

Expertise, University Infrastructure and Cognitive Logic: *Assessing Students Who Start Ventures*

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- **We want our students to be passionate visionaries**
- **But we also want them to start something --- and deal with practical realities**
- **Key questions when we consider the raw material that we have to work with are:**
 - **How do students think or reason?**
 - **How do students view the world?**

And a related problem...

If entrepreneurship is “the pursuit of opportunity without regard to resources controlled” that’s great and inspiring but

**How do I create a successful
venture when I have nothing???**

And this leads to...

**How do we affect how students
think or reason???**

Two types of cognitive thinking styles

(Sarasvathy, 2001)

a) **Causal reasoning**

- start with pre-determined goals
- start with pre-determined set of means---which can be augmented over time
- entrepreneur seeks to identify and pursue the optimal alternative for achieving a given goal
- opportunities are assumed to exist a priori ---waiting to be discovered by the entrepreneur (are objective)
- entrepreneur employs a systematic, multi-stage process (linear, uni-directional with known outcome (the goal))
- things are controllable and predictable

b) Effectual reasoning

- **future is not controllable or predictable, but I can affect outcomes if I focus on what I control**
- **I begin with a set of means and allow goals to emerge**
- **the means at hand is combined creatively, reconfigured---drawing upon guerrilla skills, leveraging, bricolage, bootstrapping**
- **opportunities are discovered through an iterative process of engagement and interaction---or are created**
- **opportunities and markets are subjective---limited only by the entrepreneur's imagination**
- **entrepreneurial process is dynamic, non-linear, interactive**
- **the means may be given, but not the goals or outcomes**

Bird-in-hand {start with your means} : who I am, what I know, and whom I know.

Affordable loss {focus on the downside risk} : limit risk by understanding what they can afford to lose at each step.

Lemonade {leverage contingencies} : experts interpret “bad” news and surprises as potential clues to create new markets.

Patchwork quilt {form partnerships} : build partnerships with self-selecting stakeholders. Obtaining pre-commitments.

Pilot-in-the-plane {control v. predict} By focusing on activities within their control, entrepreneurs know their actions will result in the desired outcomes.

Emergence

- Outcomes transcend the set of inputs
- Something novel is being created
- What was intended is rarely what is created
- Opportunities, ventures, and entrepreneurs emerge

Two explanatory variables

1. The university entrepreneurship program

- Do we reinforce causal logic?
- Do faculty think in causal ways?
- Universities are staid, conservative, procedural and process-driven places --- resource-driven not opportunity-driven
- Apart from a plan itself and its role --- are we teaching a planning logic: **do x, then y, get z**
- Do we stress reacting to and following markets rather than leading them?
- Do we assume opportunities exist and one just needs to go and find them?
- Are we deterministic---spend this much, get this much market share?
- Do we think outcomes are predictable?

Two explanatory variables

2. Expertise

- Trial and error experiences are the source for experts of much of their knowledge
- They learn from intense, prolonged and highly focused efforts to improve performance
- Repeated engagement in activities critical to the entrepreneurial process
- Experts use analogical (finding associations based on knowledge generated from personal experience) rather than analytical decision-making

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- Novices rehearse skills in a more theoretical context
 - The question is how much E programs create opportunities for repeated practice---many do not

Literature support

- Antecedents and different conditions of effectual behaviour of entrepreneurs are understudied (Svensrud & Åsvoll, 2012).
- Effectuation theory criticised because it was developed from research on expert entrepreneurs --- may be less representative of inexperienced entrepreneurs (Perry, Chandler & Markova, 2012), e.g., students.
- University infrastructure can be a significant influence on student attitudes, behaviors and decision processes (Hastie, 2007; Politis et al., 2012).

Research question

Do university entrepreneurial infrastructure and business experience affect the cognitive logic employed by student entrepreneurs?

The university as resource

- Decision to pursue a venture and the way entrepreneur proceeds is strongly affected by access to resources (Hulsink & Koek 2014).
- RBV: competitive advantage is rooted in unique resources the firm possesses or controls (Barney 1991; Wernerfelt 1984).
- Access to resources, particularly those related to **human**, **social** and **financial** capital, foster opportunity development at different stages in entrepreneurial process (Davidsson 2006; Klyver & Schenkel 2013).
- Student entrepreneurs, with few resource options, will try to access relevant inputs at the milieu they are closely familiar with – the university environment.

Human capital & entrepreneurs

- Human capital is ‘knowledge, skills, competences and other attributes embodied in individuals that are relevant to economic activity’ (OECD 1999).
- Entrepreneurship education positive impacts human capital --- affects beliefs, capacity to exploit opportunities, and knowledge (Martin, et al., 2013; Volery et al. 2013).
- Reliance on effectual reasoning is driven by both perceived uncertainty and one’s experience (Harms and Schiele 2012). Thus, experienced student entrepreneurs may be prone to effectual logic.
- To an inexperienced student entrepreneur, it may seem natural to apply the knowledge and skills they have gained based on textbook-type causal logic.
- Entrepreneurship education based on conventional paradigm of business planning, market analysis and search and select logic in opportunity identification (Barringer and Ireland 2010) also may bias experienced student entrepreneurs towards causal logic.

H1a. University human capital is positively associated with reliance on causal approaches to venture creation among inexperienced student entrepreneurs.

H1b. University human capital is positively associated with reliance on both causal and effectual approaches to venture creation among experienced student entrepreneurs.

Social capital & student entrepreneurs

- Social capital refers to networks of relationships in which personal and organizational contacts are closely embedded (Bastié, Cieply, Cussy 2013).
- Building social capital can help young entrepreneurs overcome relative lack of legitimacy (Hulsink and Koek 2014).
- Network relationships are especially important during the planning stage - a distinct characteristic of the causal approach (Greve and Salaff, 2003).
- Inexperienced entrepreneurs are likely to believe approaching business professionals with well-defined plans & strategies makes them appear prepared and confident about how they will proceed with a venture.
- With experienced student entrepreneurs, university offerings devoted to development of social ties may be an opportunity to extend the social capital gained through work experiences. A wider net of social connections may serve as a basis for effectual approaches to emerge.

H2a. Access to university social capital is positively associated with reliance on causal approaches to venture creation among inexperienced student entrepreneurs.

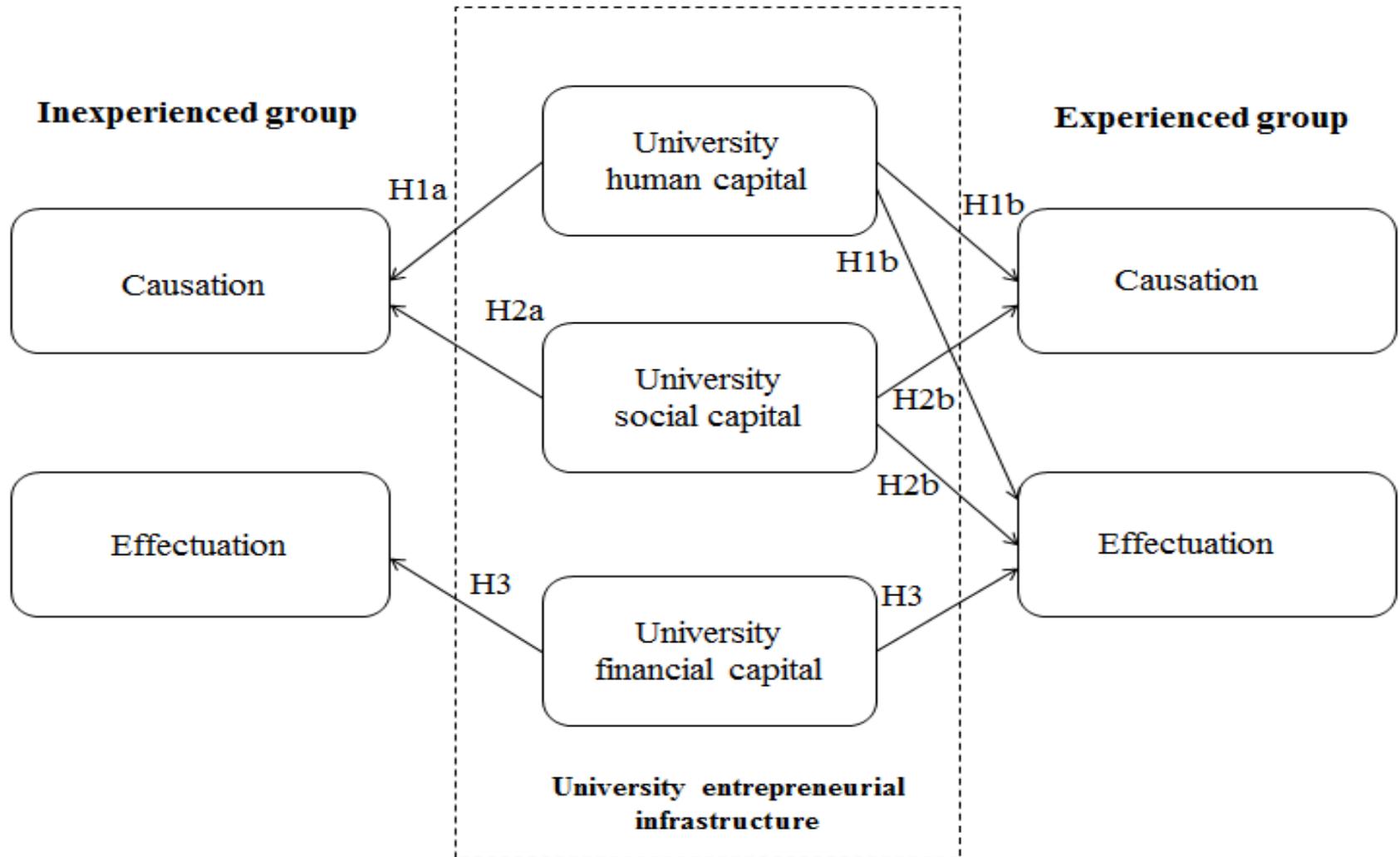
H2b. Access to university social capital is positively associated with reliance on both causal and effectual approaches to venture creation among experienced student entrepreneurs.

Financial capital & student entrepreneurs

- Financial resources influence decision to start a firm (Kim, Aldrich, Keister 2006). Many universities have seed funding programs (Sieger, Fueglistaller & Zellweger 2011).
- As entrepreneurs using effectuation invest only what they can afford to lose, effectuation is more likely when financial resources are unavailable (Sarasvathy 2001). Provision of substantial funding may encourage causal logic.
- Yet, receiving limited university funding may encourage students to use it to support experimental initiatives as part of an iterative approach involving bootstrapping, leveraging, and bricolage (Bhide 1992; Hulsink & Koek 2014).
- Previous experience in corresponding field may help students figure out how to start a business once they acquire university funding without substantial planning and waiting for financial sources to proliferate.
- However, inexperienced student entrepreneurs might also be willing to experiment with university seed capital – a source relatively easy to obtain.

H3. Financial capital provided by the university is positively associated with reliance on effectual approaches to new venture creation among both experienced and inexperienced student entrepreneurs

Research Model



Methods

- Data collected in the course of **Global University Entrepreneurial Spirit Students' Survey (GUESSS) 2011** was used to perform the analysis.
- **26 countries** and **489 universities** took part. **1 374 678 students** were addressed, with **93 265 responses (= 6.3%)**.
- Students divided into 3 categories: no intention to found business, intentional founders and active founders.
- **2,179 respondents** are active founders (759 non-experienced entrepreneurs and 1420 experienced entrepreneurs).

Measures

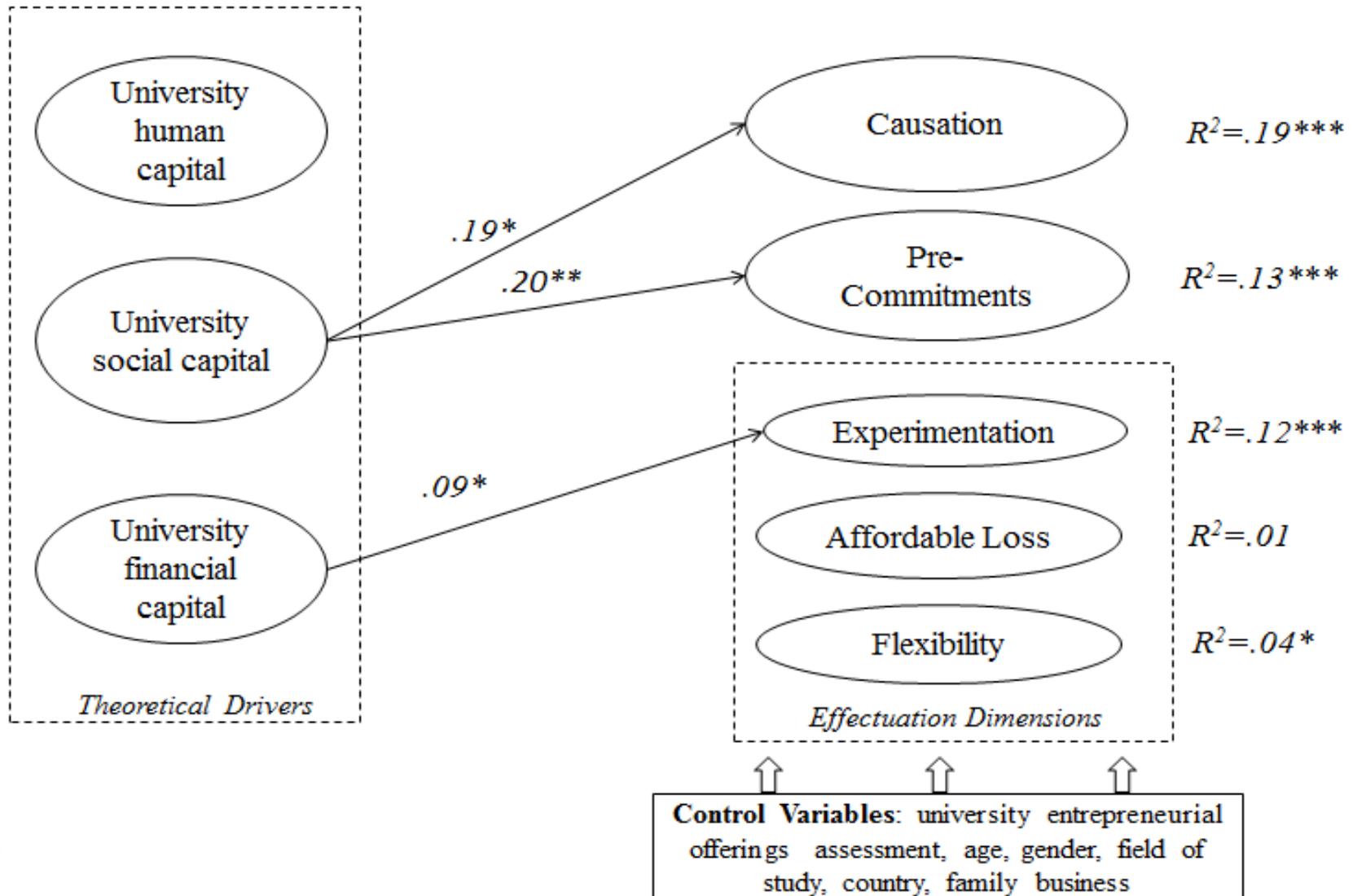
- effectuation and causation were measured using instrument from Chandler, DeTienne & McKelvie (2011). Includes 3 dimensions of effectuation (experimentation, affordable loss, and flexibility), 1 dimension of causation, and a shared dimension of pre-commitments.
- 'human capital' operationalized as number of entrepreneurship-related courses taken by a student (compulsory and elective).
- 'social capital' operationalized as the number of different types of entrepreneurship networking events/offerings a student has participated in.
- 'financial capital' operationalized as a dummy variable, coded as 1 if the respondent's university offered financial support for student entrepreneurs.
- moderator, 'student business experience' operationalized with dummy variable (1 = student has previous professional experience related to her business, 0 = otherwise).

Control variables

- Effectiveness of the university's entrepreneurial offerings, measured on a seven-point Likert scale based on Souitaris, Zerbinati, and Al-Laham (2007).
- Student age in years.
- Student gender coded as 1 = female and 0 = male.
- Education field coded with 1 = Business and Management field and 0 = otherwise.
- University base country development level coded with 1 = a developed country and 0 = an emerging country.

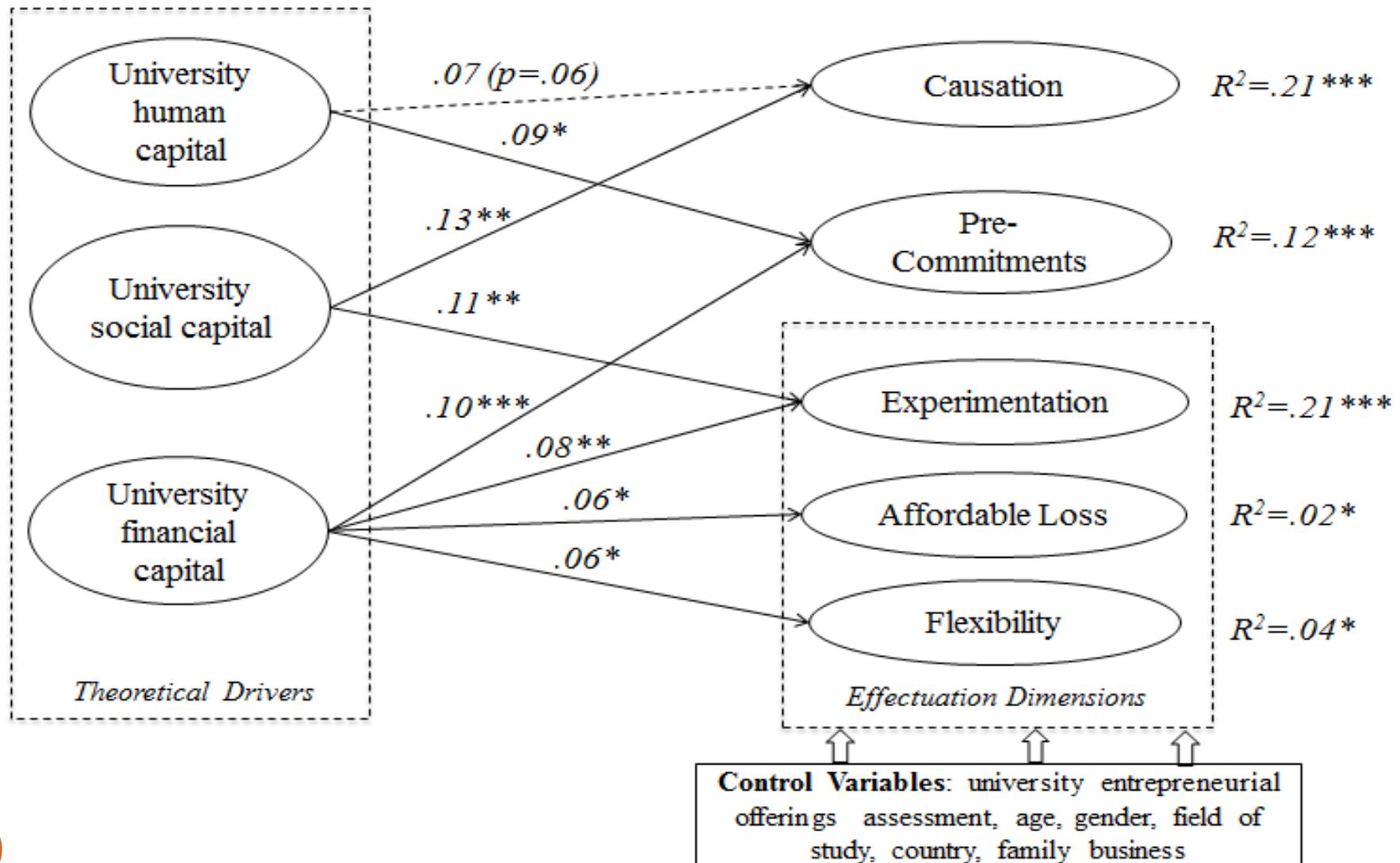
Summary of SEM results (1)

Sample of Entrepreneurs with No Experience (N=759)



Summary of SEM results (2)

Sample of Entrepreneurs with Experience (N=1420)



Findings

- The results are in line with Chandler, DeTienne, and McKelvie (2011) finding that causation and effectuation **share the dimension of pre-commitments**.
- Causation and effectuation dimensions are significantly and positively correlated with each other indicating that both approaches **are not mutually exclusive** and can be unfold simultaneously by the same entrepreneur depending on circumstances.
- **University human capital** is not a statistically significant driver of any outcomes among inexperienced entrepreneurs, and is driving pre-commitment and causation among experienced entrepreneurs.
- **University social capital** turned out to be a significant driver of causation and pre-commitments among entrepreneurs with no experience, and causation and experimentation (effectuation) among entrepreneurs with prior experience.
- **University financial capital** is associated with experimentation (effectuation) among inexperienced entrepreneurs, and with all elements of effectuation among experienced entrepreneurs.

Controls

- Age had negative impact in both the causation and effectual models
- Controlling for the developmental level of the country yielded significant positive result in both models
- No other effects

Implications

- Both effectual and causal logic are needed and can co-exist among students --- key issue is the predictability of the environment
- Favorable university environments matter---especially with experienced students---but also in providing experience
- The classroom is having little impact
- Experiential aspects of education (networking, financing) are more able to impact cognitive logic---effectuation
- Experience is a key factor in explaining reliance on effectual logic

Thank you for your attention and feedback!