummulative effect during employment span of an employee in a firm. Proposition 2 suggests that a disagreement moves the threshold to the left. Thus the first disagreement moves the threshold to the left, the second disagreement moves it further left and so on. Thus continuous disagreement leads to lim $\tau_D^* \to 0$. If employee does not spinoff after first disagreement as his $\tau_i < \tau_D^*$, second disagreement moves the threshold to further left, say τ_{DD}^*. If again, $\tau_i < \tau_{DD}^*$, employee is still better off working in the firm. However further disagreements may bring employee at the threshold or above the threshold and make him a potential spinoff.

Result 3: Continous disagreements may drive even a low talented employee to spin off.

Assuming that n^{th} disagreement has the same negative effect on individual's utility of working in the firm. Continuous disagreements lead to a significantly lower level of threshold level of talent and utility of working in the firm and thus much lower expected profit in outside option is required to spinoff. Thus several disagreements with employer may drive any employee to spinoff and then spinoff firm may not be of high quality.

4.3 Common Knowledge of Average Entrepreneurial Talent

The information of entrepreneurial talent of other existing entrepreneurs in industry can act as a refernce point and deterrent factor in spinoff process. Assume that the distribution of ET of existing entrepreneurs is unknown but the average ET is common knowledge. An employee has private information of his own ET and the average ET. The distance of his ET from the known average ET in the industry is a factor in utility maximization. The utility function becomes $u_i = w - g(\tau_i - \tau_a)$. If individual's ET is below τ_a then utility as an employee is higher than when ET is below τ_a. With common knowledge of average entrepreneurial talent of other entrepreneurs, the thresholds of ET in cases of disagreement, ideas, idea and disagreement change accordingly, for example, the threshold without idea and disagreement now becomes $\tau_{ia}^* = \frac{w(1+L^*)+\tau_a}{1+\psi_i(L^*)^\gamma}$ while previously it was $\tau^* = \frac{w(1+L^*)}{1+\psi_i(L^*)^\gamma}$. Thus, with common knowledge of average ET, the thresholds to spinoff are higher than the thresholds without common knowledge. The talents of existing

entreprenurs modulate inflow of the potential spinoff entrepreneurs.

5 Conclusion

Various theories in spinoff process (Klepper and Thompson, 2006; Chatterjee and Rossi-Hansberg, 2007) have proposed the causes for spinoff process as strategic disagreements and new ideas. The literature on occupational choice strongly suggests that a switch from one occupation to another is based on individual characteristics. This paper focuses on this individual level process to study spinoff process and argues that individual characteristics can not be ignored when explaining who spins off. Based on insights from the occupational choice literature, this paper suggests that in the spinoff process, private information of individual's entrepreneurial talent plays an important role. An employee whose entrepreneurial talent is at or above threshold value of entrepreneurial talent may spinoff in the absence of any disagreements or new ideas. On the contrary, an employee who has a disagreement with the employer, a new idea, or both, may not spinoff, if his entrepreneurial talent is lower than the threshold. Thus the analysis presented in the paperexplains who will spinoff given disagreements with employer and/or new ideas and why all employees do not leave in the presence of strategic disagreements or new ideas. The employees who are at or above the threshold level of ET are more likely to spinoff. The employee becomes more likely to spinoff when he faces disagreement with employer or gets new idea.

The analysis gives insights about the quality of spinoffs generated in different contexts. A spinoff firm founded because of new idea has the highest firm quality. In particular, comparison of thresholds of idea and disagreement gives insights about the size of spinoff firms generated due to an idea or disagreement. A spinoff firm whose founder is driven to spinoff by a disagreement than a new idea, will be of smaller size than the spinoff firm based on new idea. The results further suggest that when a radical idea is the driver behind spinoff formation, the size of such spinoff firm will be larger than spinoff firm based on disagreement.

The analysis answers another empirical regularity in spinoff literature: change in ownership or acquisition increases spinoff rates. Indeed, ownership change, merger or acquisition lead to a change in the working environment in a firm which may lead to several possibilities of disagreement(s) between an employee and employer. The analysis shows that an individual with lower ET may also spinoff because of cummulative disagreements with his employer over time. Thus, if the drive to found a firm is rooted in severe disagreement(s) with employer, spinoff firm's performance is questionable. In an environment where individuals have information about average ET of entrepreneurs in

the industry, the thresholds of ET are higher. Hence, information about other individual talent may act as a more deterring factor in the spinoff process. This paper provided new insights into the spinoff process and laid foundations for compelling questions to be answered such as the comparison of quality of spinoff firms who are known to be founded primarily because their founder had disagreements with their employer with the spinoff firms whose founder did not have any disagreement with his employer.

Figure 1: Entrepreneurial Talent and Marginal Employee

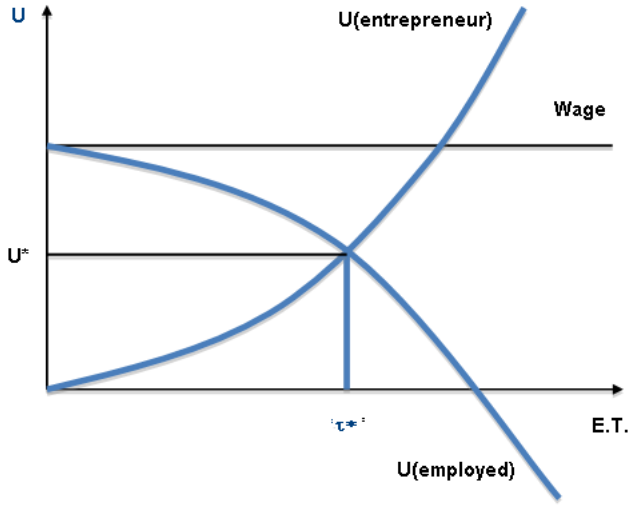
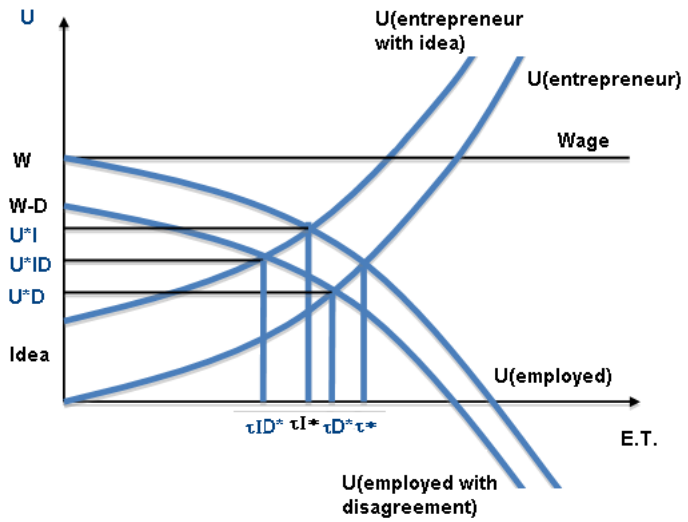


Figure 2: Entrepreneurial Talent and Spinoffs (Disagreement and New Idea)



Appendix

Threshold τ_i^* without no idea and disagreement: Assuming that $g(\tau_i) = \tau_i$. The condition for the threshold value is

$$\tau_i.\psi_i.(L^*)^\gamma - w.L^* = w - \tau_i \tag{7}$$

$\Rightarrow \tau_i^* = \frac{w(1+L^*)}{1+\psi_i.(L^*)^\gamma}$

Threshold τ_D^* in case of disagreement: When there is a disagreement, the condition for the threshold value is

$$\tau_i.\psi_i.(L^*)^\gamma - w.L^* = w - \tau_i - D_i \tag{8}$$

$\Rightarrow \tau_D^* = \frac{w(1+L^*)-D_i}{1+\psi_i.(L^*)^\gamma}$

Derivation of τ_I^* when employee has a new idea and do not reveal: When an employee has an idea and does not reveal it to the employer, the condition for the threshold value is

$$\tau_i.(\psi_i + I_i)(L^*)^\gamma - w.L^* = w - \tau_i \tag{9}$$

$\Rightarrow \tau_I^* = \frac{w(1+L^*)}{1+(\psi_i+I_i)(L^*)^\gamma}$

Threshold τ_{ID}^*, when employee has a new idea, reveals to the employer and employer rejects the idea: When an employee has an idea and do reveal it to the employer and idea gets rejected, the condition for the threshold value is

$$\tau_i.(\psi_i + I_i)(L^*)^\gamma - w.L^* = w - \tau_i - D_i \tag{10}$$

$\Rightarrow \tau_{ID}^* = \frac{w(1+L^*)-D_i}{1+(\psi_i+I_i)(L^*)^\gamma}$

Derivation of τ_I^* in case of new idea and acceptance of idea by the employer by offering higher wage: When an employee has an idea and do reveal it to the employer. Employer accepts but offers wage on which employee does not agree. The condition for the threshold value is

$$\tau_i.(\psi_i + I_i)(L^*)^\gamma - w.L^* = w_{new} - \tau_i - D_i \tag{11}$$

$\Rightarrow \tau_I^* = \frac{w_{new}+wL^*-D_i}{1+(\psi_i+I_i)(L^*)^\gamma}$

Threshold in case of common knowledge of average entrepreneurial talent τ_a:

$$\tau_i.\psi_i.(L^*)^\gamma - w.L^* = w - (\tau_i - \tau_a) \tag{12}$$

$\Rightarrow \tau_i^* = \frac{w(1+L^*)+\tau_a}{1+\psi_i.(L^*)^\gamma}$.

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