

# The Poverty-Economic growth-Health triangle

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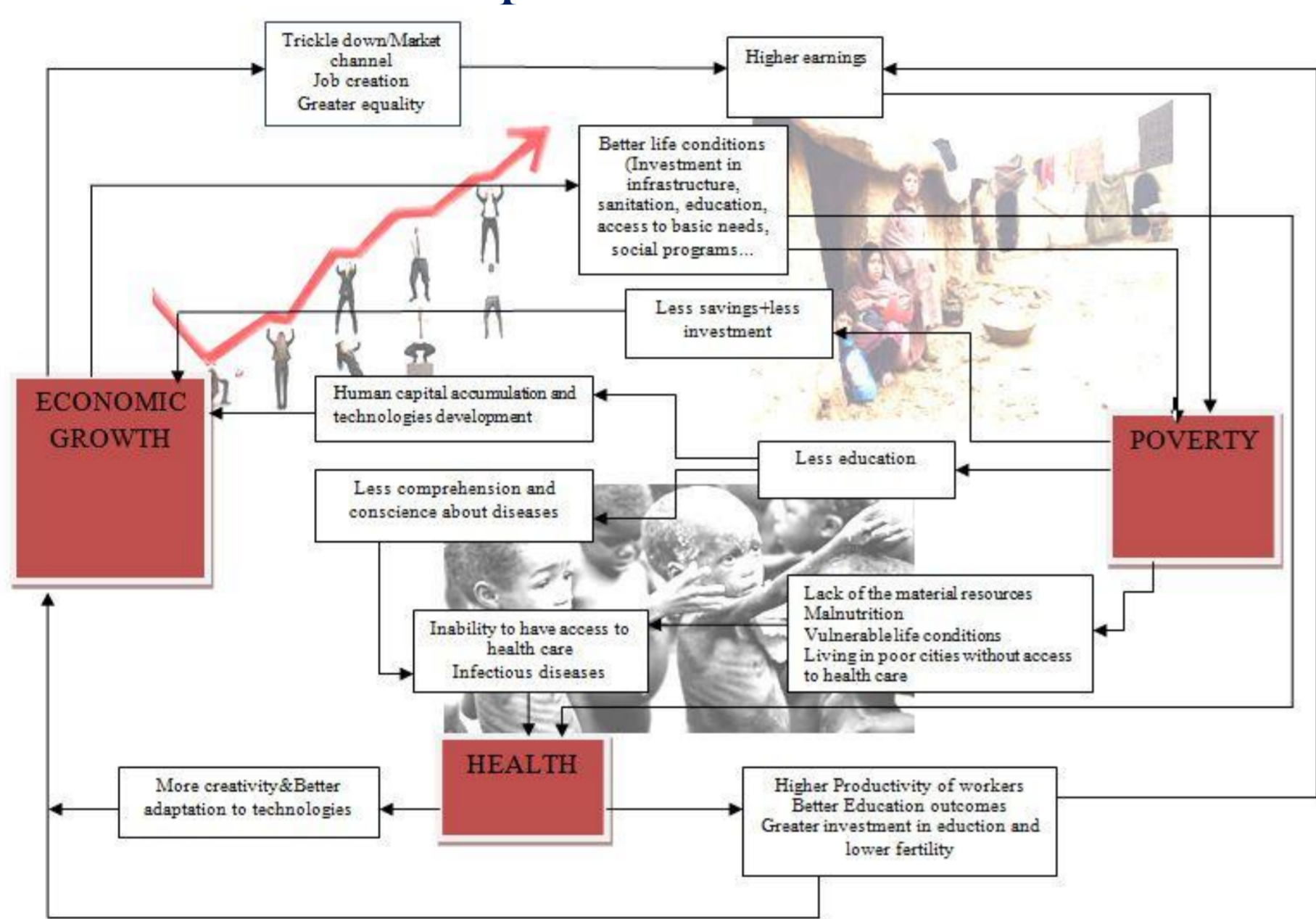
### Research question

What are the interactions existing between each two factors in the Poverty-Economic growth-Health triangle in developing countries?

### Objective and contribution

- Construction of an econometric model treating in a simultaneous way the interactions between the three factors and taking into account the econometric issues existing in such study.
- Taking into account the selectivity problem existing from poverty data unavailability.

### Conceptual Framework



### Database

Construction of an unbalanced panel of 75 countries from all regions (developing countries) selected according to data availability for poverty indicators since 1980 to 2011, divided into 8 periods of 4 years and taking into account selectivity issues.

### Econometric issues

- Data unavailability for poverty indicators in developing countries.
- Endogeneity problems because of the two way causality existing between each two factors.
- Difficulty in finding reliable instruments in order to handle endogeneity problems.

### Econometric model

- Selection model for poverty data unavailability: Quadratic exponential model estimator for the dynamic logit fixed effects model with endogeneity using control function approach.
- System of simultaneous equations: Fixed effects three stage least squares (FE3SLS) for incomplete dynamic panel data with sample selection and endogeneity problems using three set of instruments.

### Results

| Quadratic exponential model<br>s : dummy variable for poverty (if available observation for poverty or not) |             |
|---|-------------|
| Explicative variable  | Coefficient |
| lag_conflict  | -0,218      |
| lag_democracy   | 0,055**     |
| lag_disasters   | 1,098 ***   |
| Lag_GDP/capita  | 2,182*      |
| Lag_s   | 0,455 **    |

Total number observations=818, N=113

Table 1: First step estimation

| Explicative Variable | FE3SLS (endogeneity, simultaneity and selectivity) |            |                          |           |                 |          |
|----------------------|--|------------|--------------------------|-----------|-----------------|----------|
|                      | Poverty equation                                   |            | Economic Growth equation |           | Health equation |          |
| Lag,Poverty1,25\$    | 0,181*   | -0,208**   | 0,106                    | 0,13      | 0,042           | -0,014*  |
| Lag,Gdp/Capita       | -0,318   | -2,203***  | 0,865***                 | 1,196***  | -0,162*         | 0,015    |
| Lag,Infant Mortality | 2,481***   |            | -0,521***                |           | 0,969***        |          |
| Lag,Life_expectancy  |  | -12,273*** |                          | 3,097***  |                 | 0,991*** |
| Inverse-Mills ratio  | 4,707***   | 5,231***   | -1,089*                  | -1,744*** | 0,401           | -0,176** |

Number of observations =231 with 75 countries

Table 2: Second step estimation (Simultaneous equations)

Instrumentation includes the donor of foreign health aid countries' crisis interacted with the amount of aid as instrument for health and those of the low cost housing aid donor countries interacted also with the amount of aid for poverty. We consider the price of oil as instrument for economic growth.

### Additional results

- We introduce other instruments in the second step estimation and which gives different results changing squarely with the choices.
- We make several comparisons with basic econometric method and we see how much the results are sensitive to the econometric approach and mainly the correction of selectivity.

### Conclusion

the results obtained from this study makes us conclude that maybe economic growth has a direct impact on both poverty and health but when it is based on equity and improvement of the essential needs in order to improve the situation of the poor and that of people or children suffering from poor health, in other words this impact is relevant under some conditions. However, there is a great deal of evidence about the strong role played by the health factor indicating in one way, how much poor health people and children can be vulnerable to poverty and in another way the importance of human capital in general in the process of economic growth.