



Improving cognitive skills for non-farm entrepreneurial productivity and growth in Indonesia

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Key messages

- Investments to improve long-term health outcomes may be more valuable than training programs in boosting the cognitive skills needed for non-farm entrepreneurial success.
- Measures to improve skills-sector matching could help competitiveness and productivity in the non-farm sector.
- Innate problem solving skills and being able to quickly adapt to change are linked to higher non-farm profits and business value.

Indonesia's SME sector key to national development

Indonesia's 60 million Small and Medium Enterprises (SMEs) contribute 60% of GDP and occupy 97% of the workforce¹.

Improving SME competitiveness and productivity is a key element in the government's Mid-Term Development Plan.

The plan includes training programs, providing start-up capital for entrepreneurs and an educational curriculum to foster entrepreneurship.

Targeted support needed for entrepreneurs

However, self-employment in Indonesia is often necessity-motivated due to a lack of skills and opportunities for employment in the wage sector.

The abundance of SMEs in Indonesia has increased the importance of being able to identify and support entrepreneurs that have a high growth potential as an engine for development.

Understanding the skills and characteristics that are important for success among entrepreneurs is necessary to improve programs that aim to encourage and support entrepreneurs.

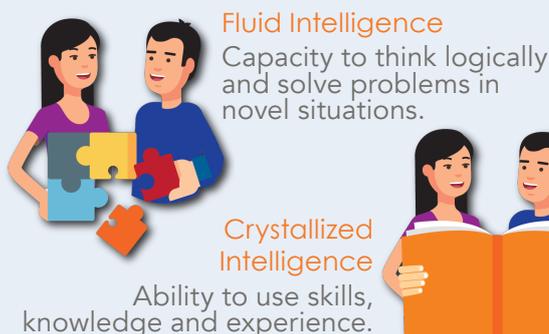
Additionally, understanding entrepreneurs more generally is useful for developing national strategies for poverty reduction and growth.

The analysis

A team of local researchers set out to investigate what types of intelligence lead to entrepreneurial success. To do so, the team analyzed the returns of different cognitive skills on the profits and value of (non-farm) household businesses. Using data from the most recent waves of the Indonesian Family Life Survey (2007 and 2014), the team compared the returns on crystallized intelligence with those on fluid intelligence.

- Results of a numeracy text were used as a proxy for **crystallized intelligence**.
 - Defined as the ability to use skills, knowledge and experience.
 - Acquired through education, experience and interaction with an environment.
- Results of a Raven's Progressive Matrices (shape matching) test were used as a proxy for **fluid intelligence**.
 - Defined as the capacity to think logically and solve problems in novel situations.
 - Highly influenced by genetics and biological factors.

Types of Intelligence



¹ Coordinating Ministry of Economic Affairs Republic of Indonesia

Key findings

The findings of this study indicate that **a higher level of fluid intelligence is associated with greater business profits and value.**

- A one standard deviation increase in performance in the Raven's test leads to 5.7% increase in profit and 7% increase in business value.
- The positive effect of fluid intelligence was not found to be concentrated in any economic sector.

Crystallized intelligence was only found to have a positive effect on business performance when the entrepreneur is engaged in the sector that is the most appropriate for his or her skills.

- It was found to lead to higher profits only in the brain-intensive sector.
- Higher fluid intelligence does not provide significant benefits in this sector.

The research team found little evidence of skills sorting into specific sectors, i.e. that individuals with specialized intelligence, educational attainment or skills choose the sectors where their specific abilities would prompt the highest returns.

This could be driven by local economic environment and labor market constraints that prevent perfect (or quasi-perfect) matching between skills and sectors. For example, the majority of workers have low levels of education, making it difficult for businesses to find employees with the desired skill and education levels.

Non-farm household businesses were found to:

- Have an average value of 23 million Rupiahs
- Have small but healthy profits (11.9 million Rupiahs/year)
- Have little to no investment in technology or land
- Invest heavily in equipment

Conclusions and policy messages

The findings suggest that **in a developing country setting like Indonesia**, where economic environments change rapidly and rules and regulations on businesses are still relatively incomplete, **the ability to quickly adapt to change and to solve problems (fluid intelligence) is more useful than a high level of technical skills (crystallized intelligence).**

Additionally, because the majority of household businesses in Indonesia are labor-intensive and use low capital and simple technology, high levels of crystallized intelligence may not provide a significant advantage.

Given that fluid intelligence is something that an individual is born with, rather than taught, it appears that **training programs are not the most useful way to increase the cognitive abilities needed to support non-farm entrepreneurs in Indonesia**, contrary to current policy.

The findings of this project instead point to a **need for policymakers to invest in improving long-term health outcomes**, including in-utero care and environmental conditions.

In addition, policies that support entrepreneurs with high levels of crystallized intelligence to find a job as a wageworker or operate a business in the brain-intensive sector and would increase returns to these skills.

As sorting into specific sectors is not dependent on the type of intelligence most suited to that sector, it is likely that the returns to each type of intelligence are limited. Improved skills-sector matching would help increase returns to skills.

Policymakers should also aim to reduce existing constraints facing entrepreneurs in Indonesia.

Further research is needed to establish the most effective ways to achieve these recommendations.



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