The Interdependence of Different Measurements of Natural Resource Dependence and Poverty: Comparative Evidence from Vietnam

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MOTIVATION

POOR HOUSEHOLDS DEPEND ON NATURAL RESOURCES. DOES IT MATTER HOW WE MEASURE POVERTY AND NATURAL RESOURCE DEPENDENCE?

Poor households depend on natural resources as additional income sources but they are mainly used for home consumption. The contribution of natural resources to household income is predominantly measured as the share of income that originates from those resources. This approach leads to different conclusions about the dependence on natural resources if those are mainly used for home consumption. We use a panel data set from Vietnam to show how different measurements of natural resource dependence and poverty affect each other. We find that natural resource dependence increases poverty independently of the measurements. However, the results are most significant for the introduced environmental resource dependence index (EDI). Measurement, thus, indeed matters and should be accounted for when introducing new policies to alleviate poverty.

ESSENTIAL FACTS & RESULTS

> Higher dependence on natural resources leads to higher likelihood of being poor

> Relationship holds for all measures of poverty and natural resource dependence investigated

> Poverty has been reduced in Vietnam over past decades

> Short-term relationship: monetary values such as relative environmental income

> Long-term relationship: MPI and EDI

> Natural resource extraction used as a shock coping mechanism in Vietnam

> Shock coping mechanism as driver of results
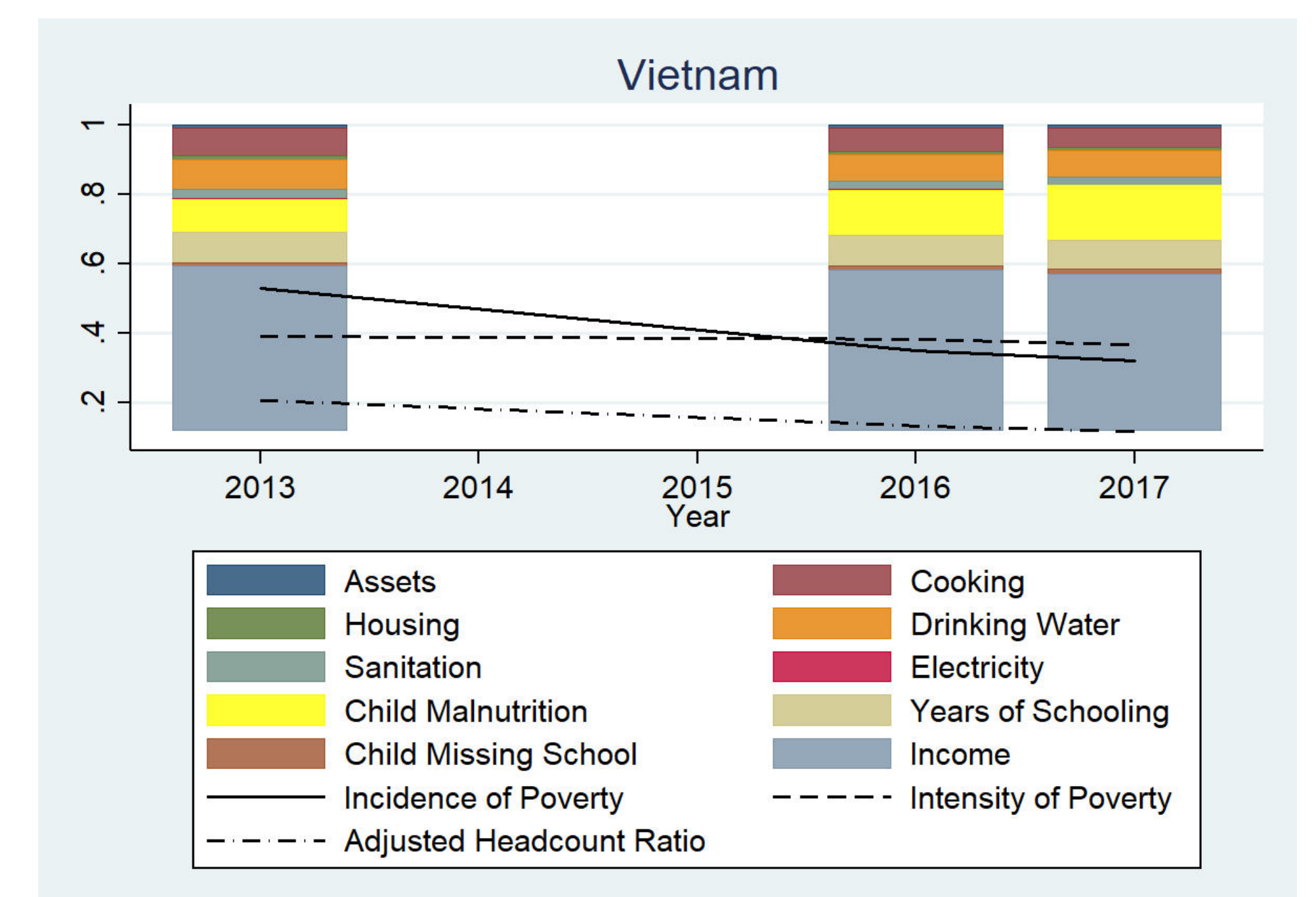
Contribution of Indicators to MPI, Incidence, Intensity, and Adjusted Headcount Ratio of MPI. Source: Own Calculations using Data from TVSEP Project.

MULTIDIMENSIONAL POVERTY

RESULTS

Independent of the measure used for natural resource dependence and poverty, the results show that a higher dependence on natural resources leads to a higher likelihood of being poor.

The effect is largest when we use monetary poverty and relative income from natural resources

Substituting monetary poverty with the MPI does not change the results due to the inclusion of monetary poverty in the MPI

Using both the EDI and the MPI, however, leads to the most significant results even though the coefficient is smaller indicating a long-term relationship

ECONOMETRIC RESULTS

	Monetary Poverty	MPI	MPI
Relative Environ-mental Income (REI)	0.127** (0.057)	0.122* (0.072)	
Environmental Resource Dependence Index (EDI)			0.053*** (0.013)

Standard errors in parentheses; * p<0.1, ** p<0.05, *** p<0.01. Further controls not shown: socio-demographic and economic household characteristics, year and village fixed effects. Observations: 4,210.

DATA

The Thailand Vietnam Socio Economic Panel (TVSEP).

3 rural provinces covering 2,200 households for the years 2013, 2016, and 2017

Rich dataset comprising agricultural and non-agricultural activities, socio-demographic information, wealth, and natural resource extraction

Vietnamese TVSEP Provinces

Map of the Vietnamese Provinces Covered by the TVSEP Project (Source: Own Preparation in QGIS)

METHOD

Estimation of the effect of natural resource dependence on poverty was conducted as follows:

Poverty measures: the TVSEP data is used to calculate monetary poverty and a multidimensional poverty index (MPI)

Natural resource dependence: the TVSEP data is used to calculate relative income from natural resources (REI) and a environmental resource dependence index (EDI)

Econometric logit panel regression with fixed effects is used to estimate the effect of natural resource dependence on poverty

Poverty: 1 if household is below threshold, 0 otherwise

Monetary Poverty Threshold: 3.20$ per capita and day

MPI Threshold: 0.25

ENVIRONMENTAL RESOURCE DEPENDENCE

ENVIRONMENTAL PRODUCTS — LIVELIHOODS
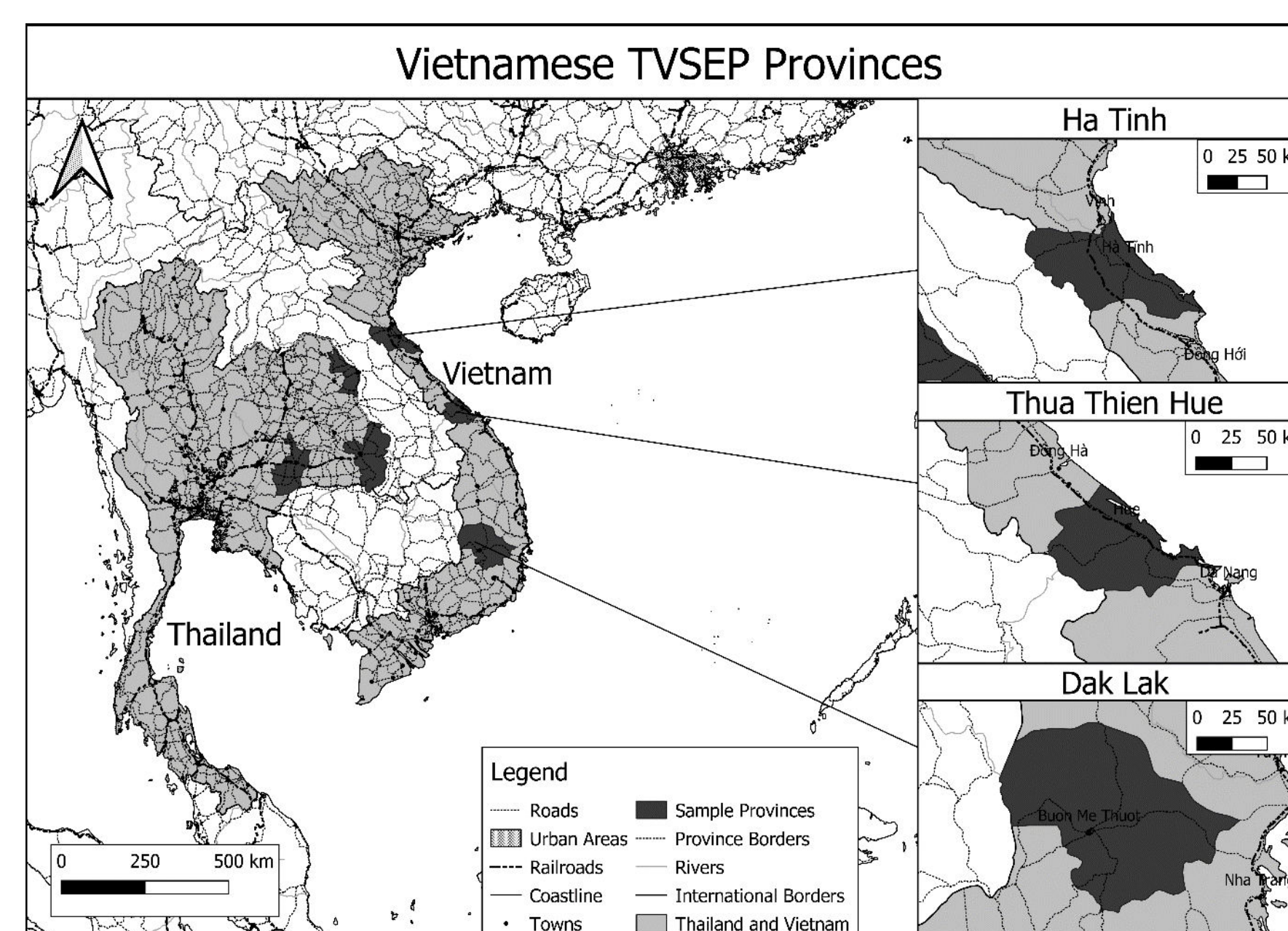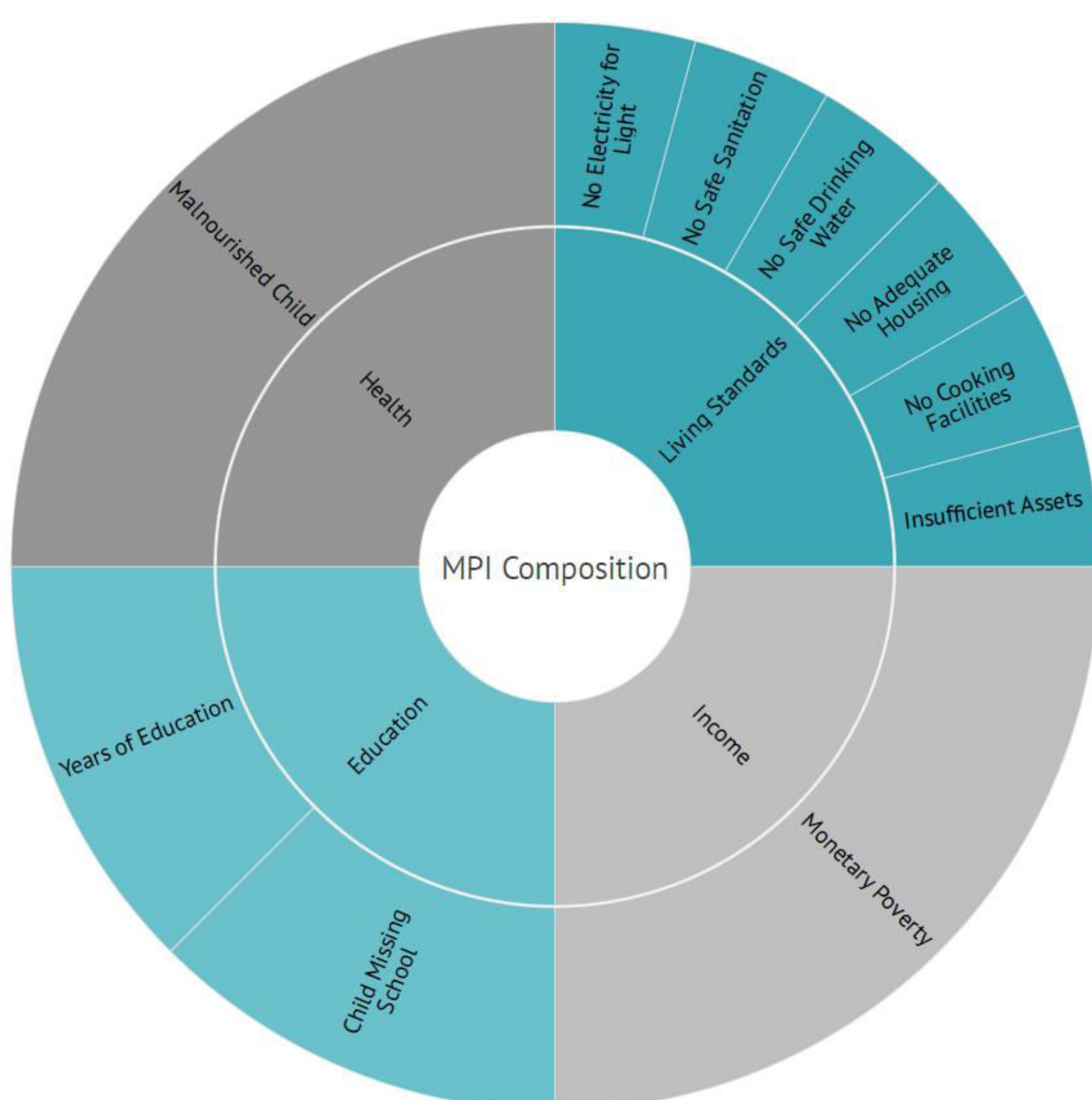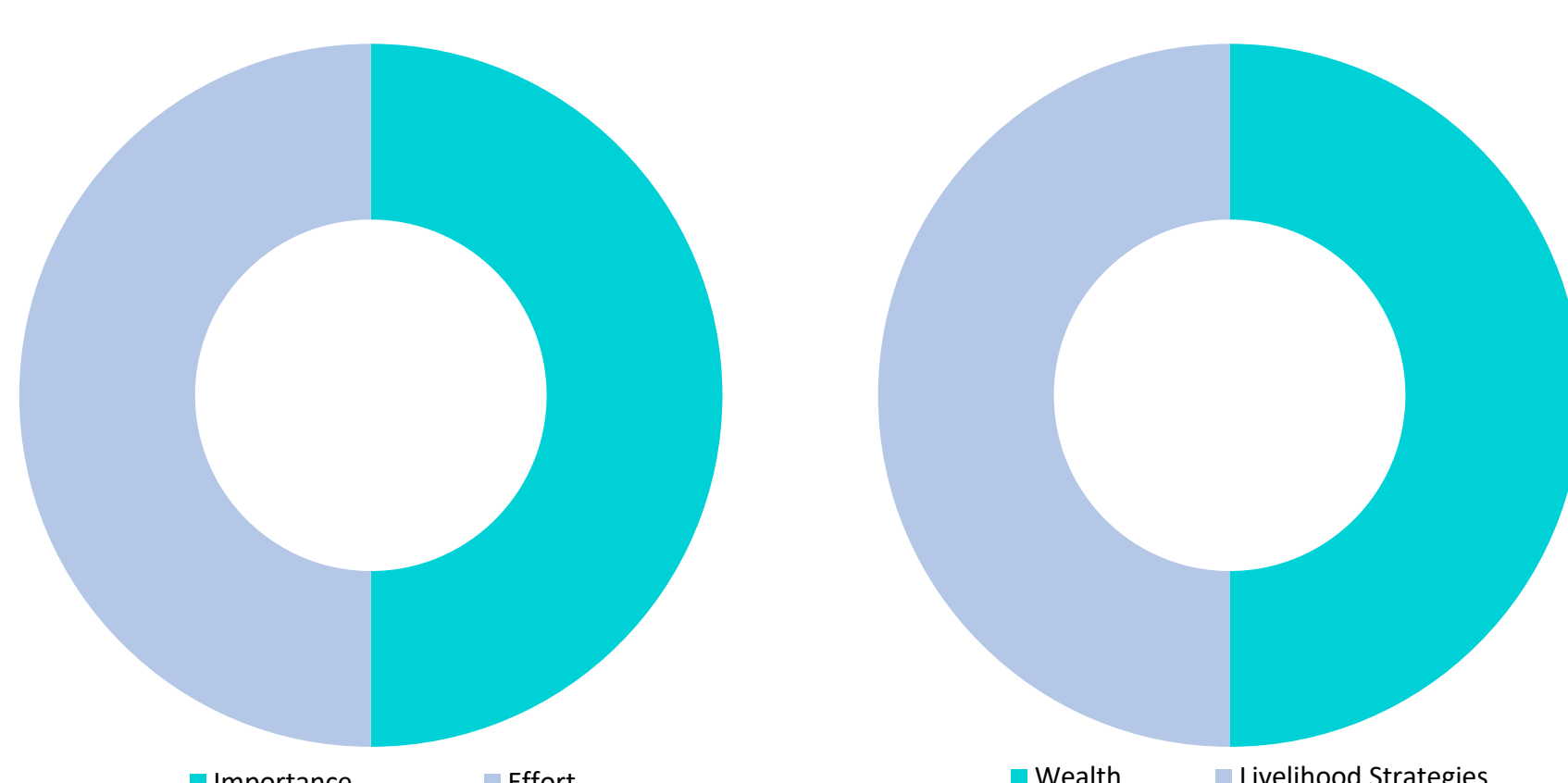
CONCLUSION

A higher dependence on natural resources is associated with a higher likelihood of being poor.

The EDI and the MPI represent structural and long-term measurements of dependence and poverty respectively

Even though the coefficient is smaller in size for the EDI than for REI, this long-term relationship gives new insights into who are the poor and structurally dependent households

Households in Vietnam might see natural resource extraction as a shock coping mechanism explaining the larger coefficient for the REI and the smaller for the EDI