Access to Formal Credit and Gender Income Gap: The Case of Farmers in Cambodia

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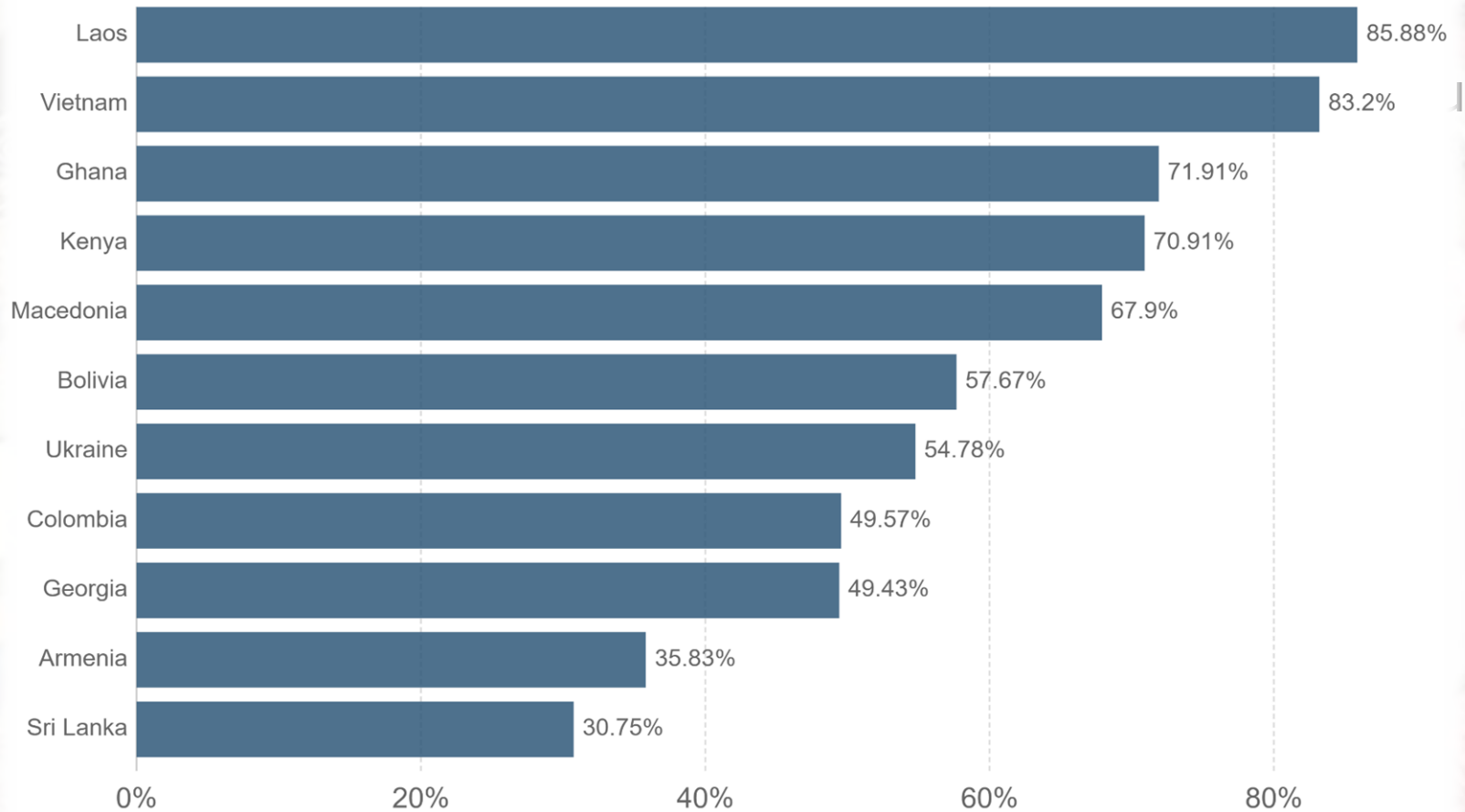| I	Introduction
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I- Introduction

Unadjusted gender wage gap including unemployed, 2014

Shown are unadjusted pay gaps assigning zero income to individuals who are not employed. All figures correspond to women's income as a percent of men's, including wages and profits from self-employment.

Country	Percent
Laos	85.88%
Vietnam	83.2%
Ghana	71.91%
Kenya	70.91%
Macedonia	67.9%
Bolivia	57.67%
Ukraine	54.78%
Colombia	49.57%
Georgia	49.43%
Armenia	35.83%
Sri Lanka	30.75%

Source: Center for Global Development (2018)

I- Introduction

Why does this earnings gap exist?

Theoretical framework :

in Human capital

in Job characteristics

Discrimination against woman

I- Introduction

- Less research works in developing countries where gender earnings gap are larger (Jayachandran, 2015).

- In developing countries, agriculture employs most of the workforce and wage differences between males and females are commonly seen in this sector (World Bank, 2009; FAO, 2011b; ILO, 2015).

- Closing the agricultural productivity gap between women and men could increase agricultural output in lower-income countries by 2.5% to 4%, reducing undernourishment by 12% to 17% or 100 million to 150 million individuals (FAO, 2011a).
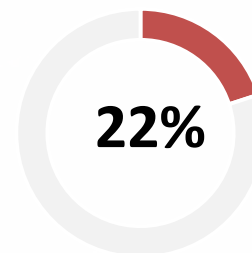
I- Introduction

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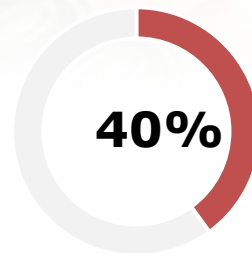
40% Share of population work in agriculture in 2015 (Chan, 2017).

22% Share of agriculture in GDP in 2017 (WB, 2019).

- One of the largest sectors of women's employment in Cambodia, but women earn less than men (Layton and MacPhail, 2013).

- **Research objective**: Identification of factors that drive gender earnings gap among farmers in Cambodia.

II- Literature review

- Female farmers earn less than male because of greater child care responsibilities, lack of farming assets and access to farming inputs (see for e.g., Horrell et al., 2007; Oladeebo and Fajuyigbe, 2007; Kinkingninhoun-Medagbe et al., 2010; Ali et al., 2015).

- Credit markets may treat women and men differently, causing women to have less access to credit and thus less access to inputs and other productive investments (Fletschner, 2009; FAO, 2011b)

- **Research question:** "Does the access to formal credit contribute to explain the gender income gap among farmers in Cambodia?"

III- Data and variables

- FinScope survey conducted by FinMark Trust with 3,150 individuals, nationally representative of the adult population, from November 2015 to January 2016. The surveys records personal and household characteristics, levels of access to financial services and products.

- In the sample, 1,693 individuals are involved with farming activities, but only 847 adults, in which 526 are female and 321 are male, declare that their main source of income are from agriculture.

543,159 KHR	428,015 KHR
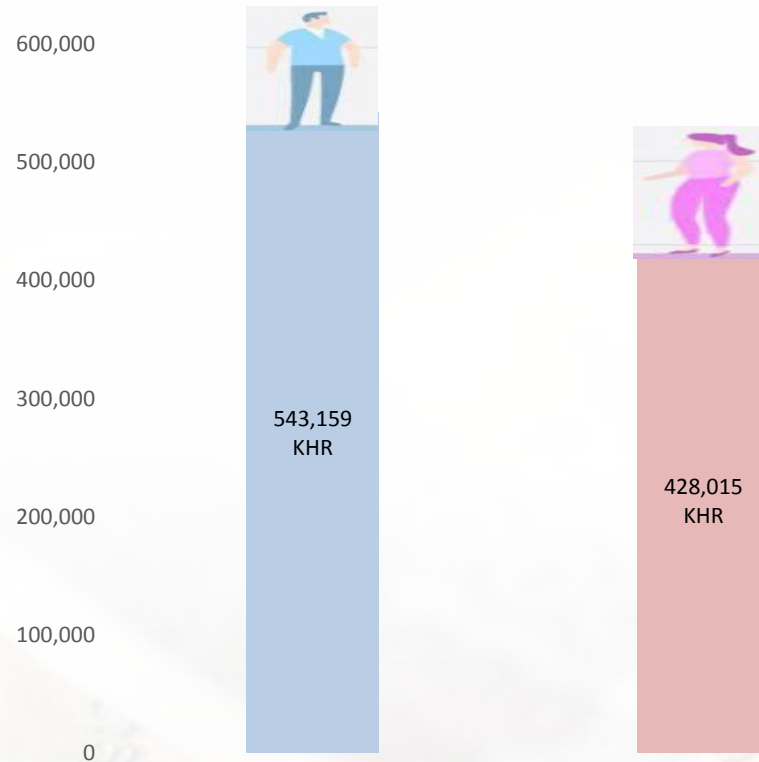
III- Data and variables

- However, no gap in access to formal credit defined as having or using credit/loan products from formal FI.
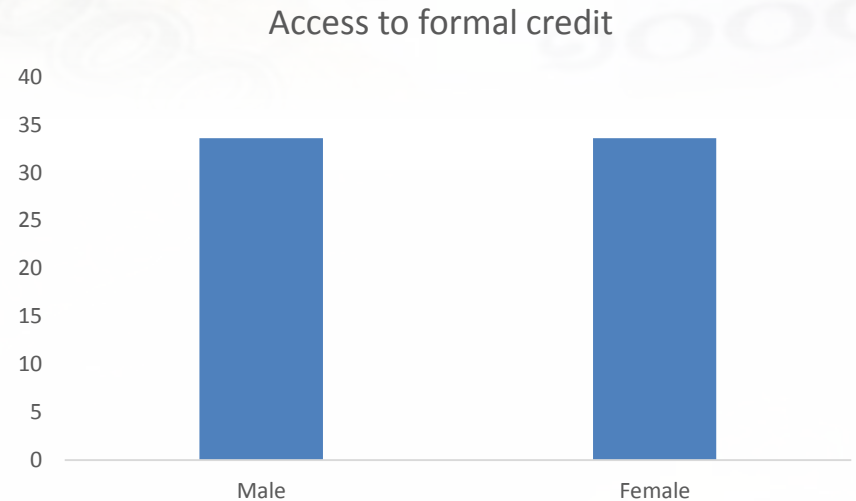
- Determinants of income:

✓ Individual characteristics: years of schooling, age, main household income earner, health, marital status.

✓ Farm's characteristics: size, having tractor, using fertilizer/pesticides, farming water source, weather conditions, location.

✓ Production for sale only, distance to market and access to formal credit.

Access to formal credit

IV- Method and Results

Table 1: OLS regression result

Dependent variable: Log Earnings	Marginal effect
Years of schooling	0.038***
Age	0.039***
Square of age	-0.0004***
Main household income earner	1.001***
Good health	0.177**
More than 1 ha of farm size	0.241***
Irrigation as source of water	0.789***
Challenging with natural disasters	-0.151***
More than 30 minutes to access the market	-0.102**
Access to formal credit	0.154**
Observation	847
Adjusted R2	0.274
*** p-value < 0.01, ** p-value < 0.05, * p-value < 0.1	

IV- Method and Results

▪ 2SLS regression to check the causal effect of access to formal credit on earnings, using "Trust and time to FI" as instrumental variable (Sam, 2019), with a probit regression for the first-stage regression (Adam et al., 2009).

Table 2: IV regression

Dependent Variable: Log Earnings	Coefficient
Access to formal credit	0.975**
…………………………………………………………………………..	…………………..
Observation	*847*
Adjusted R2	*0.092*
*** p-value < 0.01, ** p-value < 0.05, * p-value < 0.1	

▪ Cragg-Donald Wald test: F-Statistics = 14.582 > 10 : rejecting Ho that the instrument is weak (Stock et al., 2002).

IV- Method and Results

- Blinder-Oaxaca decomposition technique (Jann, 2008):

$$D = E(Y_M) - E(Y_F)$$

$$Y_Z = X_Z^{'} \beta_Z + \mu_Z, \qquad \text{with } E(\mu_Z) = 0 \text{ and } Z \in (M, F)$$

$$D = E(X_M)^{'} \beta_M - E(X_F)^{'} \beta_F$$

$$D = \{ E(X_M) - E(X_F)\}^{'} \beta^* + \{E(X_M)^{'}(\beta_M - \beta^*) + E(X_F)^{'}(\beta^* - \beta_F)\}$$

Endowment effect   Coefficient effect

Difference in earnings
Between male and female

IV- Method and Results

Table 3: Blinder-Oaxaca decomposition results

Dependent variable: Log Earnings	Differential	Endowment	Coefficients
Years of schooling		0.043***	0.032
Main household income earner		0.116***	-0.091*
Good health		0.013*	0.030
More than 1 ha of farm size		0.021**	-0.023
Challenging with natural disasters		0.003	0.172**
Access to formal credit		0.000	0.091**
Difference	*0.259***		
Observations	*847*	*847*	*847*

*** p<0.01, ** p<0.05, * p<0.1

IV- Method and Results

Rerun OLS regression with:

- Model 1: Those who possess years of schooling >=3.
- Model 2: Those who possess years of schooling <=3
- Model 3: Those who have the score of financial literacy >=1.
- Model 4: Those who have the score of financial literacy <=1.

Note: 3 is the median of years of schooling and 1 is the median of the score of financial literacy.

Table 4: OLS regression by years of schooling and level of financial literacy

Dependent variable: Log Earnings	Model 1	Model 2	Model 3	Model 4
Access to formal credit	0.239***	0.050	0.173**	0.154**
……………………………………………	………………	………………	………………	………………
Observations	*513*	*458*	*567*	*640*
Adjusted R2	*0.318*	*0.274*	*0.271*	*0.295*
*** p<0.01, ** p<0.05, * p<0.1				

IV- Method and Results

Table 5: Effect of access to formal credit depends on education

Dependent variable: Log Earnings	Marginal effect of access to formal credit
No schooling	0.095
1 year of schooling	0.108
2 years of schooling	0.121*
3 years of schooling	0.133**
4 years of schooling	0.146**
5 years of schooling	0.158**
6 years of schooling	0.171**
More than 6 years of schooling	0.184**
Observation	847
*** p-value < 0.01, ** p-value < 0.05, * p-value < 0.1	

V- Conclusion and Limitations

Source: http://www.amazingcambodiaplaces.com/2015/03/25/beautiful-from-cambodia/
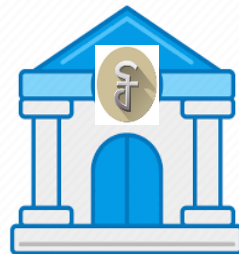
School

Health center

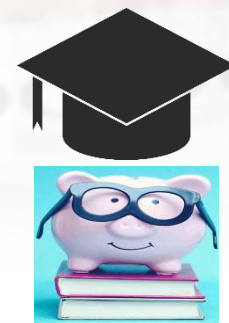Agricultural inputs

Irrigation   Road   Financial Institution

- Continuing building rural infrastructure is still the key to increase the agricultural productivity and thus farmers' earnings.

V- Conclusion and Limitations

- Closing the gender gap in the land ownership, in health, education and financial literacy are important to reduce the gender earning gap among farmers in Cambodia

- No data on volume of work hours and financial literacy => Using proxy variables.

- Different farming activities, but results did not change when controlling for commercial crops and livestock.

- Unit of analysis should be household head, but small size of total sample and of household heads as female. Female hh are generally widowed => Analysis could be impacted by unobservable factors (similar findings are found, but not statistically significant for some variables).

- Purpose of credit usage?

- Discrimination against women in terms of loan amount?

- Further reading at: https://mpra.ub.uni-muenchen.de/97052/

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Thank you for your attention!