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**The Impact of Remittances on Educational Investment and Gender Gap in Nigeria**

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## INTRODUCTION

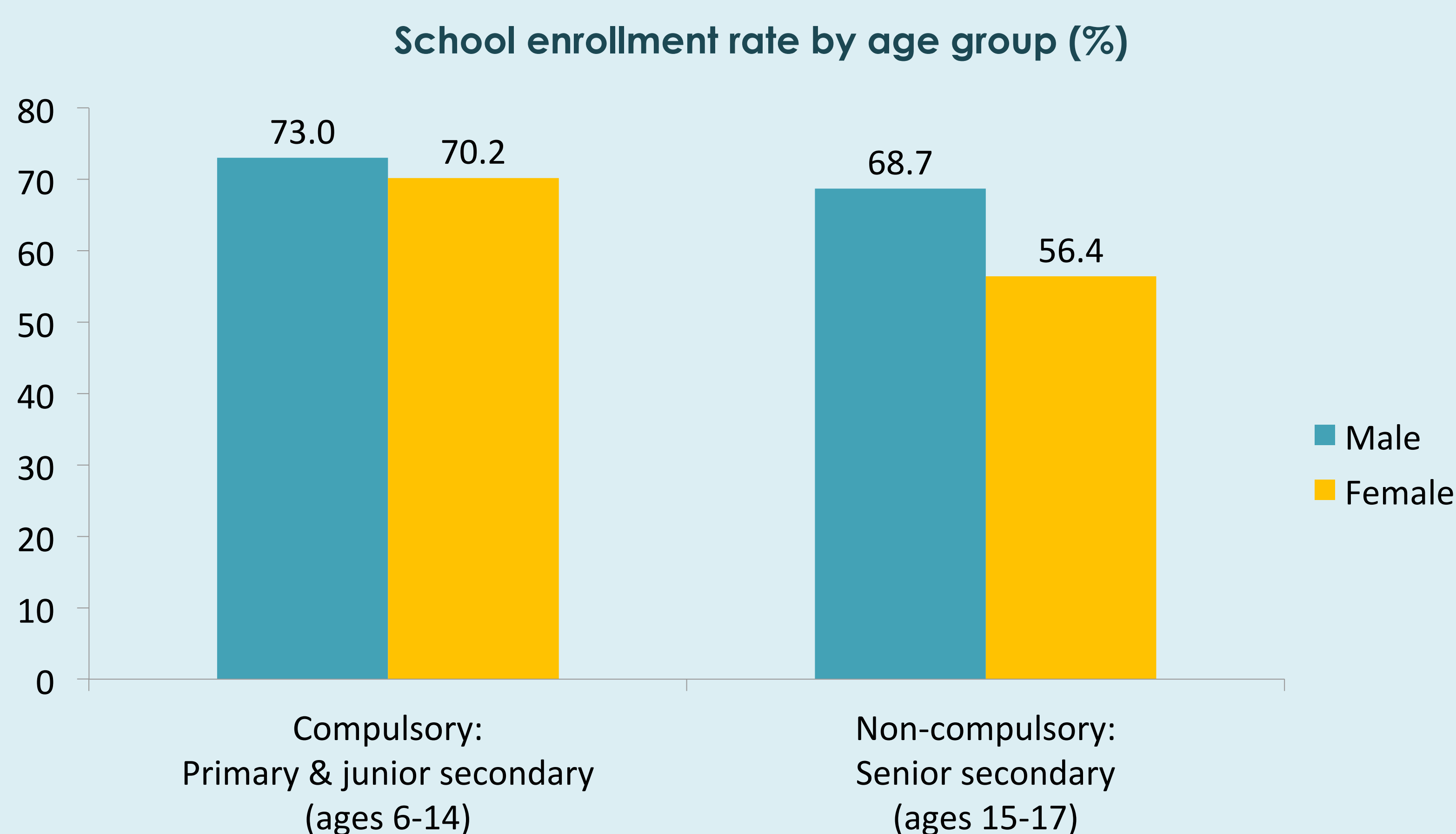
- **Remittances** are increasingly acknowledged as an **important income source** in developing countries.
  - Remittances to developing countries amounted to \$441 billion in 2015, which is more than three times the total ODA.<sup>(\*)</sup>
  - Remittances go directly to households.
- The **impact** of remittances **on education** is ambiguous both theoretically and empirically.
  - On one hand, relax the household credit constraints.
  - On the other hand, require children to work in place of their family members who migrate.
- **Nigeria** provides an important case study:
  - Few past studies focused on African countries due to lack of data.
  - The top remittance-receiving country in Africa with \$21 billion.<sup>(\*)</sup>
  - Low educational attainment, especially girls.

<sup>\*</sup> World Bank. 2016. "Migration and Remittances: Factbook 2016." Third Edition. World Bank, Washington, DC.

## RESEARCH QUESTIONS

- Do remittances lead recipient households to send more children to school and spend more on their education?
- Does the impact differ by the gender of children in recipient households?

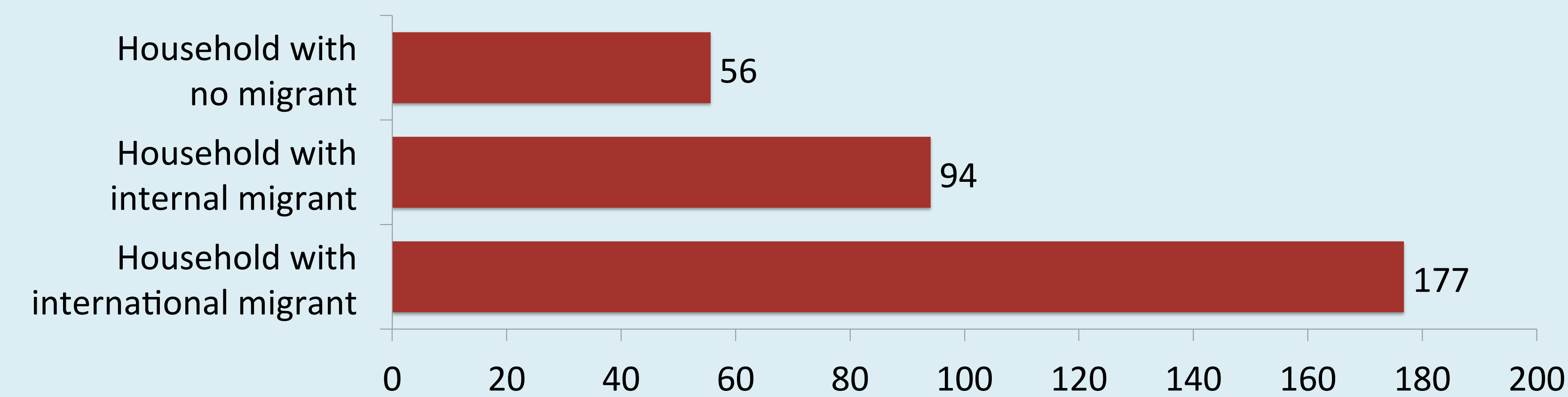
Figure 1. Gender gap in education, especially at older ages



## DATA

- **Migration Household Survey 2009** (World Bank)
- 1,365 households with school-age children (6–18 years old)
  - 291 households with international migrants
  - 513 households with internal migrants
  - 561 households without migrants

Figure 2. Households with migrants spend more on education  
Household expenditure on education per child in the past 6 months (US\$)



## MODEL

- **Impact** on households' expenditure in education:

$$E_h = \alpha_1 + \beta_1 X_h + \delta_1 H_h + \varepsilon_{1h}$$

where  $E_h$  denotes household  $h$ 's expenditure in education\*;  $X_h$  is the amount of remittances household  $h$  receives\*;  $H_h$  denotes a vector of household characteristics; and  $\varepsilon_{1h}$  is an error term.  
\*Note:  $E_h$  and  $X_h$  are transformed using the inverse hyperbolic sine transformation.

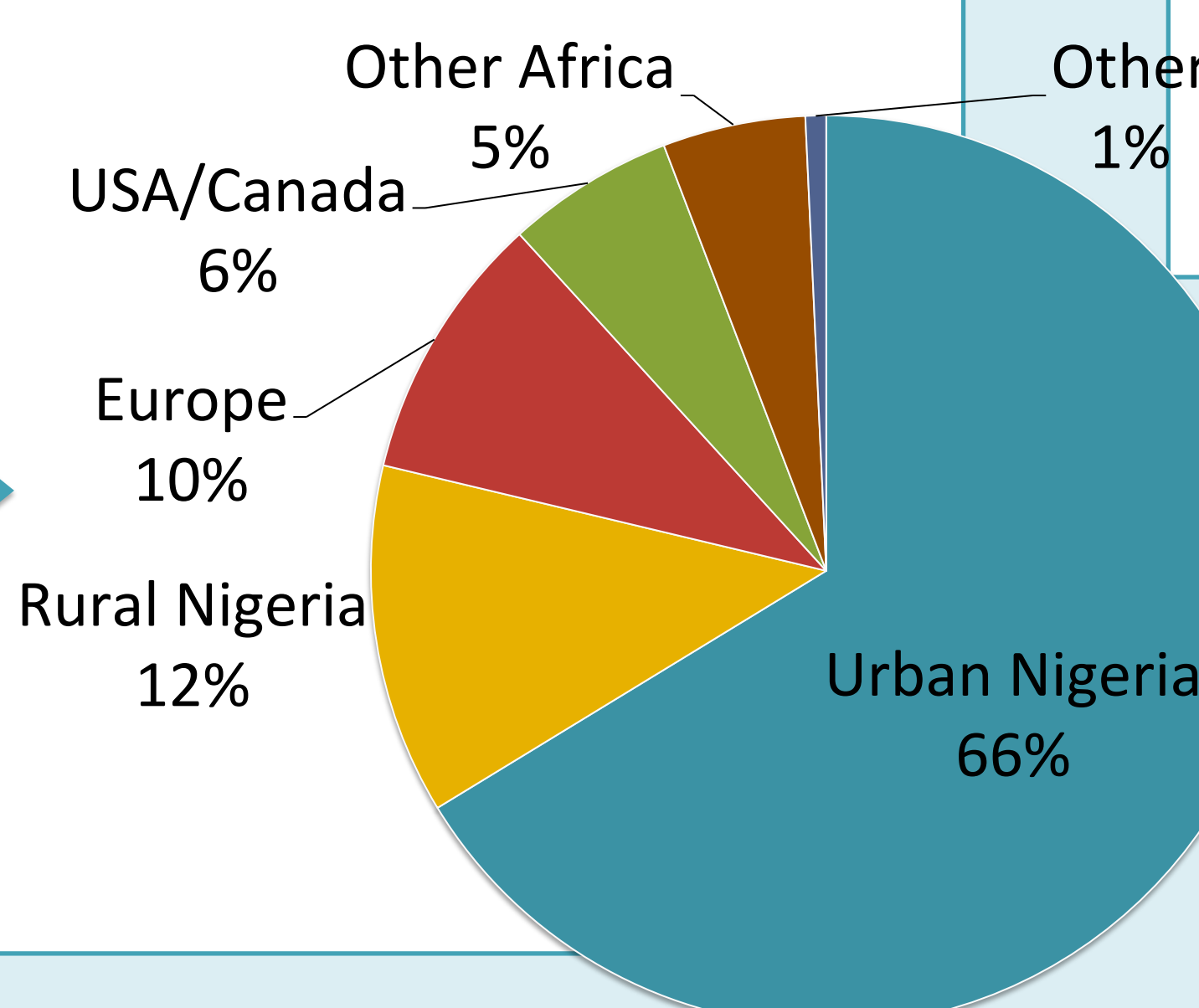
- **Impact** on school enrollment:

$$S_{ih} = \alpha_2 + \beta_{21} R_h + \beta_{22} B_i + \beta_{23} (B_i * R_h) + \gamma_2 C_i + \delta_2 H_h + \varepsilon_{2ih}$$

where  $S_{ih}$  is a binary variable with the value of 1 if a child  $i$  in household  $h$  is enrolled in school;  $R_h$  a dummy variable that takes the value of 1 if a household  $h$  receives remittances;  $C_i$  is a vector of child characteristics;  $H_h$  denotes a vector of household characteristics; and  $\varepsilon_{2ih}$  is an error term.

- **Methodology:**

- To control for endogeneity of remittances, the equations above are estimated using **instrumental variables** (IVs).
  - IV: Migrants' location (Proxy for transaction costs)



## RESULTS

Table 1. Impact of remittances on educational expenditure

Dependent variable: Expenditure on education	Household with children of:		
	All children	Primary & junior secondary age (6-14)	Senior secondary age (15-17)
Amount of remittances	0.102**	0.095**	0.070
Observations	1365	1186	735
F-statistic (Instruments)	65.0	61.2	44.7
Over-identifying restrictions (p-value)	0.15	0.14	0.22

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%; Other controls are included, but not reported.

Table 2. Impact of remittances on school enrollment

Dependent variable: School enrollment (=1 if in school, 0 otherwise)	Sample group		
	All children	Primary & junior secondary age (6-14)	Senior secondary age (15-17)
Received remittances (=1 if yes, 0 if not)	0.211***	0.170***	0.285***
Boy * Received remittances	-0.163***	-0.133**	-0.216***
Boy (=1 if child is male)	0.084**	0.054	0.163***
Observations	3363	2456	907
F-statistic (Remittance)	74.1	58.6	33.1
F-statistic (Boy*Remittance)	25.4	50.2	29.9
Over-identifying restrictions (p-value)	0.37	0.32	0.09

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%; Other controls are included, but not reported.

## CONCLUSIONS

- In general, a 10% increase in the amount of remittances is likely to lead to approximately a 1% **increase in expenditure on education**.
- In households with remittances, children are more likely to go to school. The **positive impact** on **school enrollment** is **larger for girls** than boys, **especially at older ages**:
  - **Ages 6-14**: The receipt of remittances increases the likelihood of girls being in school by 17.0 pp, while that of boys increases by only 3.7 pp.
  - **Ages 15-17**: The receipt of remittances increases the likelihood of girls being in school by 28.5 pp, while that of boys increases by only 6.9 pp.
- Remittances can help **reduce the gender gap** in school enrollment, especially for older children.

Figure 3. The majority of migrants are located in urban areas of Nigeria, while the major destinations for international migrants are European countries