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## Introduction



## Special Issue on “Measurement Issues in Entrepreneurship Studies”

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The study of entrepreneurship spans disciplines ranging from individual psychology to macroeconomics. In the future, scholars of entrepreneurship are just as likely to study the neurochemistry of risk aversion as the impact of global trade policy. In short, the interdisciplinary breadth of entrepreneurship studies is mind-boggling. However, that breadth compels the field to continuously improve the logical rigor of the underlying theory and the empirical rigor of the methodology deployed. In fact, research design becomes absolutely critical, with poor design often resulting in fatally flawed work. A great design is useless without adequate measurement. This special issue offers several articles that help advance the field's ability to properly measure its constructs.

Research methods range with the disciplinary focus of the scholarship. Economists exploring entrepreneurship tend to take the firm as their unit of analysis and are accustomed to pursuing inductive work through multiple regression analysis and mathematical modeling to inform theory building. Individuals are the typical unit of analysis for psychologists studying entrepreneurship. While economists can imagine finding more or less linear causal relationships in the study of entrepreneurship, psychologists expect the road to causal understanding of the entrepreneurial process will be long and very complex. No matter the discipline or whether research methods are quantitative or more qualitative, measurement issues cut across all approaches to entrepreneurship research.

Measurement issues are central to the evolution of any field, but they are particularly vexing in a field as diverse as entrepreneurship. Roughly 30 years into the study of entrepreneurship, a survey of scholarly literature suggests more divergence than convergence in the object of study. The field embraces the study of the attributes of entrepreneurial individuals ranging from those with entrepreneurial intentions to serial entrepreneurs with demonstrated capacity to found new ventures. The field also encompasses the study of small firms where researchers ask about rates of creation, persistence, growth, and other attributes of small businesses.

Additionally the field includes investigation of entrepreneurial activities whether undertaken by individuals or teams in settings spanning new businesses and large multinational corporations. From scholar to scholar in the field of entrepreneurship, the so-called “dependent” variable differs considerably.

Measurement issues are acute in entrepreneurship studies because the field embraces extremely diverse disciplines and divergent definitions of the primary object of study, not to mention the wide range of deductive and inductive approaches to explaining variation in the object of study. This special issue reflects a general trend in entrepreneurship scholarship. This is a return to first principles in research design by focusing on and justifying definition, validity, operationalization, and measurement of central constructs in the study of entrepreneurship. This trend, of which our issue forms a part, is signal of maturation in the field. Careful formulation and use of central constructs in entrepreneurship scholarship are the building blocks necessary for cumulating knowledge in a field that has labored to deliver that holy grail of social science.

Wennberg's paper in this volume highlights this problem. He compares sample-based survey research findings about underperformance of women-owned firms with the study of gender and entrepreneurial performance using a large public database covering 90 percent of the defined population. These two studies came to opposite conclusions about female underperformance. While Wennberg suggests results from the large-N database study are more credible, debate about female underperformance will continue until similar results accrue through further empirical study.

Widespread agreement about constructs is among the first signs of maturation in any field of the social sciences; a very important second stage in the accumulation of social scientific knowledge comes with successful data “triangulation” based on widespread agreement about basic constructs. Triangulation refers to validating empirical results, with the goal of knowledge accumulation, by seeking consistent descriptions/results across studies even when investigators

use different data to explore the same phenomenon and/or similar data collected from different sources.

The papers in this issue contribute to both steps in the march toward maturation of the field of entrepreneurship: construct concordance and data triangulation. Three of the papers presented here contribute to the specification and operationalization of entrepreneurship concepts. These concepts are founding time, entrepreneurial intensity, and entrepreneurial self-efficacy. The fourth paper explores how researchers can use large databases including official statistics and private collections to validate the results of the more typical study relying on sample survey data.

The relative balance in this special issue between papers focused on construct validation and data triangulation is quite appropriate given the importance of getting the constructs right before starting to try to triangulate results. While pointing out the tremendous research opportunities afforded by these databases, Wennberg warns that it is important to understand their shortcomings, including often hard to identify problems with specification and measurement of the central constructs. The temptation to create one's own measure is difficult to resist, especially where we are not confident in existing measures.

The vast majority of scholars in the field construct their own databases usually by survey a small population sample rather than laboring to work with existing databases precisely because it is easier to create, validate, and operationalize one's own constructs than unravel someone else's. The well-known GEM database offers an interesting example of both the rewards and the pitfalls of working with large databases. Researchers have come to worry that several important GEM constructs suffer potential validity problems because of variation over time in the details of how the standard GEM surveys were administered. However, the field is displaying its increased maturity as the GEM data improves annually and the clarity of the measurement increases.

Nonetheless, for the researcher seeking to explore the promise of using large databases Wennberg's paper is a useful "how to" manual that covers how to combine databases, making sure that variables are theoretically grounded and the value of large databases in assessing causal direction and effect size and for multilevel analysis, making sure that variables are theoretically relevant, ensuring consistent definition and measurement to avoiding the minefields strewing the field.

The other three articles help us to understand a bit more about key constructs and how to measure them, both validly and reliably. In each case, the authors focus first on constructs before turning to measurement. In one case, we will see the introduction of a relatively new construct (and still a work in progress), that of "founding time." As such, this may be the most controversial article in this special issue—and

thus perhaps the most valuable as here the measurement issues hinge completely on the theoretical logic.

The construct of entrepreneurial intensity is less novel, yet still underexplored. Pistrui's short, elegant (4 items) measure was the first to tap into the more volitional aspect of entrepreneurial behavior. Until we identify and test a more direct measure of entrepreneurial passion, intensity represents a useful measure. Let us examine the "back story" to entrepreneurial intensity.

Krueger and Kickul (2005) have deployed intensity as a potential third "leg" of entrepreneurial intentions, using intensity to add the missing "I will" to "I want to" (perceived desirability) and "I can" (perceived feasibility). Shapero's seminal model of the entrepreneurial event (Krueger 2000) posited a propensity to act on opportunities that was a moderating effect on intent. If passion is the missing link in entrepreneurial intentions, it behooves us to measure it reliably and validly.

Past attempts to capture this propensity to act include locus of control (Shapero's proposed proxy), desire for control (Krueger 1993) and Seligman's learned optimism (Krueger, Reilly and Carsrud 2000). The latter two explained significant unique variance, but remain only proxies. Pistrui's measure provided the first direct measure of a most critical construct.

Liao, Murphy, and Welsch here show the power of using this measure, demonstrating that entrepreneurial intensity can be a key differentiator between entrepreneurs and non-entrepreneurs. Is this the final word on intensity? No, but at worst it should inspire us to redouble our efforts to develop a theoretically-rigorous and empirically-robust measure of entrepreneurial passion (Cardon et al. 2005; Krueger 2005). Until then, Welsch and Liao offer evidence that Pistrui's measure is well worth incorporating into models addressing entrepreneurial volition or intent.

Entrepreneurial self-efficacy first appears in the literature in 1988 in work by Scherer and colleagues (1989); Albert Bandura's landmark book had only appeared in 1986. One of the key links in Bandura's popular social learning theory, self-efficacy offered scholars a strong theoretical basis to examine the initiation of (and persistence at) goal-directed behavior. This inspired others to begin testing its impact in various incarnations (Krueger 1989; Krueger and Dickson 1994), finding that self-efficacy is linked closely to critical entrepreneurial phenomena such as perceptions of opportunity (and thus intent).

Measuring entrepreneurial self-efficacy is not without its issues. If self-efficacy is the belief that one can execute a target behavior (such as entrepreneurial behavior), it still begs the question of what behavior (or set of behaviors) are being targeted. Is it the set of behaviors needed for launch? Is it a combination of startup and managerial behaviors? We end up

with competing measures that need not correlate closely with one another. So, which scale to choose?

Regardless, it becomes a challenge to identify a parsimonious list of behaviors and a parsimonious list of measurement items. Baron (e.g., 1998) would argue that we should slice the Gordian knot by using a measure of general self-efficacy. Bandura argued persuasively that self-efficacy is not a person variable; rather it is a person X situation variable just like opportunity perception and intentions. However, harking back to Shapero's propensity to act—and Pistrui's entrepreneurial intensity—there is room conceptually for a person variable such as general self-efficacy, especially as a moderating effect. In fact, the moderating effect is likely to be the most interesting result. Moreover, measurement theory would suggest that it may well be worth making the tradeoff of situational specificity for a shorter but reliable and valid measure like the eight-item general self-efficacy scale.

Kickul et al. tackle the issue of measuring entrepreneurial self-efficacy head on. Results indicated the divergence of De Noble et al.'s and Chen et al.'s entrepreneurial self-efficacy measures in that several of the subscales were related to different tasks within the entrepreneurial creation process. The

results suggest that if we must have a single scale for entrepreneurial self-efficacy, then the optimal scale should draw items from the competing scales. In essence, we may not necessarily need to go back to the drawing board but rather carefully adopt subscales that would help us uncover those most important in influencing entrepreneurial intentions and actual behavior. Following Brown & Kirchoff (1997), it also permits us to better target specific components of the entrepreneurial process.

As with intensity, is this the final word on entrepreneurial self-efficacy? Again, hardly. But even if we have not made enough progress on measuring it, we have now made significant progress in understanding what it takes to build better measures.

We invite our readers to pick up where all these authors have left off and help advance measurement in the field of entrepreneurship. For example, just as we saw how Liao et al. independently tested Pistrui's measure, we look forward to independent testing of the "founding time" measure. The editors themselves now realize how far we have come but also just how far we have to go. Fortunately, we are also seeing that moving forward is "simply" a matter of disciplined effort, guided by theory.

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