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Buridan's Ass, Risk, Uncertainty, and Self-Competition: A Theory of Entrepreneurship

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I. INTRODUCTION

In his famous biographies, Plutarch (1972) summed up what motivated Julius Caesar:

> Caesar was born to do great things and to seek constantly for distinction. His many successes, so far from encouraging him to rest and to enjoy the fruits of all his labours, only served to kindle in him fresh confidence for the future, filling his mind with projects of still greater actions and with a passion for new glory, as though he had run through his stock of the old. His feelings can best be described by saying that he was competing with himself, as though he were someone else, and was struggling to make the future excel the past (p. 298).

Caesar's 'self-competition' may explain why Nobel-laureates do not rest and movie directors do not take their Oscars and quit. As defined here, self-competition is intertemporal competition between future and past selves stemming from the desire of the present self to test self-ability. The testing involves either 'self-transmutation' or 'self-realization'. In self-transmutation, the present self undertakes intentional development of ability in order for a future-self to outperform the past self. The surpassing of past challenging performances – such as claiming new heights beyond the reach to past self – affords self-admiration. In self-realization, a future-self tries to attain what is entailed by present estimation of ability. The repetition of past but challenging performances – such

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as climbing the same mountain or climbing lower heights as one ages – affords self-respect.

Entrepreneurship expresses self-competition in its two senses. Defined as such, entrepreneurship is not limited to self-transmutation (i.e., innovation) as many think (e.g., Baumol 1993). It includes repetitive acts as long as they are at the edge of one's present ability. Also, entrepreneurship is not restricted to profit-oriented goals. It encompasses political, military, artistic, and other goals as long as they involve the testing of ability.

Agents – such as persons and the organizations they form or lead – are motivated to test ability as much as to taste its fruits. Unlike the mechanical capacity of bridges and automobiles, ability is uncertain for two related reasons. First, the estimate of ability cannot be *ex post* falsified because, second, it is subject to development. Man tries to see through the shroud surrounding self-ability and to avoid indecisiveness (Buridan's ass) through submission to authority in the sense of placing faith in oneself or in others – such as ancestors, gods, mythical heroes, charismatic leaders, romantic fixation, and secular ideologies. The reason behind the *ex post* uncertainty is that, in light of development, one cannot base the estimate of ability on *ex post* knowledge of experience. Ability would have developed through the experience. In contrast to uncertainty, risk estimation concerns the vicissitudes of events extraneous to ability. While risk assessment can be corrected by further search, assessment of current ability cannot be adjusted by studying past errors.

One observable prediction of the uncertainty/risk distinction is 'belief systems' such as religion, ideology, and nationalism. Aside from other roles, belief systems help agents to cope with uncertainty. If uncertainty and risk are indistinguishable, why have insurance and scientific knowledge largely succeeded in driving away methods – such as astrology and fortune-telling – dealing with risk but failed in crowding out belief systems? Even if insurance is not possible because of moral hazard, why have astrology and fortune-telling generally failed to replace religion and secular beliefs with respect to uncertainty?

Sections II and III discuss indecisiveness and ability. Section IV identifies the boundary of instrumental rationality. Section V critically reviews other theories of entrepreneurship. Section VI draws implications of the proposed theory.

II. INDECISIVENESS

In *Wuthering Heights*, Emily Brontë (1963) portrays Catherine as indecisive between Heathcliff, the boy rescued by her father from vicious city streets, and the desire for prestige afforded by her high-ranking husband. It might be argued that Catherine cannot decide between the two men because of imperfect information. However, she knows perfectly the qualities of each option. In any case, the problem of risky options can be corrected via insurance. It might also be argued that she cannot make up her mind because she does not know her tastes. But Catherine is keenly aware of her preference: she prefers love (Heathcliff) over status (her husband). In any case, the problem of fuzzy tastes can be corrected via a default rule: If you cannot decide, decide arbitrarily. Catherine is indecisive rather because of *anxiety* about ability: Is she able to live without status? Anxiety, defined as the state of apprehension, has immobilized her and resulted in her premature death[1].

The relation of indecisiveness to anxiety is shown in the fable of Buridan's ass – a story originally suggested and still understood as about human choice[2]. The ass starves to death while trying to decide between two identical heaps of corn. One cannot raise issues such as risky options or fuzzy tastes. Here, one interpretation, advanced by Amartya Sen (1982, ch. 2), raises the question of moral option. Sen argues that the ass undermines the weak axiom of revealed preference. He argues that choice does not necessarily reveal one's preference of material welfare because of the intervention of moral commitment. In the story, however, there is no moral option. Similar to Catherines, the ass's indecision arises from anxiety about ability: is it able to handle the choice of either heap? Such an indecision is masqueraded as a confusion over option ranking. Given that the options are identical for the ass, the masquerade is easier to unveil than in the case of Catherine.

1. The indecisiveness of Catherine differs from the vicissitude of Ophelia, the teenager who was madly in love with Hamlet (Shakespeare 1984). Ophelia lacked a sense of self-identity and felt as 'no-body'. She was ready to do anything to please Hamlet. She was also devoted to her father. When Hamlet killed her father, she became confused, went mad, and died. Such vicissitude stems from backward-looking assessment: Is my identity derived from my father's approval or Hamlet's approval? As defined here, indecisiveness arises from forward-looking assessment: Do I have the ability to live without prestige? Richard Posner (1995, p. 6), following Aristotle's *Rhetoric* (bk. 2, ch. 12), also distinguishes between backward-and forward-looking assessments.
2. The fable appeared in Aristotle's *De Caelo* as a dog who starves to death between two equally attractive portions of food. The fable was invoked by critics of Jean Buridan, the Fourteenth-Century French philosopher. Buridan argued that one should not execute any action until his reason determined the superior good (Rescher 1959/1960).

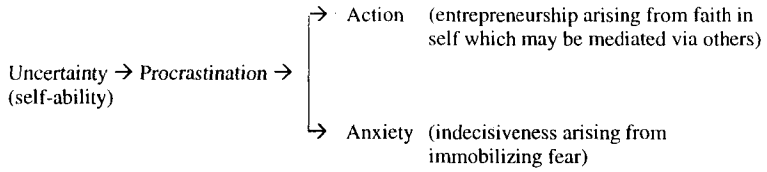
There is one difference. While Catherine doubts her ability to live without status, the ass does not have self-ability at stake. The ass suffers from 'challenge illusion'. The illusion expresses the masquerading of certainty as uncertainty. If one becomes indecisive about two lotteries, even when one is ignorant of their expected values, one would be suffering from challenge illusion. The illusion is excessive in Buridan's ass because the ass is not even ignorant about the expected values. Challenge illusion is at the root of the violation of the completeness axiom: If the agent thinks that he is more capable to undertake course A over course B without any *ex ante* known difference between A and B, he is prone to reverse his preference. Or, insofar as the two courses are *ex ante* equivalent, but the switching between them is based on non-random reasoning, the agent may choose A over B at one point and B over A at another. Such preference instability should not suggest that all cases of preference reversal arise from violation of completeness axiom (Anand 1993, pp. 31–32). Insofar as the violation is caused by illusion, it entails preference reversal.

In any case, the ass's indecisiveness does not differ from cases of agents suffering from the challenge illusion. Such agents are immobilized by 'anxiety' as they undertake tasks which appear to test self-ability. While the risk of events can be *ex ante* estimated, the uncertainty of ability cannot. So, the paper reserves the word 'uncertainty' to the issue of self-ability, and restricts the phrase 'certainty' to situations of either 'perfect certainty' or 'imperfect certainty' (i.e., risk). In case a future state depends on ability, it is important to distinguish analytically its risk probability from its uncertain feasibility of occurrence.

As *Figure 1* shows, acting on ability usually occasions procrastination, which either induces entrepreneurship or indecisiveness. Procrastination indicates 'appreciation of present pain', i.e., preference of future pain over less present pain, which is the mirror image of discounting future utility.

Figure 1

Entrepreneurship and Indecisiveness



How can one explain, beyond what is explainable by the probability of living to a future date, the appreciation of present pain. One can explain it by the desire to avoid knowing – and to avoid the disappointment which that may entail –

whether one has the estimated ability. By procrastinating, one enjoys the high estimation of self-ability and reasons the failure to attain the implied goal as the result of not trying hard enough. But procrastination engenders self-disrespect, the failure to act according to estimated ability (Khalil 1996). Entrepreneurship can be viewed as action assumed when further delay causes self-disrespect to rise higher than the utility of holding the supposed estimation of ability.

Indecisiveness can be defined as the failure to undertake such required entrepreneurial action. Indecisivness amounts to the arbitrary extension of one's enjoyment function of holding the supposed high estimation of self-ability. Whether one becomes an entrepreneur or extends further the enjoyment function depends on neurological, developmental, and social variables which are outside the task here. One can ascertain that perpetual procrastination leads to incoherence, depression, and addiction. To avoid such outcomes, the agent may revise downward his goal in two ways. First, if the agent revises his goal *ex post*, it may reflect learning about self-ability and, hence, it amounts to entrepreneurship. Second, if the agent revises the goal *ex ante*, it amounts to acting contrary to assessed ability. If such a retreat is extreme, it would not analytically differ from indecisiveness. Many agents may *ex ante* retreat from the goal they think they can achieve without sliding into indecisiveness. While the action of such agents is still entrepreneurial, it is not fully so. The mixed strategy – i.e., partial entrepreuneurship and partial indecisiveness – is outside the scope of this paper since it does not contribute to the analytical identification of the source of uncertainty.

III. ABILITY

Self-ability is the prowess of organization of human capital and, hence, called 'organizational capital' – similar to what is pertinent to the firm (Penrose 1980, Leibenstein 1987, Tomer 1987)[3]. The productivity of organisation capital depends on the coherence of the skills. Given that agents articulate their skills

3. The term 'organizational capital' is more appropriate than James Coleman's (1988) 'social capital'. First, Coleman makes it specific to groups, while organizational capital can also characterize persons. Second, the concept of social capital is ambiguous. It has been used to denote diverse things such as position goods, reference goods, and norms. With regard to position goods, social capital is the investment in networks to gain influence and distinguish one's ability from the crowd. As reference goods, social capital acts like 'ethnic capital' which buttresses the stock of trust through a credible system of penalty of cheaters. As a norm, social capital acts as the agent's peer group, which exercises influence over the member's tastes.

in the best way, the consequent ability and, corollary, entrepreneurial capacity vary. That is, one can take the variation of entrepreneurial capacity as representative of the variation of ability only if one assumes that agents organize their skills in the best way possible, i.e., do not fall, even partially, into indecisiveness.

Entrepreneurship comes in two variants. If one tries to articulate *current* skills, one realizes the potential self as it stands. If one tries to articulate *future* skills via intentional investment and training, one transmutes beyond what his current skills allow him to do. Self-realization and -transmutation differ slightly from each other. While self-realization motivates one to seek the maximum allowed by one's production possibility frontier, self-transmutation motivates one to expand the frontier.

In either variant, ability expresses the organization of primordial and acquired skills. Maximum ability with regard to a task arises from coherent focusing of diverse skills. We may assume that skill types are fixed. However, the intensity and extent of their use or disuse changes according to the task. For example, the accountant uses more intensely the computational skill than the driving skill, while a truck driver requires the reverse intensity. The decision on the relative intensity of skill use is not the challenge facing the organization of skills. The issue of organization rather involves the coherent focusing of the different intensities of skills.

Let S_j^{t1} represents skill j (j = 1, 2, 3, ..., m) at t_1 time, and A_i^{t1} agent A at t_1 time with ability i (i = 1, 2, 3, ..., n) specific to either snow skiing, house cleaning, Christmas shopping, or walking for a toddler or a convalescent. Given the intensity and quality of S_j^{t1} relevant to the task or goal, the diverse skills can be organized in different ways. But the best organization or coherence generates A_{imax}^{t1}, maximum ability i at t_1 time. To achieve self-realization and the consequent self-respect, the agent prefers best organization so that $A_{iact}^{t1} = A_{imax}^{t1}$, where A_{iact}^{t1} is actual ability i at t_1 time. To achieve self-transmutation and the consequent self-admiration, the agent intentionally invests in developing his skills in order to afford $\mathring{A}_{imax}^{t1}$, an ability greater than A_{imax}^{t1} entailed by the old skills.

In self-realization or -transmutation, one's skills improve as one tries to achieve a goal. That is, ability is a function of the testing of ability. One cannot, for a simple reason, *ex post* confirm whether the goal was at the edge, below, or above ability. One cannot repeat the test because the subject of the test, ability, would have mutated. Similar to chasing a moving target, as the agent attempts to repeat the past, self-ability develops because of the attempt. Agents, consequently, resort to gods, leaders, and even cults and romancized fetishes in the attempt to know with certitude their ability.

The uncertainty of ability occasions procrastination: does end E_1^{t1} express estimated A_{1max}^{t1}? Given that the question can never be answered with certitude, procrastination leads either to indecisiveness, as one tries to answer the question without acting, or to entrepreneurship, as one attempts to answer the question with action. One remains uncertain about self-ability even when one learns from the failures and successes of closely related others. The experiences of others do not inform one about self-ability because there are no systematic reasons why the development of ability of all agents should converge to a certain limit. Otherwise, one would have learned, in the first place, from one's experience about the convergence limit of self-ability. To note, there are two non-systematic reasons which suggest that ability may converge to a particular limit. First, biological aging places an upper limit on the development of ability. However, this limit arises from exogenous sources which may be ignored. Second, spontaneous mutation (learning) may rise at a decreasing rate. Such 'social aging' is possible if learning is path-dependent. With self-transmutation, however, the agent may intentionally intervene in order to develop his skills in a revolutionary manner which prevents social aging. In this way, the agent acts to rejuvenate the self. Thus, one cannot systematically ascertain why ability is certain.

Uncertainty as defined here does not arise, first, from changing ability resulting from aging. Second, it does not stem from a lack of skills. Such a deficiency can be corrected by cultivating the S_j set. Third, uncertainty does not spring from the tendency to overestimate self-ability. Sooner or later agents will learn to correct for such a bias. Fourth, uncertainty does not arise from the uniqueness of particular events as Frank Knight claims. Knight (1971, pp. 219–220) distinguished between uncertainty and risk along the difference between the 'real' and 'ignorance' doctrines of probability (Khalil 1997c). However, Knight's uncertainty degenerated into risk when Knight (1971, p. 225) treated it as a subjective/non-measurable estimate of unique situations where there are no classifying instances. One can simply show, along Leonard Savage (1954), that subjective risk can be transformed into objective/measurable risk through Bayesian learning[4].

Fifth, uncertainty does not stem from the noise associated with self-testing, i.e., the influence of stochastic events. Agents are able, in light of further

4. The transformation amounts to classifying the unique situation into a broader class which affords optimization techniques (e.g., Arrow and Hurwicz 1972). To wit, Daniel Ellsberg's (1961) critique of Savage's subjective expected utility approach, which is not without faults (Anand 1993, pp. 35–37), subscribes to Savage's definition of uncertainty, viz., as about surprise or the lack of information about the probability distribution of an unique event.

experiences, to discern the extent in which stochastic events skew the results. Agents eventually realize that the blaming of unexpected exogenous circumstances may lead to self-deception. Sixth, uncertainty does not arise from ecological variations even when the variations are partially the product of production. It is feasible to project storms, floods, and earthquakes, which affect renewable resources along risk probability. Seventh, uncertainty does not spring from investment in positional goods by others which clearly influence the return on one's positional investment. One can study the cost of purchasing such position goods and project the probability distribution of their diffusion. Eighth, uncertainty does not stem from Keynesian, recursive expectation where the expectation of higher inflation can become a self-fulfilling prophecy. One can base one's expectation of such trends on well-behaved cyclic dynamics.

IV. RATIONALITY

Theorists can eschew uncertainty by appealing to the average agent. But if the focus is on the unique agent, the problem persists. Given the development of ability via action, the agent, as much as the employer, face uncertainty. The proposed idea that the agent as much as others is ignorant about self-ability does not contradict the asymmetric information literature. The literature assumes that the agent knows more about his skills than the principal. In contrast, the thesis here concerns ability, not skills. In this case, neither the employer nor the employee *ex ante* knows the employee's organizational capital with certitude.

If uncertainty can be reduced to risk, faith would be indistinguishable from hope – where hope is defined as non-pessimistic expectation. If faith is hope, one would pay tribute to gods to enhance the chance, e.g., of favorable weather or lottery. The tribute would be an insurance policy which protects oneself from the risk distribution of external events. But an insurance scheme would obviously be better than relying on a belief system *qua* hope. Then, why have insurance dramatically failed to crowd out belief systems with regard to the alleviation of uncertainty? In modern societies legal positivism and science have driven away from public arena the moral and quasi-scientific roles of religions. One can only conclude that belief systems, given the onslaught of insurance, have failed to whither away because uncertainty, which such systems serve, ultimately differs from risk.

Perspectives which reduce uncertainty to risk and, corollary, rely exclusively on the optimization calculus cannot explain the persistence of belief systems with respect to the function of allaying uncertainty. Insurance policies clearly provide greater protection at cheaper prices (at least measured in lost time) than

belief systems. It is possible that insurance with regard to ability is not possible because of moral hazard. Still, why go through the trouble of constructing and maintaining expensive belief systems?

One should commence with indecisiveness in a world of certainty. Buridan's ass was perfectly certain about the quality and quantity of each heap of corn. Likewise, Brontë's Catherine was perfectly certain about the quality of each man. So, the indecisiveness of the actors cannot be explained in term of the uncertainty of the quality of the options: the two heaps of corn or the two men. Also, the indecisiveness did not arise from the confusion of ranking of options since, as made clear in the Buridan's ass story, the two options can be ranked easily. As stated earlier, we have only one alternative: uncertainty stemmed from not knowing self-ability even when such knowledge is irrelevant as the case for agents who suffer from challenge illusion. If one does not want to be disappointed by the possibility of not having what it takes to achieve a goal, uncertainty leads to inaction, indecisiveness, and eventual self-destruction. However, if one seeks self-competition, uncertainty prompts entrepreneurial action: the opportunity to escape from anxiety and act even when one is uncertain about one's ability.

This view does not mean that entrepreneurial action is irrational – as Joseph Schumpeter (1989, p. 97) half seriously suggested. Entrepreneurship represents a kind of rationality which differs from 'instrumental rationality' which has been at the core of mainstream economics dating to Lionel Robbins (1932). The opposition of rationality and entrepreneurship is better phrased as the opposition of 'instrumental rationality' and 'achievement rationality'. While the former considers ability as certain, the latter regards it as uncertain. The two moments do not have to be separated into two different species of actions. In many decisions the two kinds of rationality are facets of the same decision.

To plan for a goal, the actor usually assumes a certain (perfect or imperfect) organizational capital. In the case when the goal is unchallenging, the assumption is accurate. The adoption of the best organization turns into an optimization problem in cases such as taking a walk to the nearby park by a healthy adult. In other cases, the assumption of certain organizational capital is justified only on expediency grounds. The assumption allows the actor to plan his pursuit. Likewise, to produce results, theory must assume that ability is of a particular magnitude. To wit, relying on such an approach, the standard theory of choice has produced robust results concerning the average agent. However, the standard theory fails to realize the limit of such an assumption. The assumption must be dropped when it comes to purposeful achievement rationality. Achievement rationality is 'purposeful' in the sense that its goal is not posited external to action, such as the satisfaction of a given function. Achievement rationality is

purposeful in the sense that its goal is posited internal to action (Khalil 1997a), i.e., when one chooses it for its own sake. Purposeful action translates empirically to the quest after what is entailed by estimated self-ability – what Plutarch calls self-competition – for no reason other than avoiding anxiety.

Existentialist philosophers – such as Kierkegaard, Sartre, and Camus – and Friedrich Nietzsche (1966) come closest to providing support for the proposed concepts 'achievement rationality' and 'self-competition'. In *Thus Spoke Zarathustra*, Nietzsche (1954, pp. 225–228) characterizes creative action or life as the 'will to power' and the process of 'self-overcoming'. In self-overcoming, the agent tries to discharge his own strength without any view of a *given* end. However, the proposed notion of 'self-competition' differs from Nietzsche's doctrine in two regards. Nietzsche does not incorporate man's assessment of self-ability as somewhat based on man's knowledge of his human capital and biological endowment and, hence, fails to view self-overcoming as rational. And he does not recognize acts with *given* ends – such as survival and welfare – which allows for instrumental rationality.

Aristotle's distinction between *technê* (technical reason) and *phronêsis* (wisdom) somewhat expresses the proposed dichotomy between the two kinds of rationality. For Aristotle, as stated in *Magna Moralia* (1197a12], *technê* is limited to *poiêsis* (production) while *phronêsis* is limited to *praxis* (i.e., moral action):

> 'Wisdom *(phronêsis)*, then, is concerned with doing *(praxis)* and things done, but art *(technê)* with making *(poiêsis)* and things made; for it is in things made rather than in things done that artistic contrivance is displayed' (quoted in Murphy 1993, p. 92).

Aristotle conceived optimization as different from wisdom as much as production differs from political moral action. He situated the two moments as separate species of action – which need not be the case. As James Murphy (1993) judiciously argues, production involves transmutation (achievement rationality), and politics entails artful calculation (instrumental rationality). However, Murphy's combination of the two moments in the same action does not get rid of the major problem which inflicts Aristotle's distinction – a problem also present in Max Weber's (1978) famous distinction between *Wertrationalität* (value rationality) and *Zweckrationalität* (instrumental rationality).

Weber's two moments are dimensions of the same event – similar to the thesis that instrumental and achievement actions are usually facets of the same action. However, Weber's value rationality – similar to what Hamish Stewart (1995) calls 'constitutive', Shaun Hargreaves Heap (1989) dubs 'expressive value', Albert Hirschman (1985) labels 'striving and attaining', or Amartya Sen (1982)

names 'commitment' – does not involve the ends-means assessment as is the case with the proposed idea of achievement rationality. The negation of the ends-means framework in order to assert non-instrumental (non-optimization) rationality is unwarranted. Such a position identifies the ends-means framework with instrumental rationality rather than conceiving instrumentalism as only one kind of ends-means assessment. That is, contrary to Weber, Sen, Murphy, and a host of other thinkers, achievement rationality also involves ends-means assessment. For instance, when one pursues the commitment to become a philosopher or a chef, one has to grapple with whether such a professional choice is entailed by one's ability, i.e., means. That is, one has to use the ends-means framework in non-optimizing choice. Thinkers ranging from Aristotle to Weber have simply placed us on the wrong path by drawing the dichotomy between ends and means. The dichotomy is rather between two kinds of ends-means rationality.

V. OTHER THEORIES OF ENTREPRENEURSHIP

The proposed theory can be distinguished from four others. The first portrays the entrepreneur as a monitor who minimizes shirking (Alchian and Demsetz 1972), an owner of physical capital (Hart 1995), or a judge of unique events (Knight 1971, Buchanan 1980). While these views stress ability, they model it as a skill which affords cognitive deftness in comprehending an externally given distribution of events. So, entrepreneurs are agents who do not suffer as much from bounded rationality when they confront optimization problems.

The second approach is the works of Friedrich Hayek (1945), Ludwig von Mises (1966), and Israel Kirzner (1973). They portray the entrepreneur as a coordinating agent who is capable of exploiting unnoticed opportunities because of, as Kirzner puts it, special 'alertness'. In specific, Kirzner's entrepreneur takes more

> 'the form of a humble peddler at the fair than a contestant in the lists' (Ricketts 1992, p. 68).

Such an agent takes advantage of the discrepancy among prices of the same good across location and time. Such a function, hence, pushes the market towards equilibrium. But the market may not reach equilibrium because – and here is where this approach differs from Robbins's – of *ex post* sub-optimization arising from discovery of new opportunities. Such an approach accounts for disequilibrium arising from market imperfections and, hence, it is not about creative entrepreneurship.

Schumpeter's (1989) work epitomizes the third approach. He views the entrepreneur as an ambitious actor not content with ordinary profits. The entrepreneur assembles the innovations advanced by others in a way which challenges the dominant production methods. The driving force behind the entrepreneur's action is his taste for fame, recognition, and grandeur. So, the issue for Schumpeter is the set of tastes rather than the set of uncertain ability. The stress on tastes entails that the entrepreneur does not have to be creative with regard to ability. One can achieve fame by winning the lottery or by acting opportunistically.

The fourth view is the works of G.L.S. Shackle (1972), Brian Loasby (1976), Ludwig Lachmann (1977), Ulrich Witt (1992), and Don Lavoi (1991). This subjectivist view stresses cognition, imagination, and novelty. This approach treats uncertainty as the outcome of radical will. This view implies that ability is not a function of one's biological and human capitals – as if the abilities of identical twins with identical training are as related as the abilities of any randomly picked pair. In addition, the subjectivist view treats risk as uncertainty, i.e., present risk probability of external events as largely the product of imagination or cognition. As sensed by Ulrich Witt (1989), the subjectivist approach cannot relate the supposedly unmeasured and totally subjective expectations to objective reality in the sense of either externally given events or self-capacity. Thus, the subjectivist approach ultimately cannot account for the variation of ability and entrepreneurial capacity.

VI. IMPLICATIONS

While neoclassical economists focus on given ability which allows optimization, psychologists focus on uncertain ability which occasions anxiety and achievement. The two pictures are not alternatives, i.e., neither view is a general theory of decision making. While it cannot account for entrepreneurship, the neoclassical agenda affords simplicity. This explains why the role of uncertainty as opposed to risk has been largely neglected.

The risk/uncertainty distinction reflects two kinds of rationality. Under instrumental rationality, the agent assumes an organizational capital and determines action given the risk of external events. Under achievement rationality, the agent tests the uncertain constraint (organizational capital). The test spontaneously, and sometimes intentionally, causes the development of the constraint itself. Uncertainty stems from the fact that organizational capital is a potential sensitive to experience. This should not mean that organizational capital is almost elastic, i.e., greatly determined by erratic, subjective imagin-

ation. It is rather an objective entity – but one whose extent can only be known by experience which, paradoxically, changes its extent. On this basis, the extent of organizational capital is *ex ante* uncertain with regard to challenging tasks.

The proposed theory has many implications beyond entrepreneurship. To mention a few, first, the exclusive reliance on instrumental rationality has led to the modeling of innovations as exogenous shocks. In contrast, if we model action as motivated by self-competition, it becomes possible to endogenize discovery and innovation as nothing other than spontaneous learning-by-doing. Second, the proposed view sheds light on one kind of institutions – viz., paradigms or belief systems – which cannot be explained à la conventions and standards recommended by optimization. Beliefs are the grounds to which man resorts in order to assuage uncertainty and avert sliding into indecisiveness, despair, addiction, or compulsiveness. Therefore, beliefs, unlike conventions and standards, cannot be inefficient – where efficiency is defined by the optimization criterion. Beliefs can only be non-conducive or non-viable insofar as the development of the agent is concerned.

Third, if addiction expresses indecisiveness, it is distinguishable from habits – contrary to Gary Becker's (1996) thesis. While Becker is correct that habits express the path-dependence of tastes, i.e., the importance of past behavior, addiction or compulsiveness is rather a short-term strategy for dealing with the anxiety arising from forward-looking testing of ability. Thus, Becker's rational theory of addiction is actually only a theory of habits. Fourth, self-competition sheds light on acts motivated by the desire to become immortal. As such, self-competition may be the prime reason – rather than altruism (Becker 1991, ch. 8, Mulligan 1997) – why the agent invests in the human capital of his offsprings or endows philanthropic foundations to advance posthumously his vision and name.

Fifth, the proposed view of entrepreneurship may shed light on the public debate concerning taxation and subsidies. Given the suggested idea that agents are not only motivated by only instrumental rationality, the motor of economic development is not exclusively, or even primarily, sensitive to the pecuniary incentives of tax rules. Sixth, the uncertainty of a body politic with regard to self-ability may lie at the root of the difference between radicals and conservatives on whether a country should assume a new challenge. Seventh, if self-competition differs from market competition, firms undertake innovations independently of market structure. This may explain why unthreatened monopolists may also introduce innovations.

Eighth and most important, the idea of uncertainty may explain the nature of the firm as different from networks such as cartels, alliances, and long-term relationships. The firm and organizations generally such as states and house-

holds share features with networks inasmuch as both firms and networks are informed by instrumental rationality. However, insofar as organizations are individuals that differ from networks, achievement rationality may locate the origin of the organization/market divide.

With regard to the firm (Khalil 1997b), it can be modeled as an organizational capital which pursues a set of goals. The organizational capital cannot be applied coherently toward such goals if the members of the organization do not surrender (within limits) their autonomy to the organization. Such surrendering has to be one-way; otherwise, the organizational capital cannot be applied to the set of goals.

The one-way surrendering of autonomy, the origin of authority and political allegiance, makes it possible for the owner/leader/manager to assess the ability of the organization and to make entrepreneurial decisions upon such an assessment. The determining factor of who possesses greater authority within the organization does not reflect differences in human capital or ownership of physical capital. Rather, it ultimately rests on who is more capable of organizing the different skills and physical capital inputs into a coherent whole and lead/manage the consequent organizational ability. In this light, the firm's capability is not given, but rather is a function of the organizational capability of the leader/manager.

Of course, such an implication raises a host of questions. It suffices to add, however, that the suggested theory of entrepreneurship can shed light on how intrafirm contracts differ from interfirm contracts. While intrafirm contracts are based on the uncertain assessment of ability, interfirm contracts are based on risky but certain contingencies. The same applies to the study of the difference between citizen-state contracts and interstate contracts. This avenue of study would invite not only psychological theories of anxiety, but also political theories of authority into the heart of economics.

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SUMMARY

The paper defines entrepreneurship as about 'self-competition', the quest to test self-ability: Can a future self achieve greater goals than what has been so far achieved? Self-competition involves the development of ability and, hence, *ex post* assessment of ability is uncertain. Such uncertainty occasions either immobilizing anxiety (Buridan's ass) or entrepreneurial action. No such uncertainty surrounds the assessment of risk probability characterizing events such as floods and stock market crashes. An observable prediction of the proposed uncertainty/risk dichotomy is that insurance, which concerns risk, cannot crowd out religion and other belief systems which appeal to uncertainty.

ZUSAMMENFASSUNG

In diesem Papier wird Unternehmertum im Sinne von 'Selbst-Konkurrenz' definiert, als Streben, die eigenen Fähigkeiten unter Beweis zu stellen: Kann das zukünftige Ich höhere Ziele als bisher erreichen?
Selbst-Konkurrenz beinhaltet die Entwicklung von Fähigkeiten, und daher ist deren *ex post* Einschätzung unsicher. Diese Unsicherheit führt entweder zu einer lähmenden Angst (Burdians Esel) oder zu unternehmerischer Aktivität. Im Gegensatz dazu ist die Einschätzung der Risikowahrscheinlichkeit von Überschwemmungen oder Kursschwankungen an der Börse nicht von einer solchen Unsicherheit geprägt. Als beobachtbare Voraussage aus der vorgeschlagenen Unsicherheit/Risiko-Dichotomie heraus ergibt sich, dass eine dieses Risiko betreffende Versicherung nicht in der Lage ist, Religion und andere Glaubenssysteme, die sich auf Unsicherheit beziehen, zu verdrängen.

RÉSUMÉ

Ce papier définit l'esprit entrepreneur comme 'une concurrence de soi', la quête d'éprouver la capacité de soi: Est-ce possible qu'un futur-soi puisse achever de plus grands buts qu'il a déjà

accomplis? Une concurrence de soi consiste du développement de sa capacité, donc, l'évaluation *ex post* de cette capacité n'est pas certaine.
Une telle incertitude mène à une anxiété paralysante (l'âne de Buridan) ou à l'action entreprenante. Une incertitude de la sorte n'entoure pas l'évaluation de la probabilité de risque qui caractérisent les événements tels comme l'inondation ou la chute de la Bourse. Une prédiction qu'on peut observer de la dichotomie proposée incertitude/risque, c'est que l'assurance, qui concerne le risque, doit laisser de place aux réligions et aux autres systèmes de croyance qui invoquent l'incertitude.