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A Comparative Analysis of the Contribution of Subsistence Production to Household Incomes in Five New Member States of the EU

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SCARLED
Structural Change in Agriculture and Rural Livelihoods

Objectives

➢ Evaluate the role of subsistence farming for the real incomes of agricultural households in selected EU

➢ Construct a typology of agricultural households according to socio-economic characteristics, farm endowments and location, using factor and cluster analysis.

➢ Linkage between objectives. Each cluster evaluated in terms of reliance on subsistence production. Share of total household income accounted for by imputed monetary value of subsistence production used as variable in cluster analysis

Policy context

- ➢ Small scale, subsistence / semi-subsistence farms remain widespread in CEE.

- ➢ Lack of agreement on role and prospects of subsistence farming. Such as:

- ➢ Transitional phenomenon *versus* longer lasting characteristic of agriculture in CEE?

- ➢ Unwanted, inefficient phenomenon that impedes economic growth *versus* important coping strategy?

- ➢ Involuntary (forced) strategy versus choice (preference for own grown food)?

Geographical Coverage

Country	SCARLED partner
Bulgaria	University of National and World Economy
Hungary	Research Institute for Agricultural Economics
Poland	Department of Economic Sciences, Warsaw University
Romania	Banat's University of Agricultural Sciences and Veterinary Medicine, Timisoara
Slovenia	University of Ljubljana

Outline

1. Defining Subsistence Farming

2. Methodology
   > Valuation of unsold output
   > Factor and cluster analysis

3. Sample

4. Descriptive Statistics

5. Analysis: role of subsistence farming for household incomes & typology

6. Conclusions

Defining Subsistence Farming

- Lack of consensus on definition (Barnett *et al*. 1996; Kostov and Lingard, 204)

- Production versus consumption approach.

- Farms placed on a continuum from 0 to 100% depending on proportion of output sold.

- Extremes are purely subsistence and purely commercial operations.

- Mosher (1970) use 50% of output sold as threshold for classifying farms as mainly subsistence /semi-subsistence or mainly commercial.

- Lack of adequate data. Some evidence from EU Farm Structural Survey.

Farm Structural Survey evidence on farm subsistence orientation

	Bul (2005)	Hun (2007)	Pol (2007)	Rom (2005)	Slo (2005)
Number of holdings producing mainly for own consumption (in thousand)	367.9	522.6	908.2	3444.8	45.6
Share of holdings producing mainly for own consumption of size less than 1 ESU (%)	88.4	85.3	75.5	75.2	26.9

Source: EUROSTAT

Methodology: Valuation of unsold output

- ➢ Unsold output, product by product, was valued at market prices as a proxy for opportunity costs.

- ➢ If household sold portion of their output, same price imputed to unsold quantity. Should reflect quality.

- ➢ If household consumed all output – crops weighted average price for village. If village data unreliable – regional /country averages.

- ➢ Poor households – use EUROSTAT definition of 'at the risk of poverty'. Poverty line of 60% of *national* equivalised median income. Note: poverty thresholds vary across states.

- ➢ Equivalised income – total household income / equivalent size of household. Use OECD equivalence scale.

Methodology (continued)

➢ **Vulnerability. Households that depend on unearned income, transfers and subsistence production. Use dependency ratio as a proxy for vulnerability.**

➢ **Ratio between consumers (dependent members outside working age) and workers (economically active members). Denoted as *c/w* ratio.**

➢ **As *c/w* ratio not calculated for households without any economically active members, such households were assigned a *c/w* ratio of 8. Vulnerable households = *c/w* ratio of 3 or higher.**

➢ **As data from the five countries pooled together, all income indicators converted to € using Eurostat PPP for 2006 (reference year for study).**

Methodology: Factor and Cluster Analysis

- Factor Analysis (FA) precede cluster analysis (CA) since multicollinearity between variables selected bias the results.

- FA: principal components analysis, varimax rotation. Factors presenting an eigenvalue of ≥1. Cut-offs for factor loadings ≥ 0.5 on at least one factor (Hair et al.2009).

- Factors form the basis of the CA.

- CA: 2 stage approach. Hierarchical CA establish number of clusters & profile centres. Then non-hierarchical using the cluster centres from 1st stage as seed points.

- Selection of variables for inclusion draws on Munton (1990) – seven inter-related elements for farm households that can be adjusted. We add subsistence production as % of total income, using valuation procedures above.

Sampling

➢ **Data collection via household survey.**

➢ **2 Stage Geographical cluster sampling.**
  - ➢ **1st stage: select 3 regions with average GDP per capita below, similar to, and above national. Selection of regions exclude capital city & other large cities. Eurostat NUTS3**
  - ➢ **2nd Stage: select 3 villages per NUTS3 region. Village average incomes below, similar to, and above regional mean.**

➢ **Survey only include households engaged in agricultural production in 2006 and /or 2003 (including production from gardens(included in the sample.**

➢ **After cleaning 1,124 useable records (c.200-250 per country).**

Descriptive Statistics

- ➢ On average, sample households sell less than one-half of their agricultural output.

- ➢ Using Mosher (1970) definition majority are subsistence / semi-subsistence oriented.

- ➢ Subsistence production accounts for 18.1% of real household incomes. High Std. Dev.

- ➢ Most farm within 4km of home.

Contribution of Subsistence Farming to Households' Income per capita

	Bul	Hun	Pol	Rom	Slv
Value of unsold output/capita (PPP€)	2,225	807	2,294	1,868	2,069
Share of unsold output in income per capita (%)*	22.4	7.1	20.6	28.1	9.1
Share of unsold output in income per capita of poor households (%)*	25.1	19.1	27.7	52.7	17.3

*Calculated as equivalised value of unsold output per capita ⁄ equivalised income per capita including the value of unsold quantities.

Sensitivity of assessments of poverty to the valuation of subsistence production (2006)

	Below poverty line excl. unsold output		Below poverty line incl. unsold output		Pushed above poverty line when incl. unsold output	
	Number	Share	Number	Share	Number	Share
Bulgaria	59	26.3%	35	15.6%	24	10.7%
Hungary	32	14.6%	24	11.0%	8	3.7%
Poland	21	9.2%	8	3.5%	13	5.7%
Romania	13	5.1%	5	1.9%	8	3.1%
Slovenia	50	25.6%	38	19.5%	12	6.1%
Total	175	15.6%	110	9.8%	65	5.8%

Description of the Clusters

➢ **Cluster 1 – Relatively large, commercially oriented households** (n=48). 62.9 ha. 73.3% of output sold.

➢ **Cluster 2 – Medium sized commercially oriented households** (n=224). 8.0 ha. 54% of output sold. Majority from Bulgaria.

➢ **Cluster 3 – Part-time farmers** (n=287). 5.6 ha. 45.5% of output sold.

➢ **Cluster 4 – Older, dependent households** (n=477). 6.1 ha. 48% of output sold.

Main objective for the household in relation to agriculture within the next five years (%) by cluster

	1	2	3	4
No change	39.6	44.3	54.5	57.6
Objectives to increase engagement in farming				
Intensify farming (inc. labour/input)	20.8	21.7	8.6	5.5
Increase the share of sales	16.7	6.3	6.1	4.9
Specialise farming	2.1	4.5	3.9	2.0
Sub-total:	*39.6*	*32.6*	*18.6*	*12.4*
Objectives to reduce engagement in farming				
Transfer to the next generation	14.6	6.3	7.5	10.0
Scale down farming	2.1	6.3	8.6	9.5
Retire	2.1	2.3	2.2	1.8
Decrease farming intensity	2.1	1.4	1.4	1.3
Cease farming	0.0	6.8	7.2	7.3
Sub-Total:	*20.8*	*23.1*	*26.9*	*29.9*

Conclusions

- ➢ **Subsistence production remains pervasive in the NMS.**
  - ➢ Majority of ag households are subsistence – semi subsistence oriented.
  - ➢ Little change in short to medium term.
  - ➢ Not just transitional phenomenon.

- ➢ **Contribution of subsistence production to real incomes is uneven but significant.**
  - ➢ Equivalent value of €1854 per capita.
  - ➢ 18% of real incomes.
  - ➢ Greatest in Romania and Bulgaria.
  - ➢ Pushes 5.8% of sample above poverty line.

Conclusions (2)

- ➢ **Cluster analysis reveals the distinctiveness of farming in NMS.**
  - ➢ Only 4.6% of sample fall into Cluster 1, medium sized family farm in Western Europe.
  - ➢ Farms in Cluster 1 traditional focus of CAP.
  - ➢ Cluster 2,3 and 4 operate on much smaller level but far more than hobby farms. Not main beneficiaries of SAP

- ➢ **Poverty is associated with remote locations, relatively small farm sizes and lack of off farm work.**
  - ➢ Cluster 2 remote and depend on smallish farms
  - ➢ Cluster 4 all countries. Low wage employment and higher proportion of elderly household members.
  - ➢ Still not get out of farming.

- ➢ **Should EU policy account for subsistence oriented producers? Depends on whether policy is essentially production oriented or income support (e.g. EC justification for direct payments).**