

# Direct payments policy options and income situation of agricultural households in Slovenia after the EU accession

Politik der Direktzahlungen und die Einkommenssituation landwirtschaftlicher Familienbetriebe nach dem EU-Beitritt Sloweniens

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## Zusammenfassung

Um die Einkommensauswirkungen verschiedener Vorschläge der Direktzahlungen nach dem Beitritt Sloweniens zur Europäischen Union zu bewerten, wurde das statisch-deterministische Modell des Gesamteinkommens für ländliche Haushalte in Slowenien (TIM) angewendet. Auf Basis der Daten von 120 landwirtschaftlichen Haushalten in Slowenien und der Ergebnisse der Beitrittsverhandlungen wird unter allen Politikscenarien auf eine Erhöhung des Einkommens per Arbeitseinheit hingewiesen. Die Haushalte könnten meist vom aktuellen Direktzahlungsschema gewinnen, folgend mit der regionalen Variante der einheitlichen Betriebsprämie. In diesem Fall würden Direktzahlungen das Einkommen von produktions- und faktorextensiven Familienbetrieben verbessern. Im Fall der regionalen Variante könnte es zur signifikanten Redistribution von Direktzahlungen führen.

**Schlagnworte:** EU Erweiterung, GAP-Reform, Gesamteinkommen, Effekte auf das Einkommen, Slowenien

## Summary

Static deterministic total income model for rural households in Slovenia TIM was applied in order to quantitatively estimate income effects of different direct payments policy options after the EU accession, with special attention given to CAP reform options. Based on actual income data of 120 agricultural households in Slovenia and on accession agreements model estimates reveal that the income situation of the households will improve under all policy scenarios. The households

would benefit the most in case of classical direct payments scheme, followed by basic flat-rate hectare payment option. Redistribution of direct payments in case of CAP reform scenarios to less intensive types in terms of production and factor use is evident. Single farm payment option, though not analyzed in the survey, seems to gain on its political acceptability, as politically delicate redistribution effects could occur in case of a switch to CAP reform policy options immediately after EU accession.

**Keywords:** EU enlargement, CAP reform, total income, income impacts, Slovenia

## 1. Introduction

Before the accession to the European Union (EU) Slovenia is facing a dilemma which direct payments (DP) policy option to apply in the period immediately after the accession (2004-2006) and which option in the period, when the latest Common agricultural policy (CAP) reform provisions should be taken into force (2005 to 2013, with possible two year delay). In the immediate post-accession period either classical DP scheme (the actual CAP accepted for the period from 2000 to 2006), or simplified DP scheme, a production decoupled hectare payment, proposed by Treaty of Accession (AGRA FOCUS, 2003a) should be implemented. In the period when CAP reform should be enforced, Slovenia can choose either single farm payment option (a fully decoupled direct payment per agricultural household) or decoupled regional flat-rate hectare payment option (separate hectare payment for arable and permanent grassland area). Certain coupled elements can be retained in both CAP reform options mentioned (AGRA FOCUS, 2003b).

The purpose of this paper is to present estimations of economic impacts of different DP policy options on the level of agricultural households in Slovenia. Estimates were obtained by application of Static deterministic total income model for rural households in Slovenia TIM (model TIM), developed by Erjavec et al. (2002), Oblak (2002) and Kožar et al. (2003). Taking into consideration the existing diversity of structure of total income (ERJAVEC ET AL., 2002; OBLAK, 2002), income effects are investigated also by different employment types (especially full-time farms) and income groups of households.

The paper consists of a short description of characteristics of the database, model and policy scenarios. Model results are presented for the

whole sample, by employment types and by total income groups. Discussion chapter gives final conclusions based on model results.

## 2. Methodology: data, model and policy scenarios

Data were obtained by survey about income situation of 120 agricultural households in year 2001 and of selected secondary data (STATISTICAL YEARBOOK, 2002; REDNAK, 2003). Households were sampled from four strata, i.e. employment types: full-time agricultural households (full-time farms), part-time agricultural households (part-time farms), self-employed agricultural households and non-agricultural rural households. Furthermore they were sampled from four municipalities, which lie in two regions differing in terms of general economic standard and significance of agricultural sector in economic structure: Pomurje and Gorenjska region. From each region two municipalities were chosen, one located in less favoured area for agricultural production. From each municipality 30 households were randomly chosen.

Static deterministic model TIM enables rough estimations of incomes by different sources and estimation of labour allocation on the level of households. It functions as a system of four sub models for estimating yearly incomes by their source (income from agriculture, income from off-farm activities, income from self-employment activities and income from other sources) with additional sub model for estimating labour allocation. Basic model assumptions are following:

- Years 2001 and 2006 are considered as base year and as simulated post-accession year.
- Only policy changes in the agricultural sector are considered. They are based on the accession agreements for Slovenia, which entail negotiated reference quantities, production quotas and negotiated funds committed for DP and rural development policies in year 2006 (TREATY OF ACCESSION, 2003; AGRA FOCUS, 2003a).
- Prices of agricultural products in year 2006 are set according to the expert opinion (KAVČIČ AND ERJAVEC, 2003) and are identical in all scenarios.
- Investigated households have received the entire set of CAP aids within the production limitations and natural conditions for agricultural production in base year 2001 and in year 2006.

Analyzed DP policy scenarios are in detail described in Table 1:

Table 1: Scenario description.

Scenario – long name	Scenario – short name	Short description
Base year scenario	<b>2001</b>	Estimate of base year (2001) income situation of sample households.
Classical DP scheme	<b>EUo</b>	CAP as agreed for the period 2000-2006; different kinds of hectarage and headage DP
Simplified scheme	<b>SIMP</b>	Decoupled hectarage payment - entire utilized agricultural area (UAA) eligible. Value estimated: <b>- 237 €per ha of UAA.</b>
Basic flat-rate hectarage payment scheme	<b>FLAT0</b>	Decoupled flat-rate hectarage payment, different for arable land (area under potato, vegetables and perennial crops excluded) and for permanent grassland. Values estimated: <b>- 289 €per ha of arable land</b> <b>- 243 €per ha of permanent grassland.</b>
Supplemented flat-rate hectarage payment scheme	<b>FLAT1</b>	Decoupled flat-rate hectarage payment, different for arable land (estimated <b>235 €/ha</b> ) and for permanent grassland (estimated <b>198 €/ha</b> ), supplemented with allowed coupled classical DP scheme measures: <b>100% suckler cow premium and 40% of slaughter premium.</b>

Source: AGRA FOCUS (2003a), REDNAK (2003), STATISTICAL YEARBOOK (2002), ERJAVEC ET AL. (2003)

### 3. Results

#### 3.1 Aggregate income effects of post-accession DP policy options

Post-accession income situation of the analyzed households is estimated to improve in case of any policy scenario (Table 2). Aggregate model results indicate that total income could increase by 3 to 7% and income from agriculture by 9 to 18% compared to base year 2001. Classical DP policy scheme (EUo) is estimated as the most favourable in terms of income, followed by basic flat-rate hectarage payment option (FLAT0). Average total DP amount received by sample households is estimated to (almost) double compare to base year 2001. Thus the inflow from direct payments could compensate the effects of the expected decrease of overall producer price level after the accession.

Table 2: Aggregate income effects of post-accession DP policy options.

	Unit	2001	Scenario			
			EUo	SIMP	FLAT0	FLAT1
<b>Budgetary support (BS)</b>	<b>1000 EUR</b>	<b>2.2</b>	<b>4.6</b>	<b>4.1</b>	<b>4.2</b>	<b>4.0</b>
Index 2001=100	%	100	210.8	186.2	192.6	180.4
Share of DP v BS	%	77.4	69.7	65.7	66.8	64.6
Share of LFA v BS	%	14.9	16.3	18.4	17.8	19.0
Share of ENV v BS	%	7.0	14.0	15.8	15.3	16.3
<b>Income from agriculture (IA)</b>	<b>1000 EUR</b>	<b>7.4</b>	<b>8.7</b>	<b>8.1</b>	<b>8.2</b>	<b>8.0</b>
Index 2001=100	%	100	117.5	110.2	112.1	108.5
Share of BS in IA	%	29.8	53.5	50.4	51.3	49.6
<b>Total income / household (TI)</b>	<b>1000 EUR</b>	<b>19.8</b>	<b>21.1</b>	<b>20.5</b>	<b>20.7</b>	<b>20.4</b>
Index 2001=100	%	100	106.5	103.8	104.5	103.2
Share of IA in TI	%	37.3	41.1	39.6	40.0	39.2
Average producer prices						
Index 2001=100	%	100	95.0	95.0	95.0	95.0
Average size of sample agr. households (2001):						
UAA	ha			11.3		
Number of animals	*LU			14.3		
Real economic size	**rESU			10.6		

\*LU - livestock units

\*\*1 rESU - 1200 euros of total gross margin from agriculture

The main reason why the investigated households could benefit the most in case of EUo scenario lie in specific structure and high intensity of their production, which are both markedly different than national average.<sup>1</sup> On average beef and milk production, favoured under classical DP scheme, contributed almost 50% of total value of agricultural production in base year 2001 (national average according to Rednak (2003) only 39% in the same year) and a half of average total DP amount received by sample households (EUo scenario).

<sup>1</sup> Sample average in 2001: 11.3 ha of UAA and 14.3 LU (national average (SORS, 2002): 5.3 ha of UAA and 5.7 LU).

### 3.2 Income effects of post-accession DP policy options by employment types

Model results analyzed by employment types suggest that the income situation will improve for all types compared to base year situation (Table 3). Comparing different policy scenarios all employment types could benefit the most in case of adoption of EUo scenario, followed by FLAT0 policy option.

In absolute figures the income effects are estimated as most beneficial for full-time farms (all scenarios), whereas in relative terms (%) income impacts for them are income less significant compared to part-time farms and self-employed agricultural households (except in case of EUo scenario). This could be caused by the specific production structure and higher production intensity of full-time farms. Prevailing in their production structure is production of milk (contributed around 40% of value of agricultural production in 2001), with a significant price decrease expected after the accession. Additionally, due to high farming intensity full-time farms are estimated not eligible to receive environmental payments, which together with other rural development payments most significantly improve post-accession income situation of production and factor more extensive employment types, especially part-time farms (KOŽAR ET AL., 2003).

In relative terms model results reveal a marked redistribution of DP funds to the households that are in terms of production and factor use less intensive (part-time farms). This could be caused by relatively higher share of beef production (contributed around third of value of agricultural production in 2001) compared to full-time farms and by their lower production intensity, enabling them to participate in rural development programmes.

Table 3: Income effects of post-accession DP policy options by employment types.

Employment type of agricultural households	Scenario	BS	IA	Share of BS in IA	TI	Share of IA in TI
		Index 2001 = 100 (1000 EUR)	Index 2001 = 100 (1000 EUR)	%	Index 2001 = 100 (1000 EUR)	%
<b>Full-time</b>	2001	100 (3.37)	<b>100</b> <b>(14.10)</b>	23.9	<b>100</b> <b>(20.79)</b>	67.8
	EUo	216.9	<b>112.1</b>	46.3	<b>108.2</b>	70.2
	SIMP	180.3	<b>103.3</b>	41.7	<b>102.3</b>	68.5
	FLAT0	191.1	<b>105.9</b>	43.2	<b>104.0</b>	69.0
	FLAT1	172.1	<b>101.4</b>	40.6	<b>100.9</b>	68.1
<b>Part-time</b>	2001	100 (1.78)	<b>100</b> <b>(5.26)</b>	33.8	<b>100</b> <b>(18.14)</b>	29.0
	EUo	238.6	<b>129.6</b>	62.2	<b>108.6</b>	34.6
	SIMP	211.6	<b>120.4</b>	59.3	<b>105.9</b>	33.0
	FLAT0	217.1	<b>122.3</b>	59.9	<b>106.5</b>	33.3
	FLAT1	208.9	<b>119.5</b>	59.0	<b>105.7</b>	32.8
<b>Self-employed</b>	2001	100 (3.17)	<b>100</b> <b>(10.31)</b>	30.8	<b>100</b> <b>(26.19)</b>	39.4
	EUo	172.8	<b>111.7</b>	47.6	<b>104.6</b>	42.0
	SIMP	163.5	<b>108.8</b>	46.2	<b>103.5</b>	41.4
	FLAT0	165.1	<b>109.3</b>	46.5	<b>103.7</b>	41.5
	FLAT1	158.6	<b>107.3</b>	45.5	<b>102.9</b>	41.0
<b>Abandoned</b>	2001	100 (0.31)	<b>100</b> <b>(-1.35)</b>	/	<b>100</b> <b>(14.96)</b>	/
	EUo	159.3	/	/	<b>100.9</b>	/
	SIMP	199.3	/	/	<b>101.7</b>	/
	FLAT0	198.3	/	/	<b>101.7</b>	/
	FLAT1	182.6	/	/	<b>101.4</b>	/
Full-time:	n=31		UAA=17.8 ha	LU=26.7		rESU=17.9
Part-time:	n=47		UAA=9.8 ha	LU=12.0		rESU=8.2
Self-employed:	n=22		UAA=14.3 ha	LU=14.4		rESU=14.0
Abandoned:	n=20		UAA=1.8 ha	LU=0.5		rESU=0.9

Legend (also for Table 4):

BS	Budgetary support
TI	Total income of an agricultural household
IA	Income from agriculture
1 rESU	1200 euros of total gross margin from agriculture
/	Not computable

### 3.3 Income effects of post-accession DP policy options by total income quintiles

The income situation of all groups of households, ranked by total income in year 2001, is estimated to improve after the EU accession. In relative terms (%) the income from agriculture and total income could most markedly increase for lower groups, i.e. Q1 and Q2, whereas the relative increase for income highest group Q5 would be modest (in absolute figures this group, including production more intensive households, would benefit the most compared to other groups). Further analyses reveal reasons for relatively modest income effects for group Q5: specific production structure (high share of beef production; around 32% of value of agricultural production in year 2001) and higher intensity in terms of production and factor use. Again, the effects of redistribution of DP funds to households that are more extensive in terms of production and that are ranked in income lower groups (Q1, Q2) are evident.

Table 4: Income effects of post-accession DP policy options  
by total income quintiles.

Total income quintile (households ranked by TI in 2001)	Scenario	BS	IA	Share of BS in IA	TI	Share of IA in TI
		Index 2001 = 100 (1000 EUR)	Index 2001 = 100 (1000 EUR)	%	Index 2001 = 100 (1000 EUR)	%
<b>1<sup>st</sup> quintile</b> (max. 10,946 EUR)	2001	100	<b>100</b>	119.1	<b>100</b>	16.4
		(1.62)	<b>(1.36)</b>		<b>(8.30)</b>	
	EUo	209.7	<b>197.8</b>	126.3	<b>116.0</b>	27.9
	SIMP	183.9	<b>167.1</b>	131.1	<b>111.0</b>	24.6
	FLAT0	193.0	<b>178.0</b>	129.2	<b>112.8</b>	25.8
	FLAT1	182.9	<b>165.9</b>	131.3	<b>110.8</b>	24.5
<b>2<sup>nd</sup> quintile</b> (10,946 – 14,896 EUR)	2001	100	<b>100</b>	56.2	<b>100</b>	18.7
		(1.38)	<b>(2.45)</b>		<b>(13.12)</b>	
	EUo	228.7	<b>150.0</b>	85.7	<b>109.3</b>	25.6
	SIMP	211.5	<b>140.3</b>	84.7	<b>107.5</b>	24.4
	FLAT0	220.6	<b>145.4</b>	85.2	<b>108.5</b>	25.0
	FLAT1	206.7	<b>137.6</b>	84.4	<b>107.0</b>	24.0
<b>3<sup>rd</sup> quintile</b> (14,896 – 19,782 EUR)	2001	100	<b>100</b>	39.9	<b>100</b>	21.8
		(1.49)	<b>(3.74)</b>		<b>(17.18)</b>	
	EUo	224.7	<b>131.9</b>	68.0	<b>106.9</b>	26.9
	SIMP	177.5	<b>113.0</b>	62.7	<b>102.8</b>	23.9
	FLAT0	185.7	<b>116.3</b>	63.7	<b>103.6</b>	24.5
	FLAT1	174.6	<b>111.9</b>	62.3	<b>102.6</b>	23.8
<b>4<sup>th</sup> quintile</b> (19,782 – 26,325 EUR)	2001	100	<b>100</b>	24.6	<b>100</b>	45.0
		(2.47)	<b>(10.03)</b>		<b>(22.29)</b>	
	EUo	232.9	<b>117.0</b>	49.0	<b>107.7</b>	48.9
	SIMP	206.5	<b>110.6</b>	46.0	<b>104.8</b>	47.5
	FLAT0	213.5	<b>112.3</b>	46.8	<b>105.5</b>	47.9
	FLAT1	198.3	<b>108.5</b>	45.0	<b>103.8</b>	47.0
<b>5<sup>th</sup> quintile</b> (more than 26,325 EUR)	2001	100	<b>100</b>	21.0	<b>100</b>	50.7
		(4.04)	<b>(19.26)</b>		<b>(37.98)</b>	
	EUo	186.4	<b>105.2</b>	37.2	<b>102.6</b>	52.0
	SIMP	169.3	<b>101.6</b>	34.9	<b>100.8</b>	51.1
	FLAT0	172.8	<b>102.4</b>	35.4	<b>101.2</b>	51.3
	FLAT1	161.7	<b>100.0</b>	33.9	<b>100.0</b>	50.7
<b>1<sup>st</sup> quintile:</b>	n=24	UAA=7.9 ha		LU=7.6		rESU=5.1
<b>2<sup>nd</sup> quintile:</b>	n=24	UAA=7.7 ha		LU=8.2		rESU=5.0
<b>3<sup>rd</sup> quintile:</b>	n=24	UAA=7.9 ha		LU=10.9		rESU=6.9
<b>4<sup>th</sup> quintile:</b>	n=24	UAA=13.2 ha		LU=17.4		rESU=13.1
<b>5<sup>th</sup> quintile:</b>	n=24	UAA=19.9 ha		LU=27.6		rESU=22.7

#### 4. Discussion and conclusions

Post-accession income situation of the analyzed agricultural households is estimated to improve in case of all DP policy scenarios on the aggregate sample level, as well as for employment types and total income groups. Total income results illustrate stabilizing effects of inflow from direct payments on expected decrease of overall price level after the accession. Tables 2 to 4 reveal that the investigated sample could in the immediate post-accession period (2004 to 2006) benefit more from classical DP policy scheme than from simplified scheme (SIMP). In case of CAP reform policy options (FLAT0, FLAT1) DP funds could reallocate to the households that are in terms of production and factor use less intensive (part-time farms, lower income groups).

The reasons for redistribution effects could partially lie in the characteristics of the sample. Sample households are as mentioned on average production and factor more intensive compared to national average (SORS, 2002; STATISTICAL YEARBOOK, 2002). Additionally, sample households have significantly different structure of production (higher share of milk and beef production) and structure of land use (lower share of permanent grassland)<sup>2</sup> compared to national average. Redistribution effects, illustrated also in Figure 1, are undoubtedly in line with main CAP reform objectives: decoupling of direct payments, production limitation and multifunctionality enhancement (AGRA FOCUS, 2003b). However, this could cause delicate structural and income pressures on the households that are production<sup>3</sup> and factor more intensive or have higher total income (full-time farms, income highest group).

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<sup>2</sup> Sample (2001): 44% of total UAA is represented by permanent grassland (national average in 2001: 61% of total UAA).

<sup>3</sup> Full-time farms contributed almost a half to the total value of agricultural products of the sample households in 2001 (similarly income group Q5).

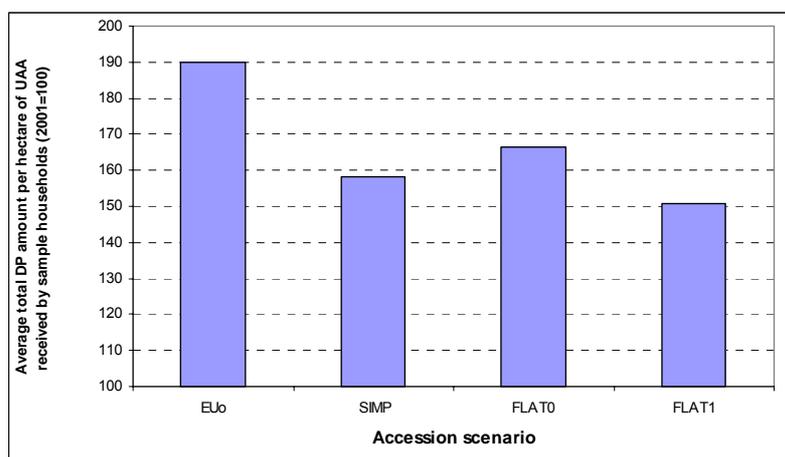


Figure 1: Average total direct payments amount per hectare of UAA received by sample households under different policy scenarios.

Considering its stronger benefits for the households compared to simplified scheme, classical DP scheme could be preferred by policy makers for the immediate post-accession period. In this case a transition to flat-rate hectare payment options (FLAT0 or FLAT1) would be, as already indicated, highly riskful in terms of DP redistribution effects. Thus SFP option, with income benefits most probably 'ranking' between the scenarios EUo and FLAT0, seems to gain on its political acceptability for the second post-accession period. A switch to basic flat-rate hectare payment options immediately after the EU accession (ERJAVEC ET AL., 2003) appears to be theoretically preferable solution. However, further empirical analyses should be taken. If analysts should apply model TIM, it is recommended to upgrade the model in a way that will also enable modelling of changes in non-agricultural income generating activities. Another alternative is to apply empirical tools, that allow a deeper insight into the agricultural sector and which allow more detailed evaluation of other economic effects (especially production and structural effects of policy options), for example mathematical programming models (PARIS AND HOWITT, 1998; RÖHM AND DABBERT, 2003; SINABELL AND SCHMID, 2003). In this regard it

would be also recommended to improve database representativeness (application of Slovenian IACS database). Finally, different DP policy options should be evaluated with consideration of additional criteria; their agri-political, additional economic and budgetary impacts, their administrative and legislative performance and finally their social and political acceptability should be thoroughly evaluated (see ERJAVEC ET AL., 2003).

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