



Perception, Personality and Behavioral Pathways to Agricultural Transformation under Climate Risk

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1. Introduction

- Climate-smart agriculture (CSA) is promoted as a pathway to resilience and market engagement among smallholder farmers, yet adoption is low^[1].
- Emerging evidence on the role of cognitive-motivational factor and the overlook of affective factors ^[2,3].
- Personality could be central for understanding how affective and cognitive-motivational factors shape farm decisions.

Objective

- Assessing how Big 5 traits personality associate with affective and cognitive-motivational factors in shaping farmers adoption choices and household outcomes

2. Methodology: Context & Data

- Multi-stage sample of 400 cereal farmers from Marrakesh-Safi.

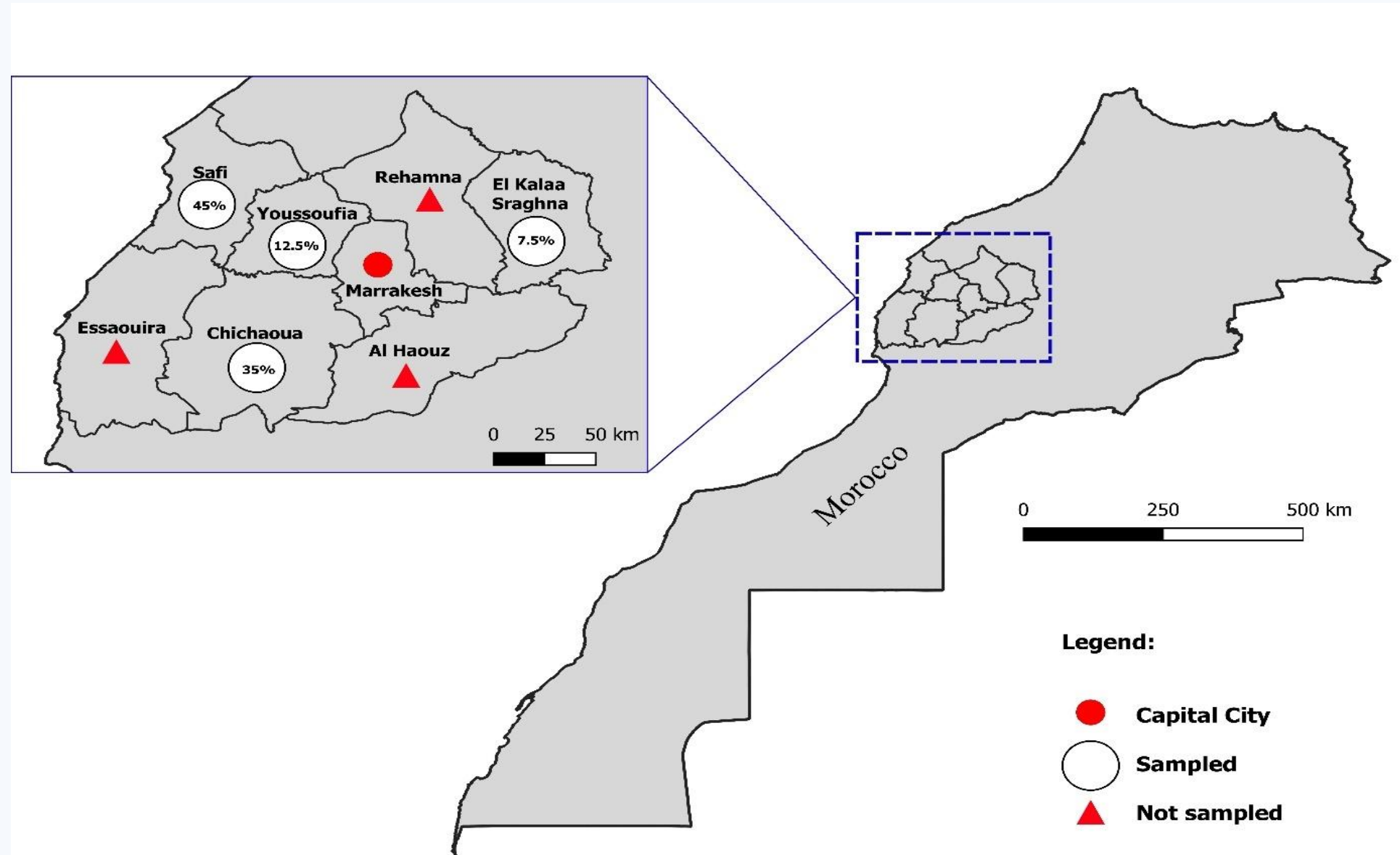


Figure 1. Map of Study including Sampled and Unsamped Areas

Methodology: Variable Measurement

- 3 PCA-derived CSA typologies; Big 5 personality traits and Land use; Livestock and Crop Commercialization.

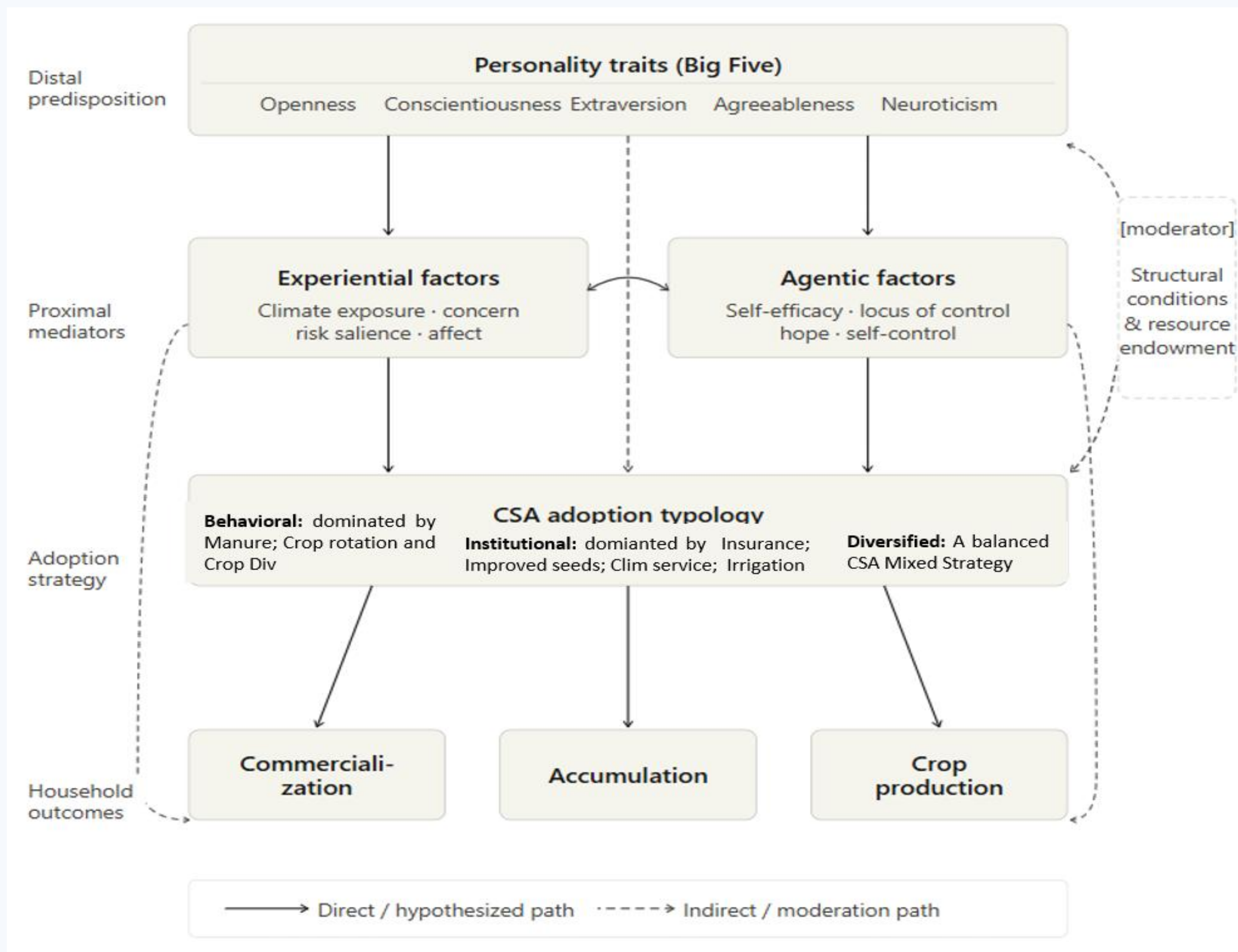


Figure 2. Conceptual model for variable associations

3. Results & Discussions

a. Personality Traits, CSA Typology and Household Outcomes(Crops)

- Distinct Personality traits are associated to farmers CSA typology choice^[4,5,6].
- Behavioral CSA typology:** *Openness and Agreeableness [-ve] and Neuroticism [+ve]*^[5,6].
- Institutional CSA typology:** *Openness [-ve] and Extraversion[+ve]*^[4].
- Behavioral CSA typology:** *corresponds to stronger and consistent crop-related economic outcomes (see Figure 4)*

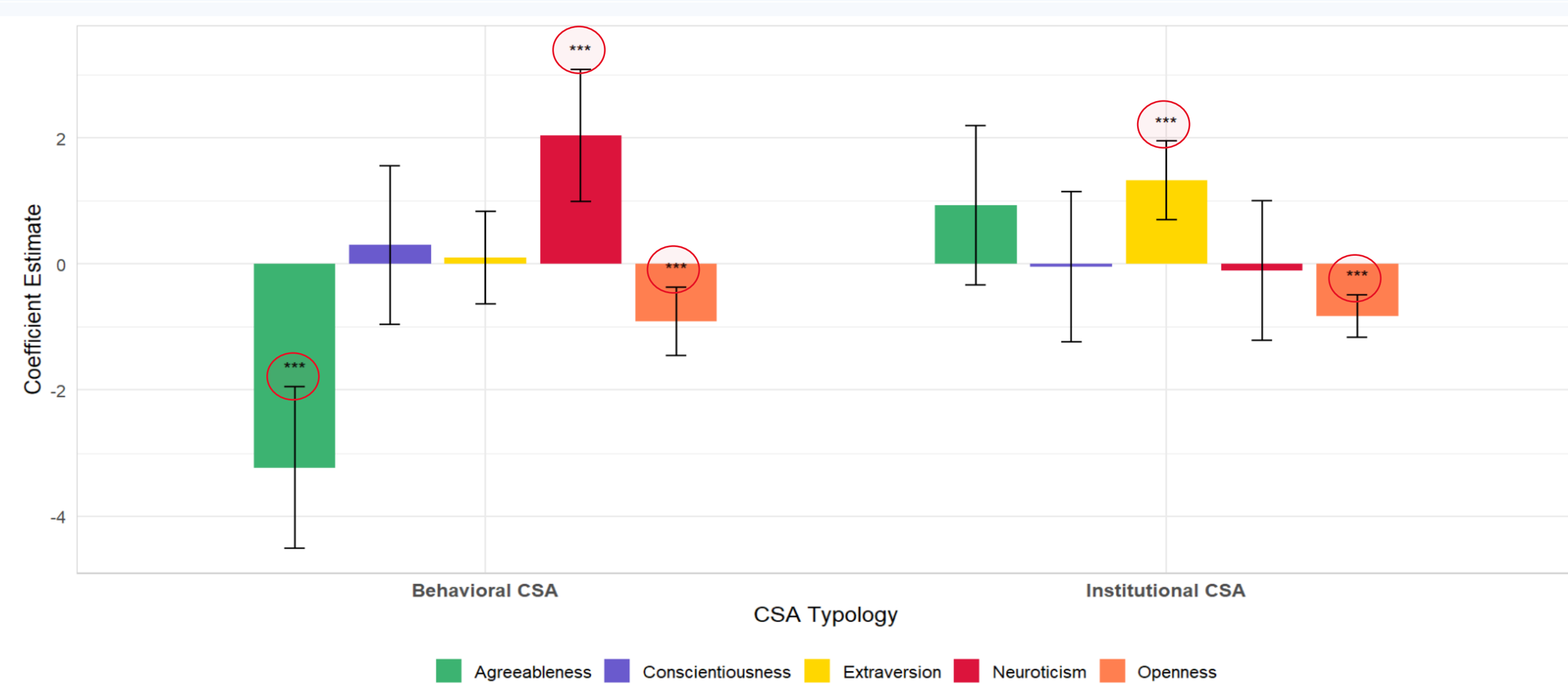


Figure 3. M. Control Function First-stage model Estimates. Significance level *p<0.1; **p<0.05; ***p<0.001

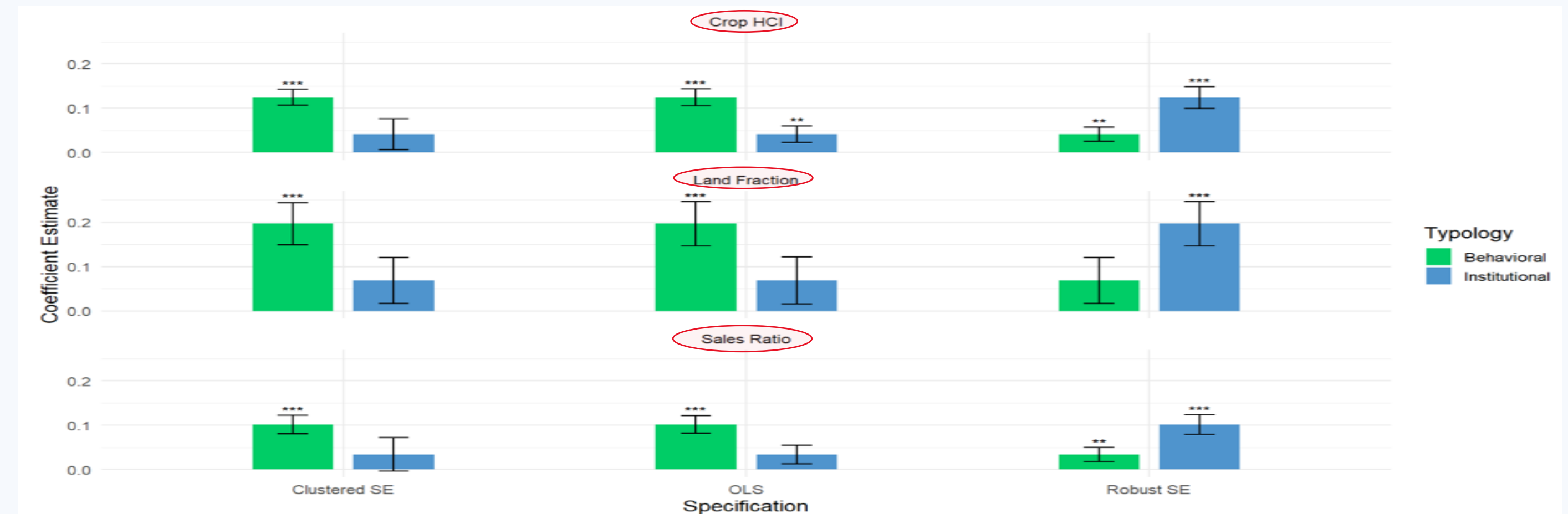


Figure 4. M. Control Function (Second-stage model Estimates) Significance level *p<0.1; **p<0.05; ***p<0.001

b. Personality Traits, CSA Typology and Household Outcomes(Livestock)

- Behavioral typology:** Stronger for crop and livestock domains underscoring the role of low-cost autonomous practices (manure use, crop rotation). *Crop-livestock nexus*^[7,8].
- Divergent association of **Sales ratio and HCI** to typologies as well as the non-significance for **Accumulation** suggests that livestock are likely buffer/insurance mechanisms ^[1,9,10].
- Weaker Institutional effects** highlight financial and trust barriers associated with resource intensive practices such as *insurance, irrigation, and weather forecasts*

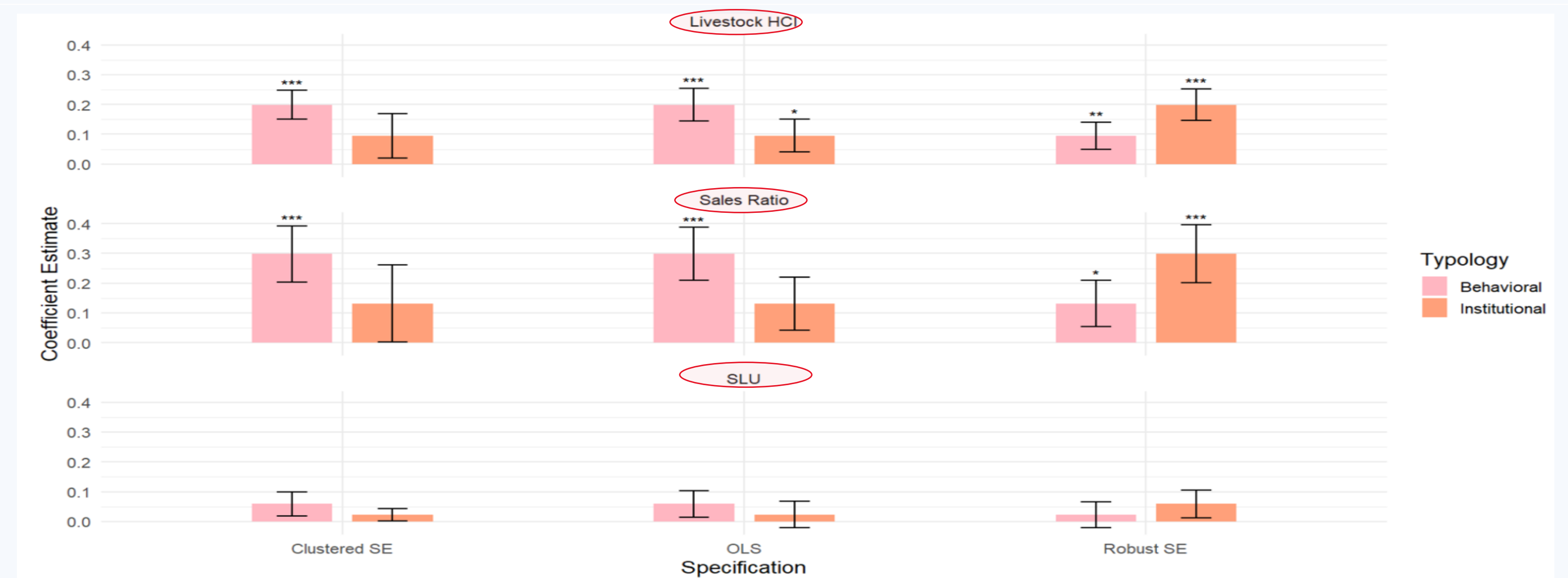


Figure 5. M. Control Function (Second-stage model Estimates) Significance level *p<0.1; **p<0.05; ***p<0.001

c. Mechanisms of Associations: Pathways from CSA Typology to Household Outcomes

Crop outcomes are shaped typology choice, while some livestock decisions associate indirectly through agentic and experiential factors ^[1,10].

- Hope and Self-Efficacy linked to optimism** [-ve ast. for commercialization and sales]
- Concern index** significant for livestock commercialization and accumulation, not for crop outcomes. This underline the sensitivity of livestock decisions on direct experiences

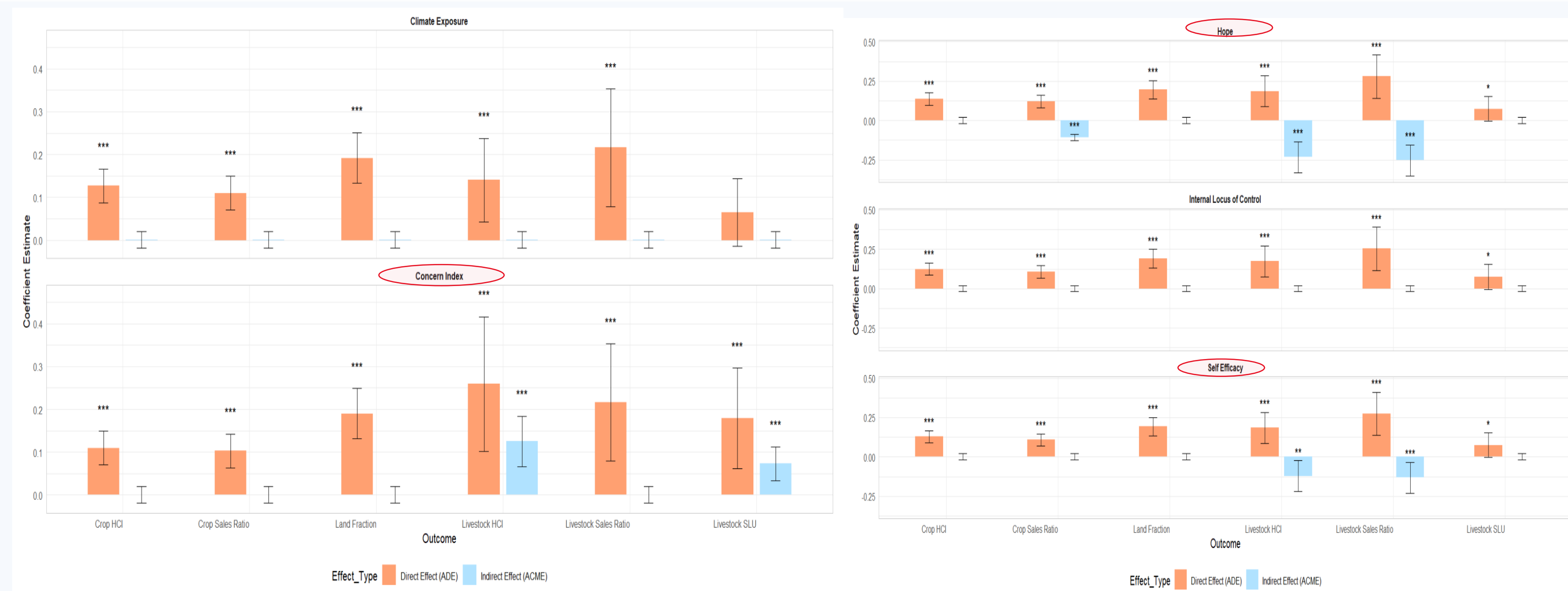


Figure 6. Estimates of the Agentic & Experiential Response Pathways

4. Conclusion

- Overall, the relationship between CSA adoption and economic outcome is significantly shaped by psychological, behavioral and experiential factors
- Importantly, personality may associate with farmers choice adaptation strategy which have implications for household outcomes

5. Policy Implications

- Employing personality profiling to design context-sensitive, behavioral & psychologically informed climate interventions.
- For Crop-focused policies strengthen behavioral adoption pathways
- Livestock interventions incorporate risk perception and experiential dimensions into adaptation strategies. Addressing the trust and financial barriers for Institutional adoption.

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