

Explaining Labor Shortage in Agriculture Sector in Cambodia: A Descriptive Approach

6th Annual Macroeconomic Conference

December 16, 2019

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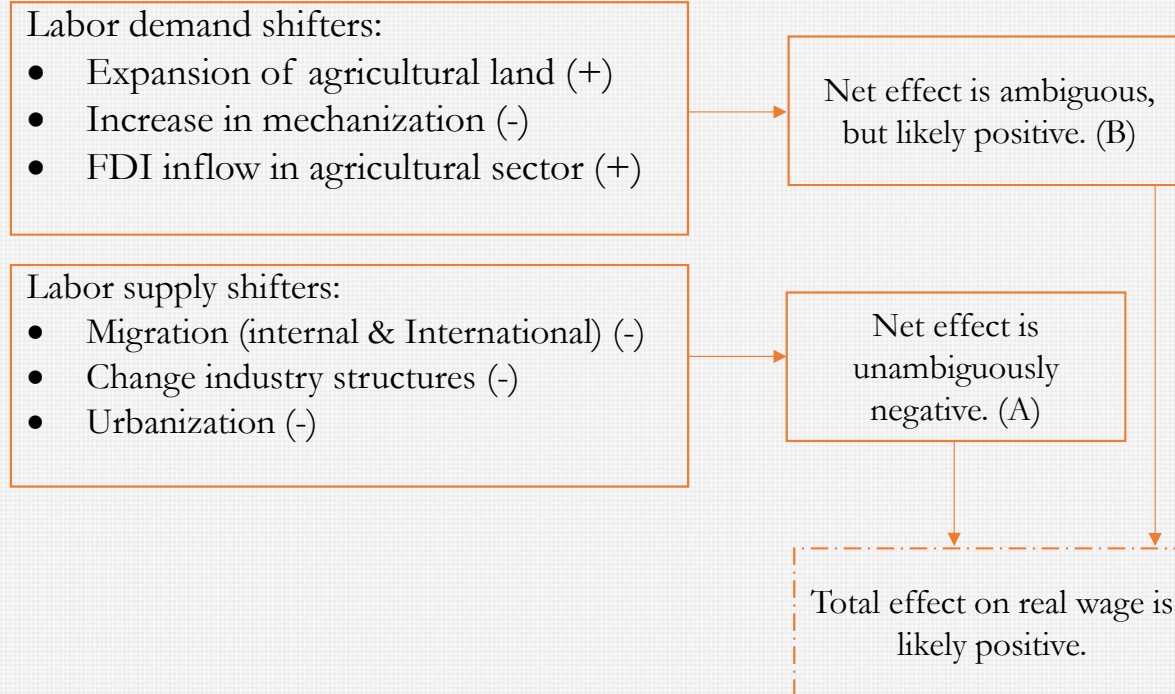
1. Background

- Motivation
 - There are claims in a number of reports about shortage of labor in agriculture sector in Cambodia (e.g. OECD, 2017 and MAFF, 2017).
 - But no work has attempted to provide a complete explanation of this phenomenon.
 - This study aims to fill this gap.
- Research question
 - What explains labor shortage in agriculture sector in Cambodia during the last decade?
- Research method
 - We apply descriptive (narrative) approach by using graphs, tables, evidence from existing studies to explain labor shortage in agriculture sector in Cambodia.

2. Conceptual framework

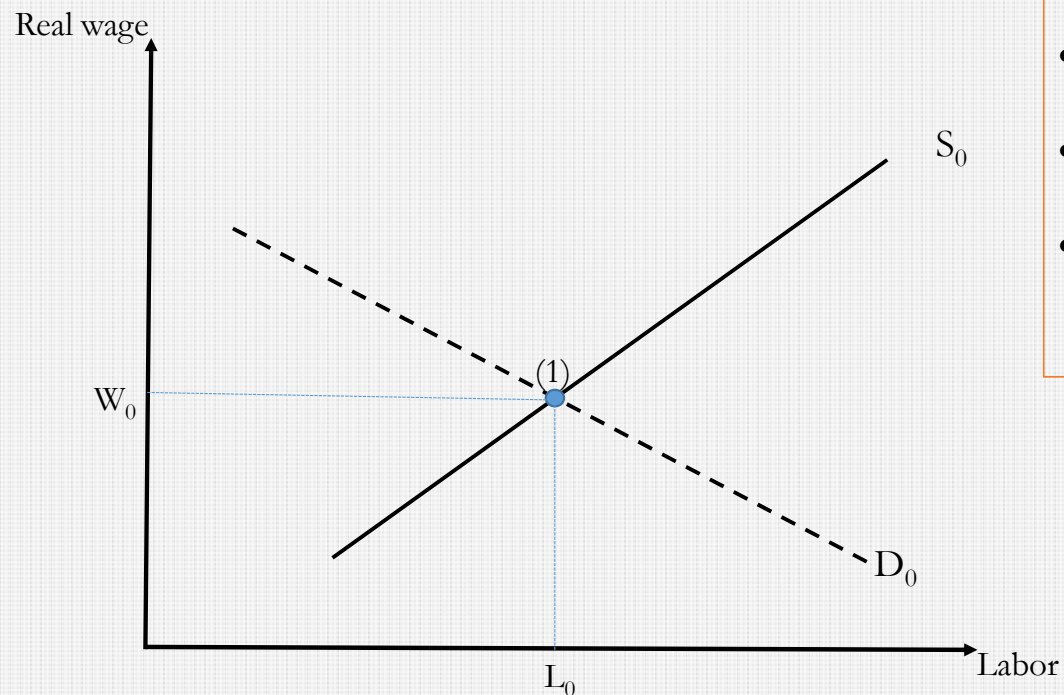
- Framework used to describe factors affecting labor market in agriculture sector

Figure 1: Factors affecting agricultural labor market in Cambodia



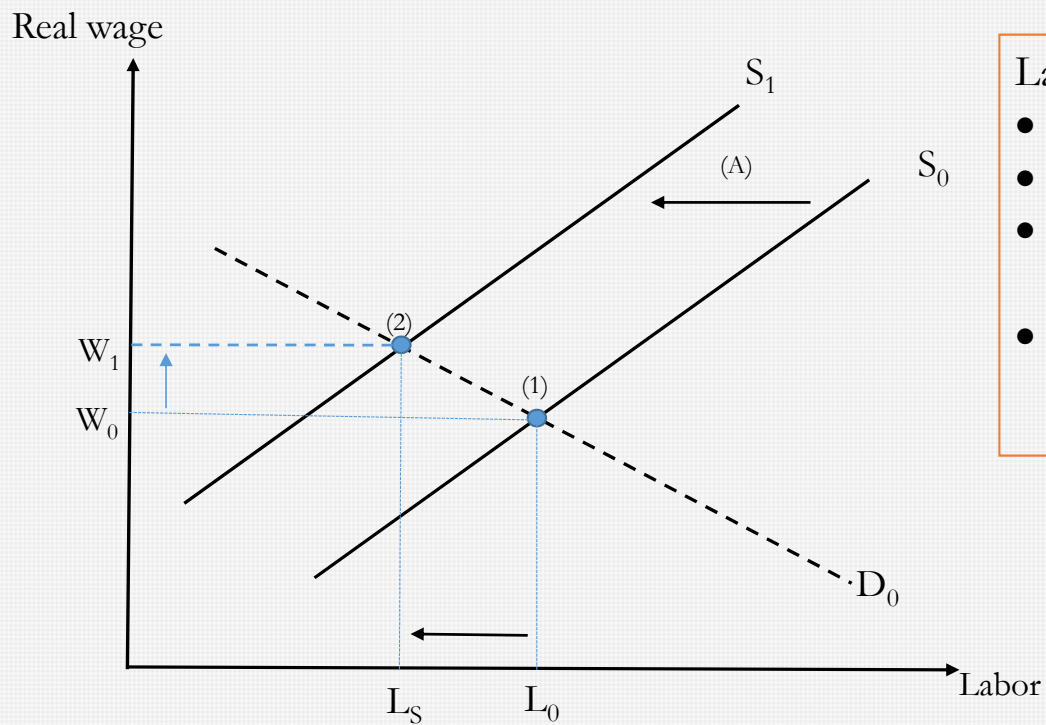
Source: Authors' compilation

2. Conceptual framework (cont.)



- D: Labor demand; S: Labor supply
- W: Real wage; L: Quantity of labor
- Let's assume that our labor market starts at equilibrium (1) wage W_0 and labor at L_0 .

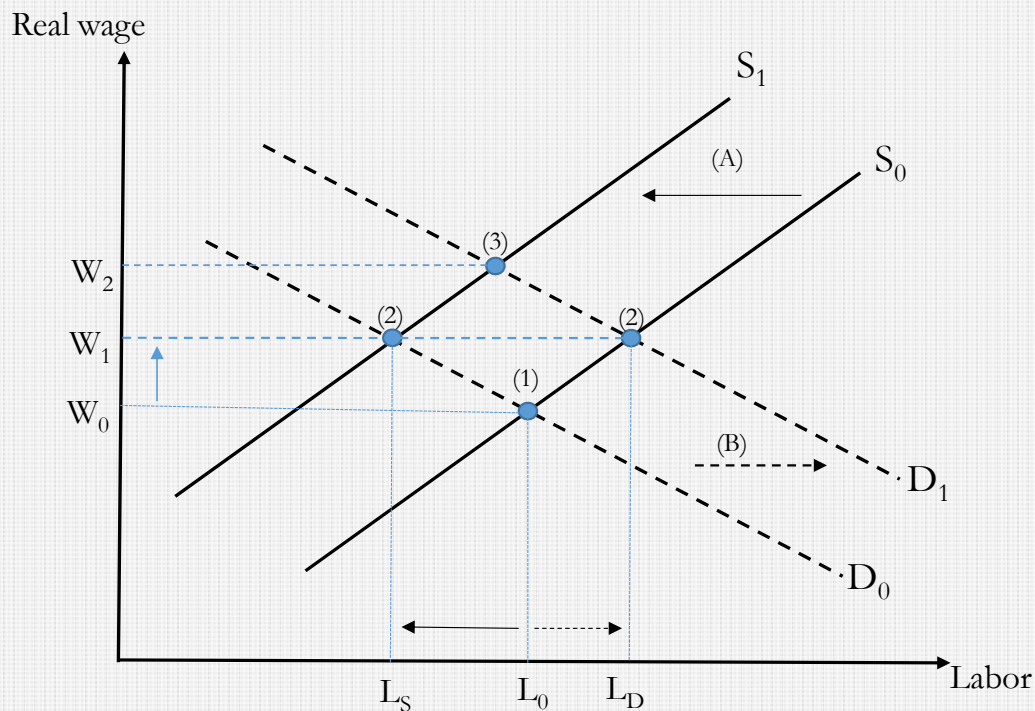
2. Conceptual framework (cont.)



Labor supply shifters:

- Migration (internal & international) (-)
- Change industry structures (-)
- Urbanization (-)
- Labor supply shifts from S_0 to S_1 creating new equilibrium wage W_1 and labor L_S .

2. Conceptual framework (cont.)



Labor demand shifters:

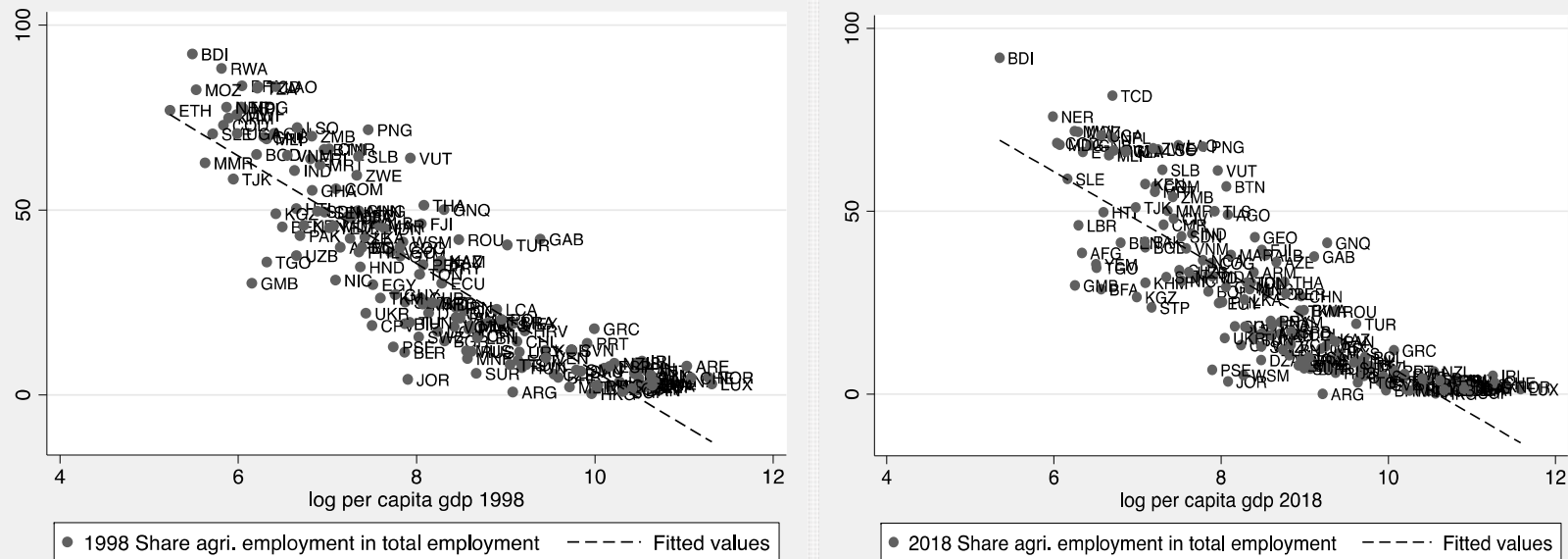
- Expansion of agricultural land (+)
- Increase in mechanization (-)
- FDI inflow in agricultural sector (+)
- As a result, labor demand shifts from D_0 to D_1 creating a new equilibrium wage W_2 if labor market fully adjusts.

Nevertheless, since W_2 is too high wage is paid only at W_1 which results in shortage of labor measured by the distance between L_S and L_D .

3. Factors affecting labor supply

- Change in industry structure has negative effect on share of employment in agriculture sector.

Figure 3: Log per capita GDP and share of employment in agriculture around the world, 1998 & 2018



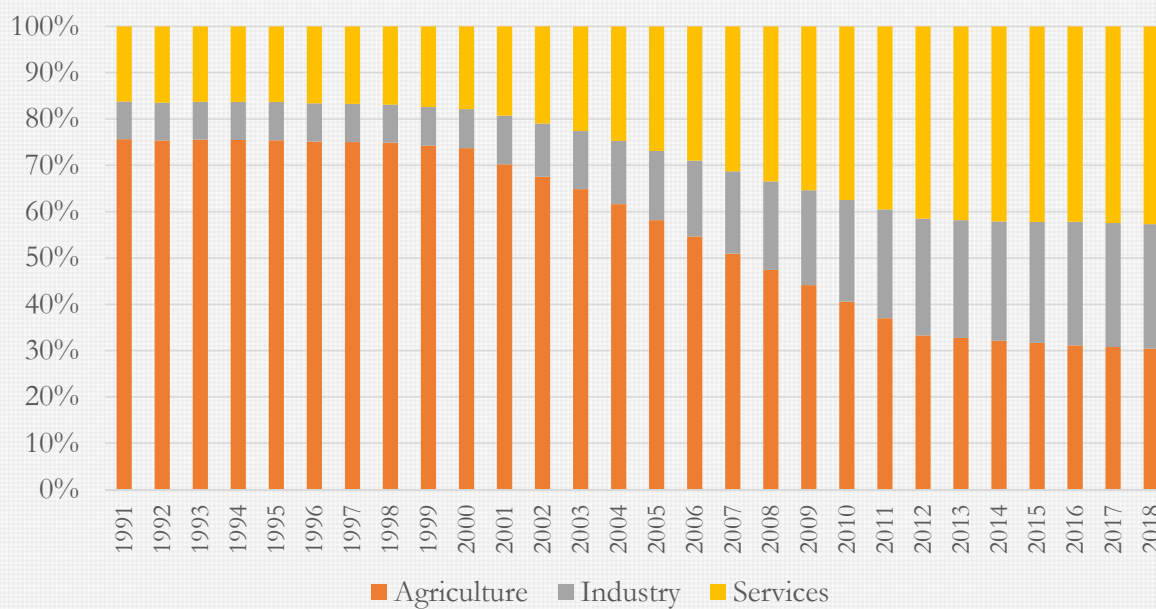
Source: World Bank's World Development Indicators, 2019

-More developed economy experiences lower share of employment in agriculture sector.

3. Factors affecting labor supply (cont.)

- Change in industry structure (negative effect on labor supply)

Figure 4: Share of employment by industry in Cambodia, 1991-2018



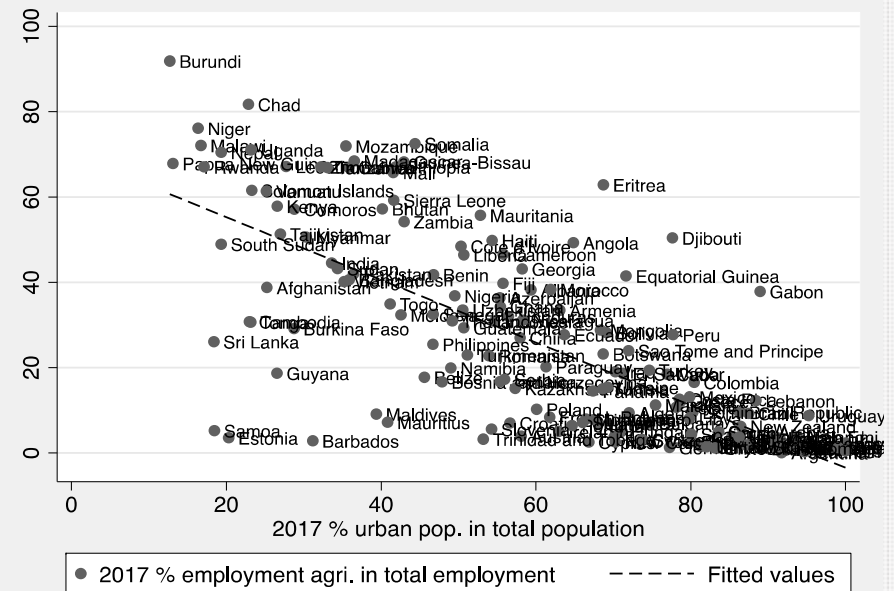
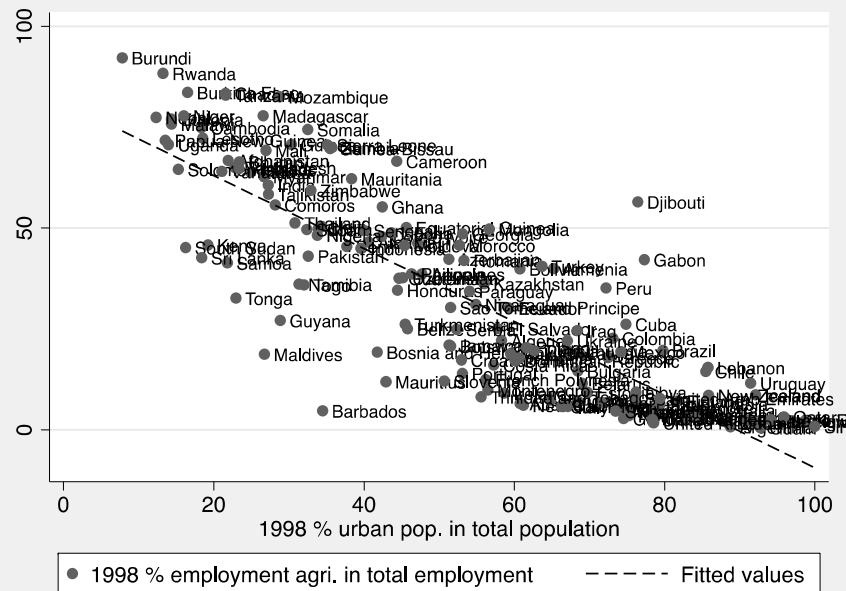
- Per capita GDP at 2010 price in 1998 was USD 362, while share of employment in agriculture was 78.4%.
- Two decades later per capita GDP at 2010 price is USD 1,205, while share of employment in agriculture is 30.4%.

Source: World Bank's World Development Indicators, 2019

3. Factors affecting labor supply (cont.)

- Urbanization (negative effect on labor supply)

Figure 5: Employment in agriculture and urban population in 1998 and 2017



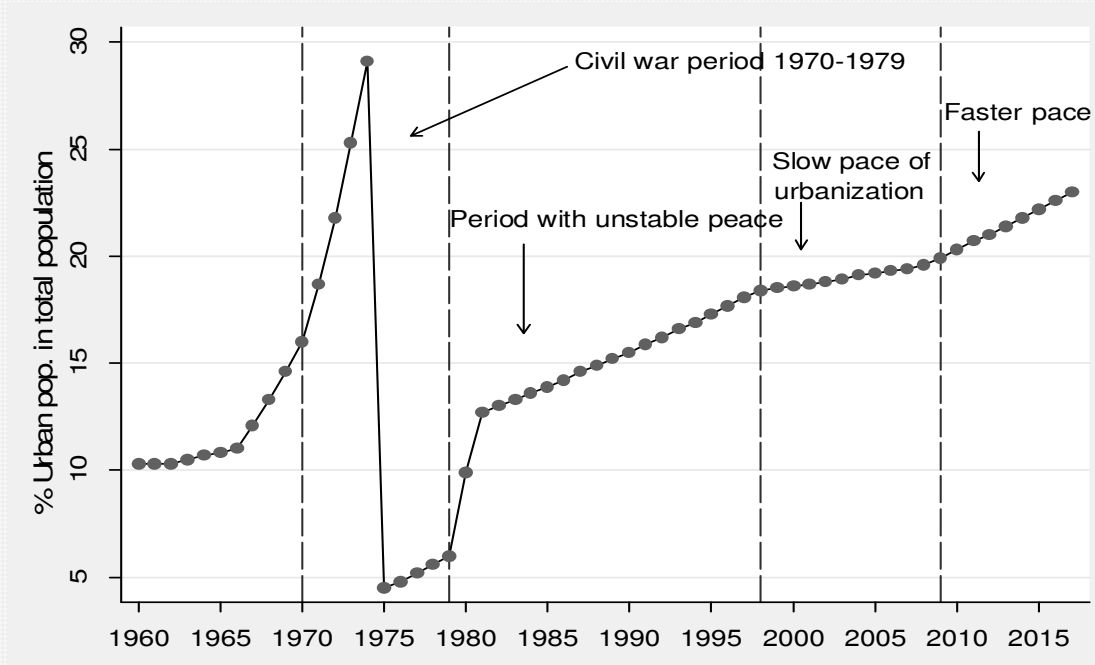
Source: World Bank, 2019 & Global Change Data Lab, 2019

- More urbanized economy experiences lower share of employment in agriculture.

3. Factors affecting labor supply (cont.)

- Urbanization (negative effect on labor supply)

Figure 6: Percentage of urban population in total population in Cambodia



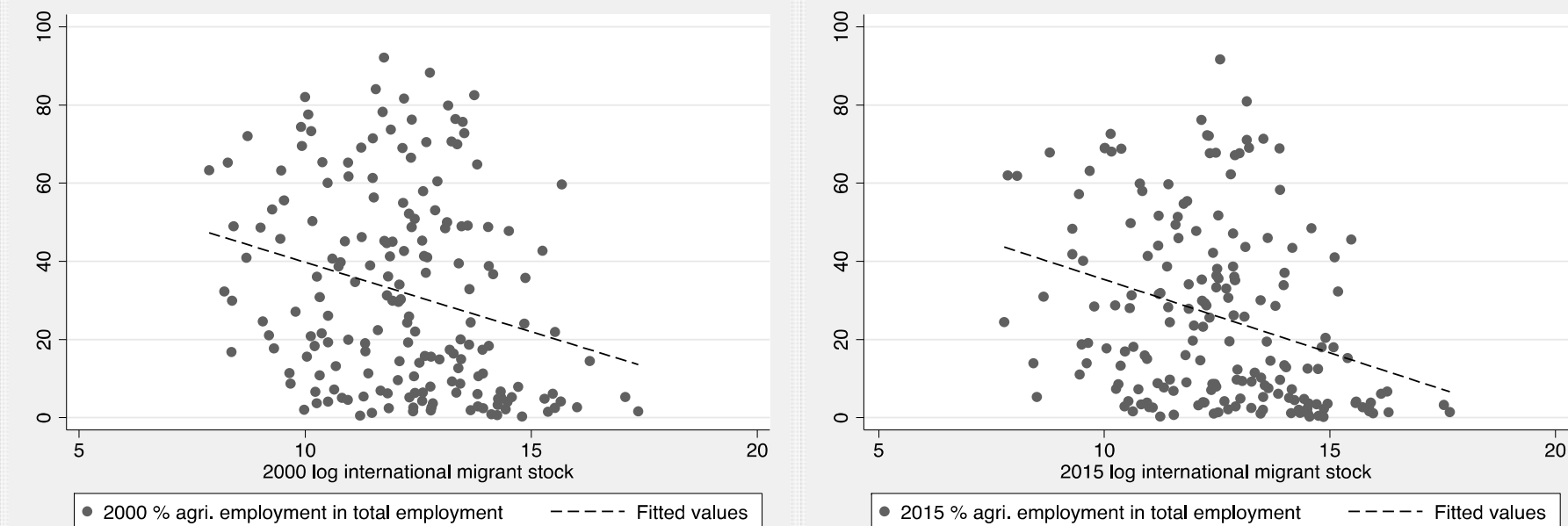
Source: University of Oxford's Global Change Data Lab, 2019

- Rapid pace of urbanization in the last decade has had significant negative affect on agriculture labor supply drawing on international experience.
- Lu et al. (2012) cited in Chen et al., (2016) show that urban size has a positive effect on employment, in other words, a 1 percent increase in urban population raises individual's employment probability by between 0.044 and 0.050 percent in China.

3. Factors affecting labor supply (cont.)

- Migration (negative effect on labor supply)

Figure 7: International migration and employment in agriculture in 2000 and 2015



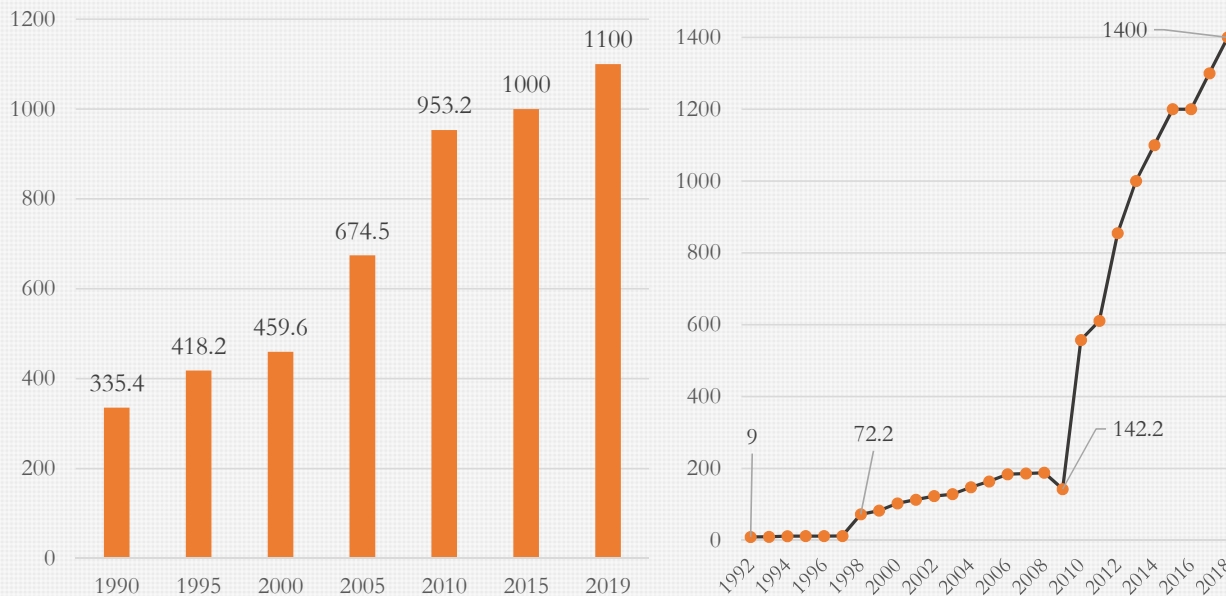
Source: World Bank's World Development Indicators, 2019

- Country that experiences higher stock of international migrants has lower share of employment in agriculture sector.

3. Factors affecting labor supply (cont.)

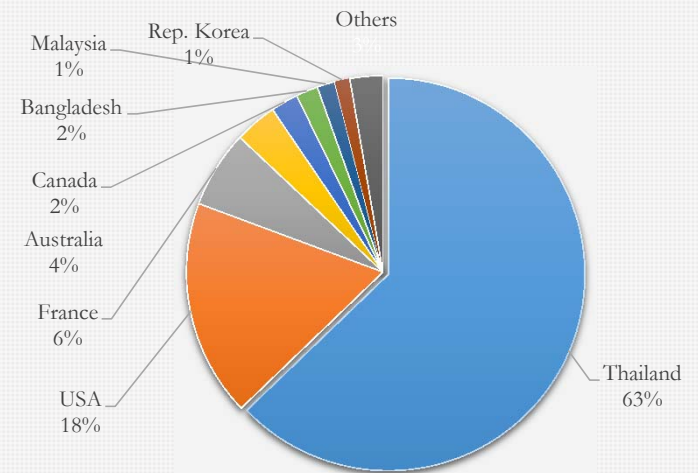
- Migration (negative effect on labor supply)

Figure 9: Stock of Cambodian emigrant in '000 and remittance in mil. USD



Source: World Bank's World Development Indicators, 2019

Figure 10: Country destinations of Cambodian emigrants as of mid 2019



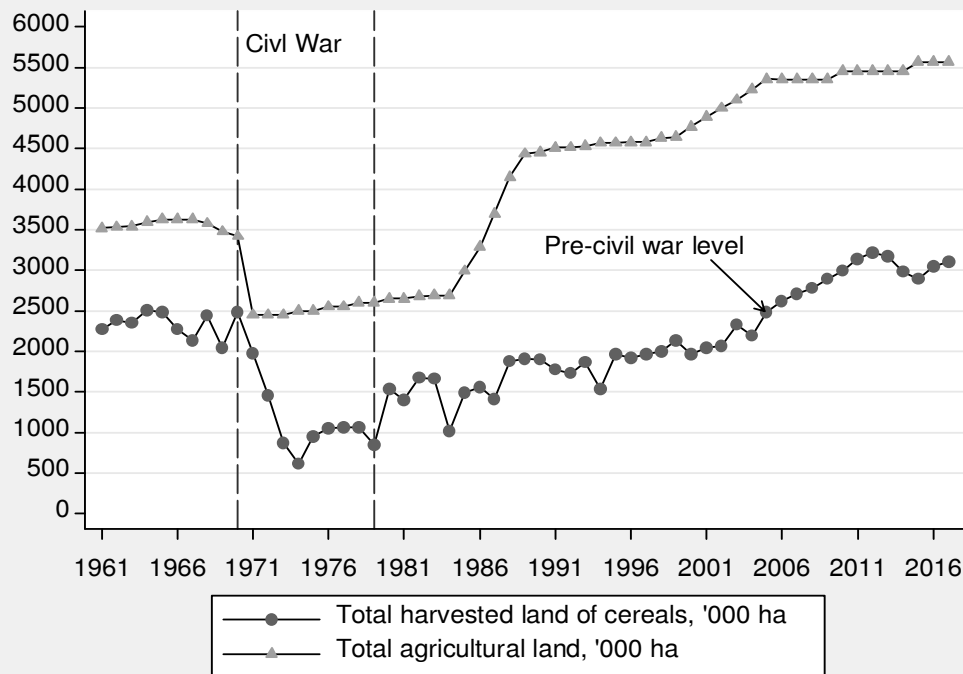
Source: UN-DESA, 2019

- In sum, change in industry structure, urbanization and migration are all supply-side shifters putting upward pressure on real wage in the sector.

3. Factors affecting labor demand

- Increase in agricultural land, esp. harvested land of cereals.

Figure 11: Evolution of agricultural land in Cambodia, '000 ha



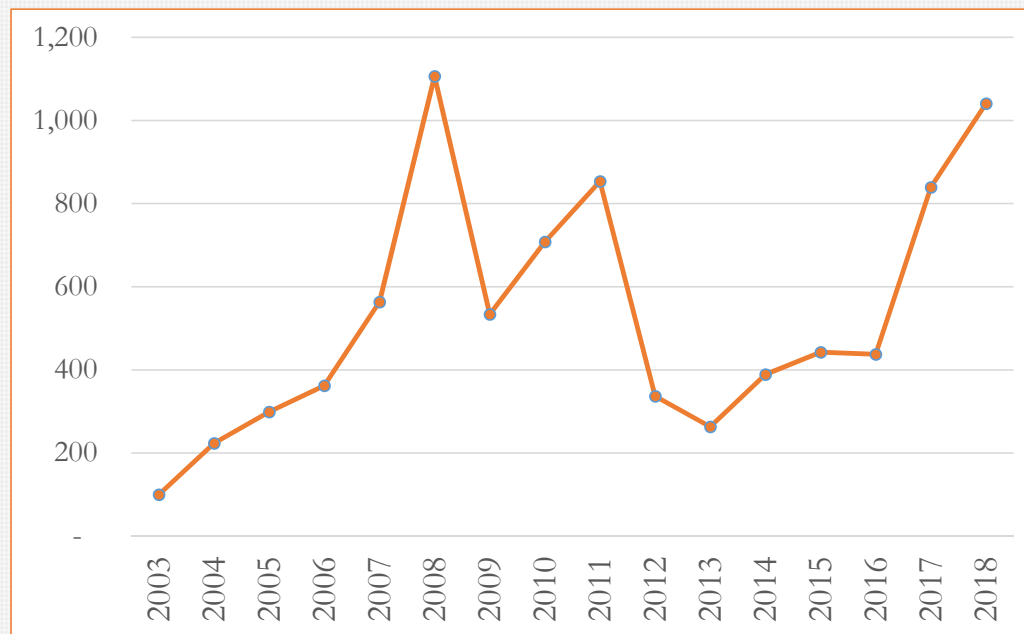
- Significant expansion of agricultural land and harvested land of cereals after the end of civil war in 1979.
- Nevertheless, it took 35 years for harvested land of cereals to return to its pre-civil war level in 2005.
- Substantial expansion in harvested land of cereals in the last decade suggesting an increase in demand for labor in agriculture.

Source: UN's Food and Agriculture Organization 2019

3. Factors affecting labor demand (cont.)

- Increase in agricultural mechanization has negative affect on labor demand.

Figure 12: Index of import of agricultural machinery, 2003=100



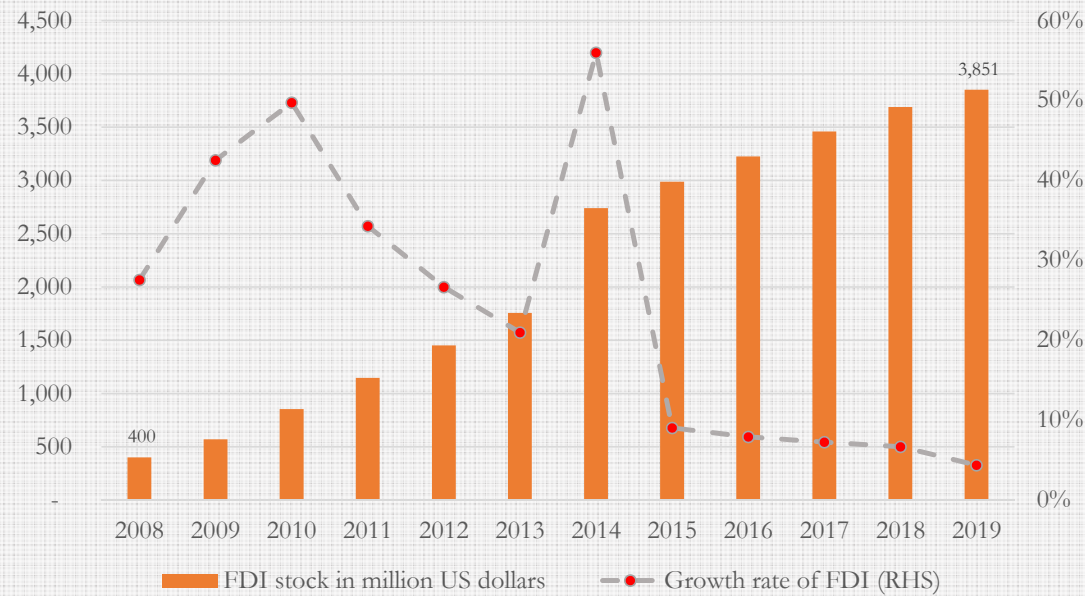
Source: ITC's Trade Map, 2019

- Chhim et al., (2015) shows that in rural Cambodia in 2011 households losing members to off-farm work were more likely to invest in agricultural machinery.
- This implies that recent rise in agricultural mechanization could be a motive behind the lose of labor in agriculture sector.

3. Factors affecting labor demand (cont.)

- Increase in stock of FDI in agriculture may increase labor demand.

Figure 13: Stock of foreign direct investment in agriculture sector in million USD



- FDI in agriculture sector went up tremendously in the last decade from just USD 400 million in 2008 to USD 3.8 billion in mid 2019.
- Despite absence of data on number of workforce generated by this huge increase in foreign investment, such expansion may result in certain increase in demand for labor in the sector.

Source: National Bank of Cambodia, 2019; Note: Figure in 2019 is as of August 2019.

5. Conclusion

- Summary of labor demand and supply shifters

Type of factors		Direction of effect
<i>Supply side</i>	Change in economic structures	-
	Urbanization	-
	Migration (internal and international)	-
<i>Demand side</i>	Expansion of cultivated land of cereals	+
	Increase in mechanization use in agriculture	-
	Increase in FDI stock in agriculture	+

5. Conclusion

- All supply-side factors put upward pressure on real wage in agriculture.
- And since positive effects of expansion of cultivated land of cereals and increase in FDI stock on labor demand tend to dominate the negative effect of increase in agricultural mechanization the net effect also puts upward pressure on real wage from the demand side.
- As a result, new real equilibrium is too high (at wage level of low-skilled migrants working in urban Cambodia, Thailand, Malaysia and Korea) making it impossible for employers to pay at the new equilibrium rate.
- This ultimately creates labor shortage in the agriculture sector in Cambodia.

Thank you for your attention!

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