

Meeting imperfect information with fuzzy set theory: a methodological approach in analysis of rural non-farm employment diversification

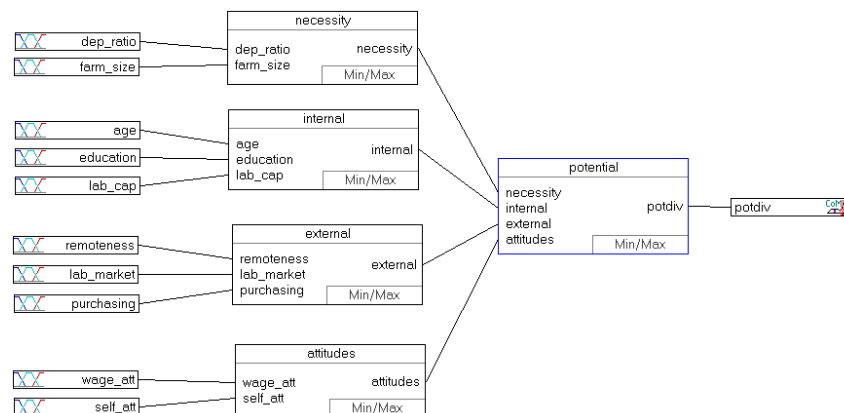
"Rural Labour in Transition Economies"

Mini-Symposium at the XXVII International Conference of Agricultural Economists
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Structure of talk

1. Fuzzy logic - a motivation
2. Theory and model
3. Results
4. Development paths of farm households
5. Conclusions



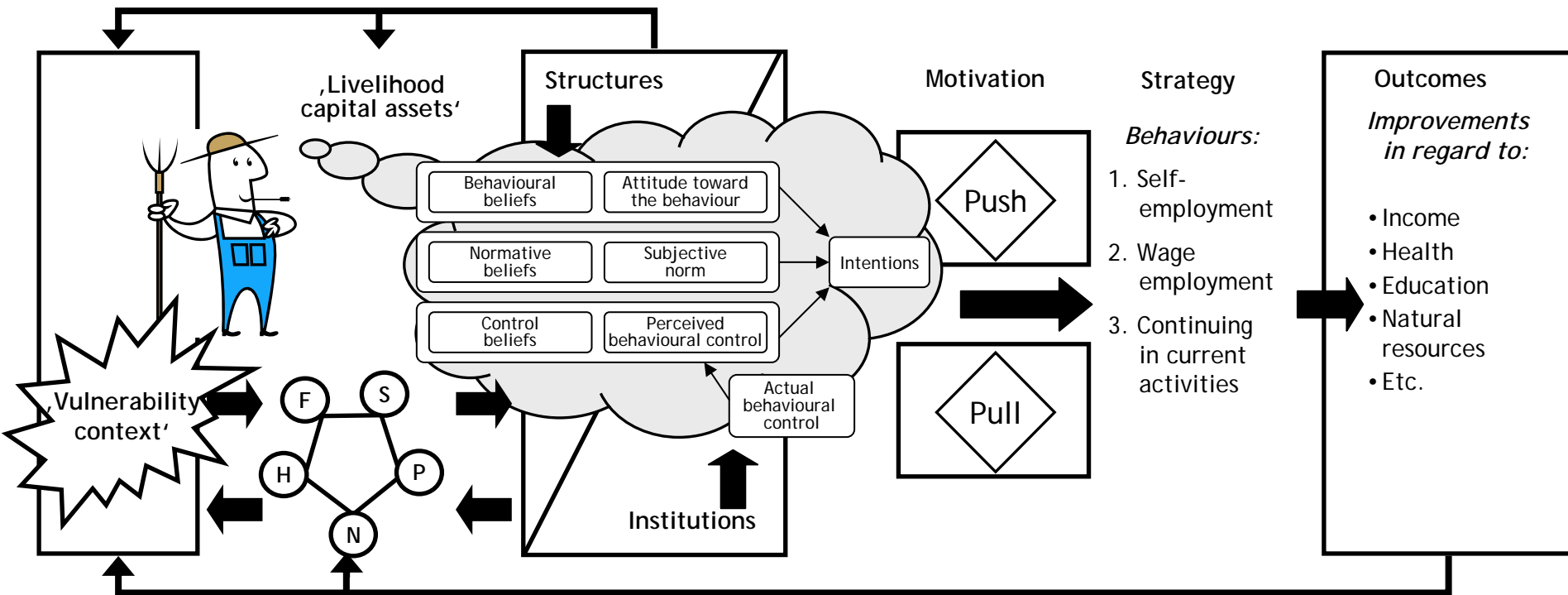
1. Fuzzy logic - a motivation

- Problems in econometrics:
 - Complexity of systems
 - Imprecision of quantitative data
 - Only qualitative data available
 - Strong assumption on the quantitative relations
 - Outliers
 - No quantitative relation known but qualitative statements possible
- Fuzzy logic - the methodology of common sense

2. Theory and model

The integrated framework for the analysis of NFRE

... structure & institutions influence context and livelihood assets ...

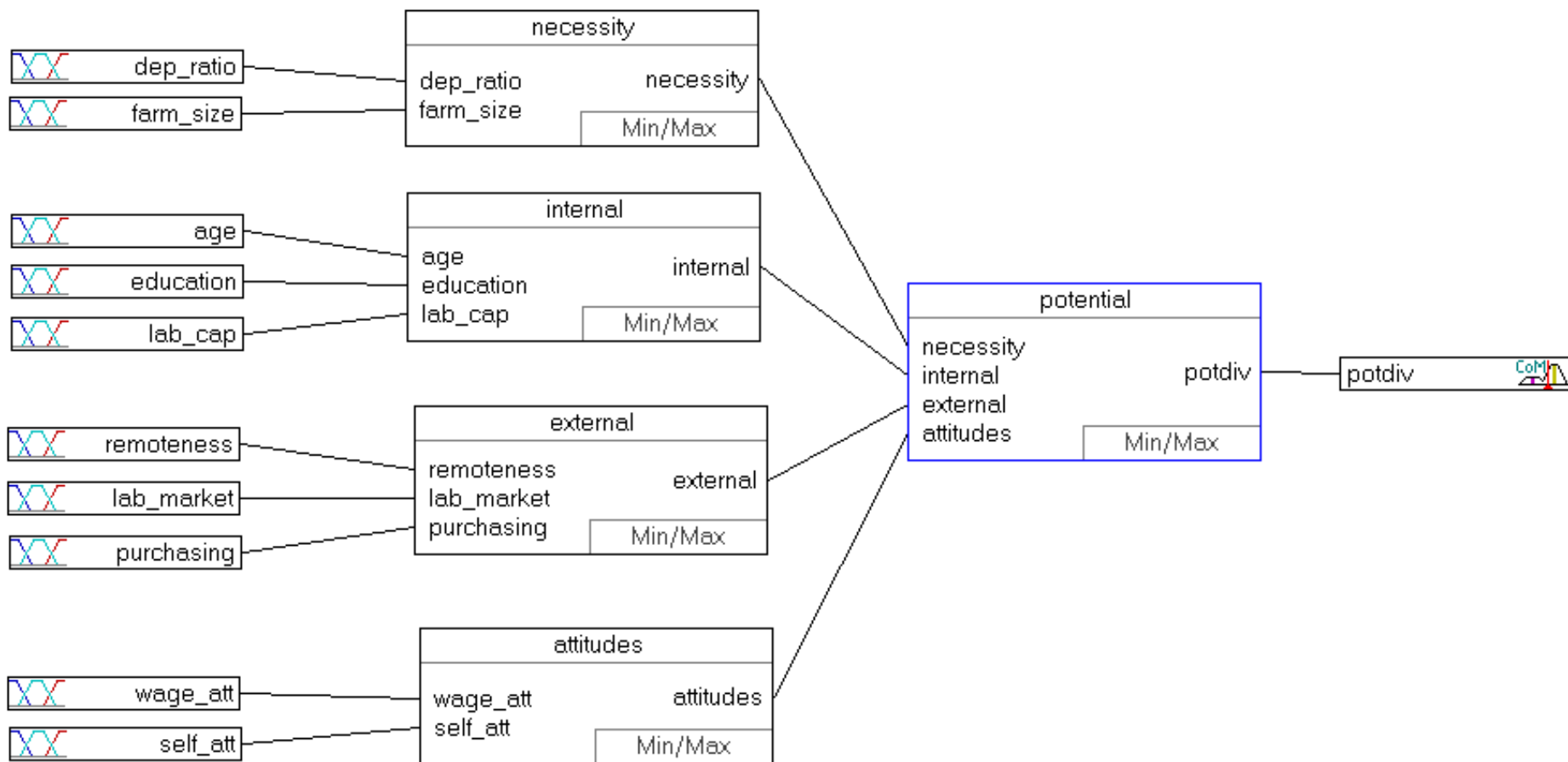


... outcomes influence vulnerability context and livelihood assets ...

Source: Möllers (2006, p. 78) with own adaptations.

2. Theory and model

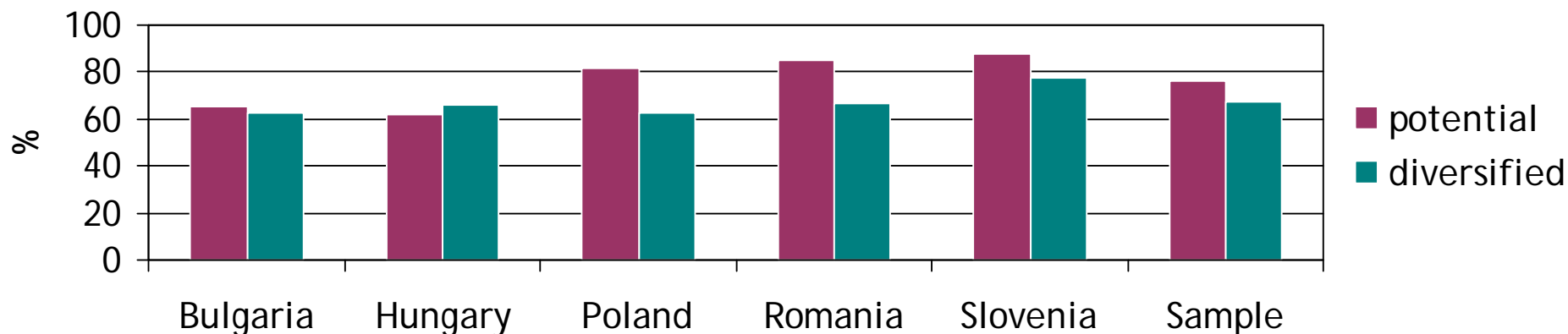
The fuzzy logic non-farm diversification model (FLODI)



Source: Fritsch and Buchenrieder (2009).

3. Results

- N=1,077 farm households in Bulgaria, Hungary, Poland, Romania, and Slovenia
- Data from SCARLED household surveys



- **76.2% potential households**
from 61.9% (Hungary) to 87.8% (Slovenia)
- **67.1% diversified households**
from 62.8% (Bulgaria and Poland) to 77.5% (Slovenia)

3. Results

		Potential of non-farm diversification	
		Yes	No
Actually diversified	Yes	633 households 58.8%	90 households 8.4%
	No	188 households 17.4%	166 households 15.4%

- 74.2% of households "correctly" classified
- Households in the four groups show specific characteristics

3. Results

		Potential of non-farm diversification	
		Yes	No
Actually diversified	Yes	Rural diversifiers and demand-pull diversifiers	Past demand-pull diversifiers
	No	Rural newcomers, farmers, and survey and model error	Farmers and households living under distress-push conditions

Fine-tuning

4. Development paths

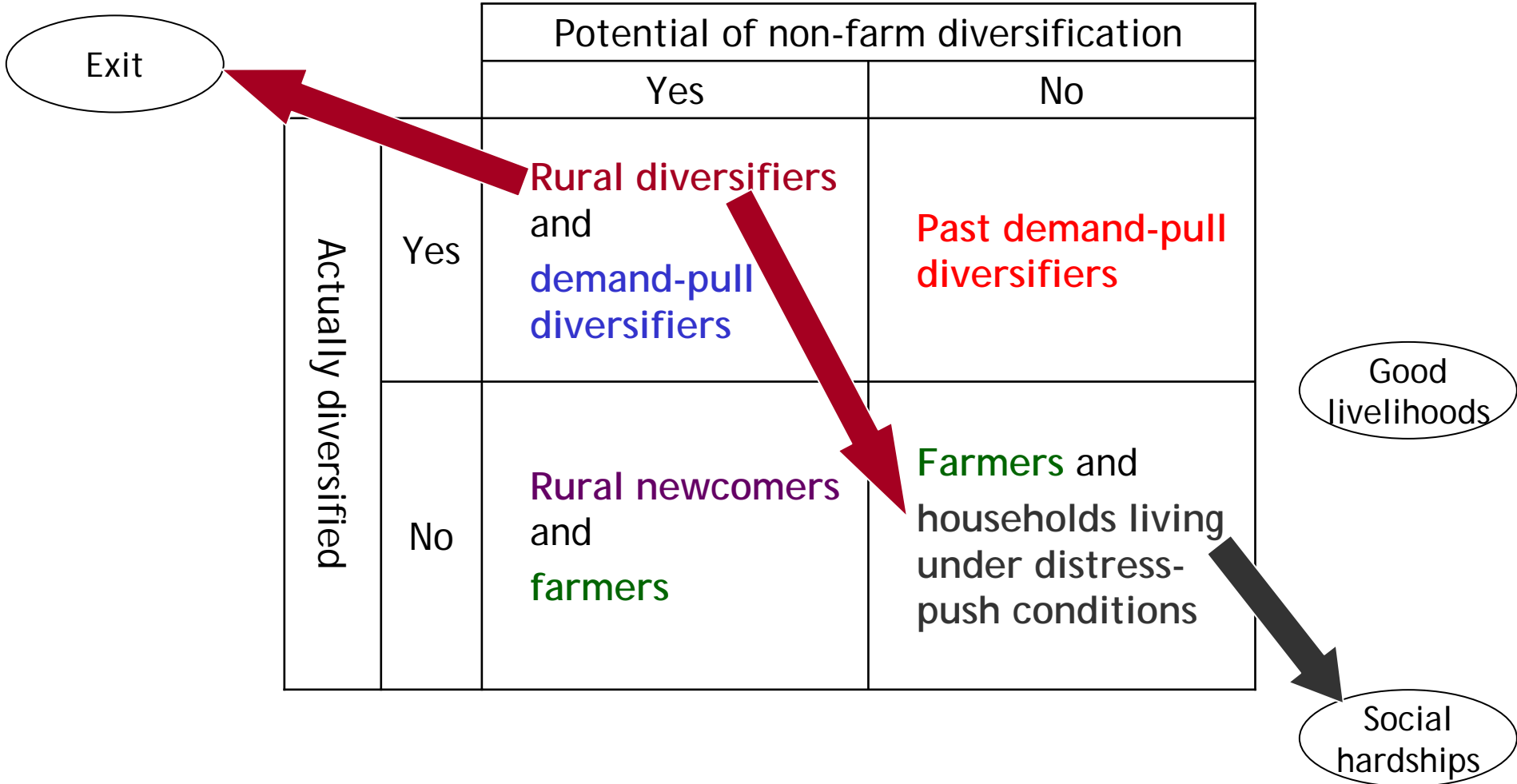
Exit

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		Yes	No
Actually diversified	Yes	Rural diversifiers and demand-pull diversifiers	Past demand-pull diversifiers
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Good livelihoods

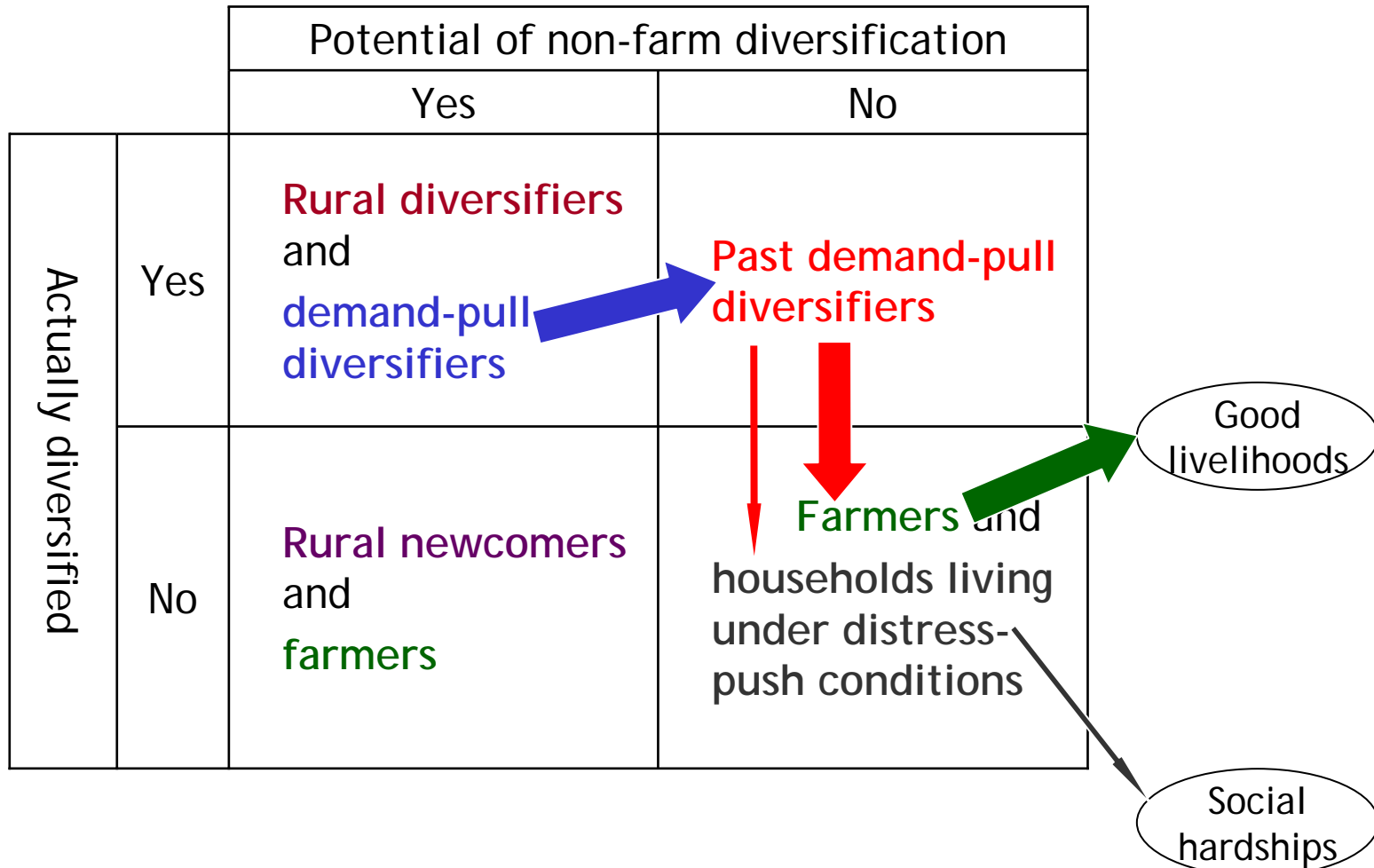
Social hardships

4. Development paths



4. Development paths

Exit



4. Development paths

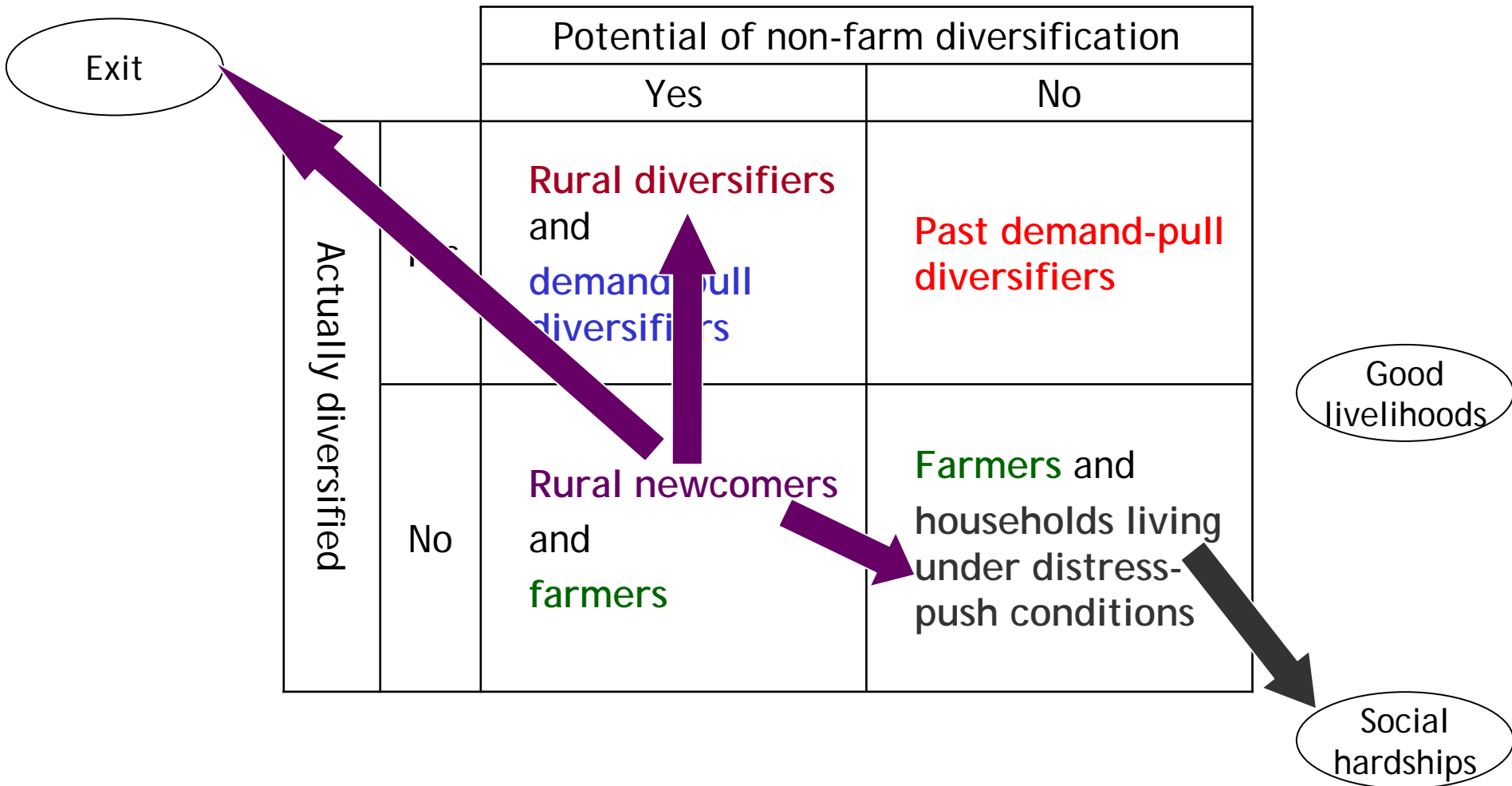
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Good livelihoods

Social hardships

4. Development paths



5. Conclusions

- It is worth to think about fuzzy logic!
- Model depicts current situation well.
 - Six household types identified
- Model suitable for simulating future developments
 - Farmers and demand-pull diversifiers will be fine but
 - Action needed for rural diversifiers and rural newcomers
- Further use of model for simulating policies, e.g. farm investments, training, labour market measurements is recommended.

