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TARGETING LAGGING TERRITORIES WITH EU RURAL SUPPORT POLICY: CASE STUDY IN LATVIA

EUDOKIA BALAMOU

Larnaca district development agency,
Larnaca, Cyprus.

E-mail: ebalamou@anetel.com

DAINA SAKTINA

Latvian State institute of agrarian economics,
Riga, Latvia.

E-mail: daina@lvaei.lv

WILLIAM MEYERS H.

FAPRI at University of Missouri-Columbia,
Columbia, USA.

E-mail: Meyersw@missouri.edu



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Abstract

The paper uses a bi-regional CGE model to assess the potential impacts of an alternative rural development policy design, which is more targeted to public sector investments on the economic activity of a lagging region in Latvia. The results show the distribution of effects between the rural and urban areas within the region as well as differences in the impacts between the three policy scenarios that are explored. All scenarios generate positive effects in the economy. However, the “Investment in Public Sector with enhanced envelope” scenario is the one that leads to the largest impacts in the economy. The “Investment in Public Sector with no envelope” is the second best scenario and has better effects compared to the Scenario that has enhanced financial envelope but with no reallocation. Overall, the results suggest that it’s not only enhanced funding that will improve economic performance in an economy but also the targeting of these funds to the more productive sectors of the economy that have the highest linkages within the economy and consequently the potential to create strong direct and indirect effects spread to the regional economy.

Key words: lagging rural areas, bi-regional CGE model, rural development policy, CAP

Introduction

The practice of competitive programming of EU resources tends to put lagging regions such as Latgale, the poorest in Latvia, at a disadvantage for financial flows outside of income payments through the CAP. Future reforms in CAP are likely to result in more funding available for rural development rather than farm support. The question is whether the transfer of resources from individuals to more broad-based development will have the desired multiplier effect. In other words, to find the most effective approach that will have the best economic performance in terms of macroeconomic indicators and sectoral effects for Latgale region.

Rural development in Latvia has been stimulated by the Rural Development Program (RDP) 2004-2006 that was financially supported by the government and EU pre-accession funds. A comprehensive study in 2005 concluded that the RDP implementation did not reduce the polarization between the rich central and western regions and the poor eastern rural areas. Also, a study made in 2006 provided practical recommendations on further development of support policy to reach the goals defined for the national development policy in Latvia. In particular, it recommended on how to allocate rural development funds to regions lagging behind.

Within this context, the paper takes the previous work further by analyzing likely impacts of two policy design and implementation changes: 1) applying the territorial financial envelope concept to the Rural Development Programme (RDP) 2007-2013 and 2) changing the support priorities. In particular, to evaluate the impacts of different policy scenarios for the Latvian 2007-2013 RDP on urban and rural multi-sectoral economies and households in Latgale region. These impacts are evaluated with the use of a bi-regional CGE model. Although the model is essentially neoclassical, it is sufficiently flexible to accommodate a fairly wide range of views on how regional economies adjust to the specified policy scenarios. The CGE model built has been further developed to include several specific elements such as the differentiation of rural and urban production sectors, factors and households plus several specific characteristics of the regional economy under analysis. Thus, results are rich in detail by separating households into 3 urban categories and 3 rural categories in addition to farm households. Also factors of production (labour and capital) are spatially distinguished to rural and urban and also labour is separated to skilled and unskilled labor.

The rest of the paper is structured as follows. Section 2 describes the nature and specific characteristics of the CGE modeling framework used in the analysis and its application in this case. Section 3 provides background information on the design of the three policy scenarios that are explored in this study, while Section 4 presents the results from the analysis. The paper ends with relevant conclusions and recommendations.

The Modeling Framework

The CGE model used in the analysis is based upon a standard framework as given by IFPRI (Lofgren *et al.*, 2002) but was modified so as to capture the key rural-urban interdependencies at the regional level and also the regional characteristics of the region under study.

Production Behavior

Production is based around activities, where each activity is based in either the rural or urban part of the region and produces one or more commodities in fixed proportions per unit of activity those allowing for a multiple output structure.

Each producer is assumed to maximize profits, which are defined as the difference between revenue earned and the cost of factors and intermediate inputs. Profits are maximized subject to a production technology. At the top level, the technology is specified by a constant elasticity of substitution (CES) function of the quantities of value-added and aggregate intermediate input. The CES function suggests that available techniques permit the aggregate mix between value-added and intermediate inputs to vary. Value added is itself a CES function of primary factors whereas the aggregate intermediate input is a Leontief function of disaggregated intermediate

inputs. At the bottom level each activity uses composite commodities as intermediate inputs, where intermediate demand is determined using fixed Input-Output (I-O) coefficients. Value added is a CES function defined over factors of production, which are spatially specific.

As part of its profit-maximizing decision, each activity uses a set of factors up to the point where the marginal revenue product of each factor is equal to its wage. Factor wages may differ across activities, not only when the market is segmented but also for mobile factors.

Factor payments accrue to the owners of the factors (households) as reflected in the base SAM. The CGE model requires certain assumptions in relation to the way in which supply and demand in factor markets come about. In relation to labour markets, these range from assuming the wage rate to be perfectly flexible (Neoclassical adjustment), to allowing for unemployment (Keynesian adjustment) or segmented factor markets. Analogous assumptions exist for the capital factor in the model.

Commodity Markets

All commodities (either produced within the region or imported), with the exception of home-consumed output, enter markets; and activity-specific commodity prices serve to clear the implicit market for each disaggregated commodity. At the first stage, regional (domestic) output is produced from the aggregation of output of different activities within the region of a given commodity. At the next stage, the aggregated regional output is split into the quantity of regional output sold domestically and of that exported via a constant elasticity of transformation (CET) function.

As is widely practiced in the CGE literature, a so-called “Armington” function is used to prevent “over-specialization” and to better reflect the empirical realities of most regions. This approach assumes imperfect substitutability between imports, exports and commodities produced within the region. Regional market demands are thus assumed to be for a composite commodity made up of imports and regional output, as captured by a CES aggregation function. Also, the model assumes that export and import demands are infinitely elastic at given world prices. Flexible prices are also assumed to equilibrate demands and supplies of domestically marketed domestic output (i.e., output within in the region).

Institutions

Institutions in the CGE model are represented by households, government and the rest of the world account. Households (disaggregated according to the SAM table) receive income from the factors of production (in proportions fixed at the base year level), and transfers from other households, the government and the Rest of the World. This income is spent to pay direct income taxes, to consume, save and make transfers to other institutions. Direct taxes and transfers to other domestic

institutions are defined as fixed shares of household income, whereas the savings share is flexible. The treatment of direct income tax and savings shares is related to the choice of closure rule for the government and savings-investment balances. Household consumption covers marketed commodities, purchased at market prices that include commodity taxes and transaction costs, and home commodities, which are valued at activity-specific producer prices. Household consumption is allocated to market and home commodities based on a linear expenditure system (LES) demand function that is derived from the maximization of a Stone-Geary utility function (Dervis *et al.* 1982, Blonigen *et al.*, 1997).

The second institution is the combined government account, representing both local and central government. Government collects taxes (all taxes are at fixed ad valorem rates) and receives transfers from other institutions. The government uses this income to purchase commodities for its consumption and to make transfers to other institutions (e.g. Households). Its consumption is fixed in real terms whereas government transfers to domestic institutions are CPI-indexed. Government savings (the difference between government income and spending) is a flexible residual.

The final institution is the Rest of the World account. Transfer payments between the rest of the world and domestic (regional) institutions and factors are all fixed in foreign currency. Foreign savings is the difference between foreign currency spending and receipts.

Policy Scenarios

The scenarios that have been selected for this analysis are of direct relevance to area payment schemes (Pillar 1) and the Rural Development Programme (RDP) of 2007-2013 (Pillar 2) for the rural region of Latgale:

1. Baseline: **No Latgale Financial Envelope:** total funding available is the share of funding that actually occurred in RDP and SF measures during 2004-06. In other words, this is a “business as usual” assumption;
2. Scenario 1 – **Reallocate Funding to only Public Sector Investment and NO envelope:** area payments and funds for RDP investment measures for business development are transferred to public social and economic infrastructure measures with none going to direct payments or private investment.
3. Scenario 2 – **Enhanced Financial Envelope for Latgale but with NO reallocation:** increased funds for the same regional RDP measures of 2007-2013 in Latgale and the same area payments support flows under Pillar 1 and II of the CAP;
4. Scenario 3 – **Reallocate Funding to only Public Sector Investment AND with enhanced envelope:** area payments and funds for RDP investment measures for business development are transferred to public social and economic

infrastructure measures with none going to private investment, AND increased funds for regional RDP measures of 2007-2013 in Latgale.

Presentation of Results

In this section, main results from the policy scenarios are presented in terms of impacts on macroeconomic indicators (real GDP and employment levels) and sectoral effects (factor income and distribution of household income). The effects of the policy scenarios are measured as deviations from the “No Latgale Financial Envelope” scenario.

Real GDP at Factor Cost

Results indicate that all scenarios will have positive impacts on total real GDP of both rural and urban areas (Table 1), with effects in the rural area being higher. Comparing the three scenarios, the “Investment in Public Sector with envelope” scenario increases more the total and regional (rural/ urban) GDP; and, in particular, the generated impacts are twice compared to the “Enhance Financial Envelope” scenario. However, the positive effects in both cases are smaller than changes in the different sectors of the regional economy.

Turning to rural and urban GDP effects, results show that the model predicts higher positive effects in the case of the rural sectoral GDP. In the case of the rural region, sectoral GDP effects have different sectoral distribution and they are positive, except for the negative effects in the primary sectors from the both “Investment in Public Sector” scenarios. Specifically, the “Enhanced Financial Envelope” scenario raises more the GDP of the primary sector while “Investment in Public Sector with envelope” affects more the GDP of the tertiary sector. Also, the GDP of the secondary sector is increased from the implementation of the scenarios. This reflects increases in allocative efficiency from the removal of coupled support and the transfer of funds from area payments to public investments in the rural region.

In the urban region there is a different picture of impacts concerning the distribution of sectoral effects. The “Enhance Financial Envelope” scenario continues to increase more the GDP of the primary and the secondary sectors as in the rural region. However, both “Investment in Public Sector” scenarios (with and without envelope) increase more the GDP of the urban secondary sector while the effects in the tertiary sector are the lowest.

The most important finding from the implementation of the scenarios is that the impacts in rural sectoral GDP are different among the three scenarios due to the fact that funds are allocated towards different investments. The reason why rural total GDP increases more from the scenarios that deal with the transfer of funds to the public sector can be explained by the fact that funds are allocated to sectors that are labour and capital intensive, which means that they are important in the formation of the rural GDP.

Table 1 - Aggregate Impacts on Real GDP at Factor Cost (% changes)

	No Latgale Envelope (1000 LVL)	Investment in Public Sector and No Envelope (%)	Enhanced Financial Envelope (%)	Investment in Public Sector with Envelope (%)
Rural Area	207.756	1,08	0.82	1.64
Primary	34.688	-7,00	1.46	-5.74
Secondary	50.663	1,55	1.12	2.00
Tertiary	122.405	3,18	0.51	3.57
Urban Area	318.155	0,24	0.15	0.36
Primary	714	0,32	0.29	0.14
Secondary	109.710	0,76	0.20	0.91
Tertiary	207.731	-0,03	0.13	0.07
Total	525.911	0,57	0.42	0.86

Employment Effects

All scenarios have positive skilled employment effects. The “Enhanced Financial Envelope” scenario increases more the skilled employment levels of the rural and urban primary sector. Also, due to high linkages of the primary sector with the secondary sector, a considerable increase in the skilled employment levels of the rural secondary sector is recorded. In contrast, the “Investment in Public Sector with envelope” scenario has clearly the best total skilled employment impacts but it is negative for the rural primary sector due to the shift of area payments to investment. The higher impacts in total employment are due to the high positive impacts in the employment of the rural tertiary and secondary sectors which result from the focus on public infrastructure investment. These sectors are also labour intensive and, consequently, in order to produce more they demand more workers.

In the case of unskilled employment levels, the sectoral distribution of effects has the same direction as skilled employment effects. However, percentage changes are a little bit lower for unskilled employment levels. The only difference is observed in the rural tertiary sector where unskilled employment effects increase more from the implementation of the two policy scenarios compared to skilled employment levels.

In conclusion, it can be said that the “Investment in Public Sector with envelope” scenario has the largest increases in total, rural and urban skilled and unskilled employment levels, but this is due to the labour intensive sectors to which funds are allocated.

Table 2 - Skilled and Unskilled Employment Effects (% changes)

	No Latgale Envelope (FTEs)		Investment in Public Sector and No Envelope (%)		Enhanced Financial Envelope (%)		Investment in Public Sector with Envelope (%)	
	Skilled	Unskilled	Skilled	Unskilled	Skilled	Unskilled	Skilled	Unskilled
Rural Area	30.963	9.898	4.05	4.04	1.32	1.28	4.94	4.45
Primary	2.042	544	-1.87	-1.88	4.24	4.24	-2.25	-2.25
Secondary	6.487	2.846	3.98	0.78	1.97	1.67	4.34	1.02
Tertiary	22.439	6.509	5.26	6.32	0.83	0.84	5.76	6.71
Urban Area	42.006	12.915	0.42	0.31	0.30	0.18	0.70	0.52
Primary	128	0	0.22	0	0.73	0	0.34	0
Secondary	12.245	5.347	1.43	0.97	0.40	0.21	1.72	1.11
Tertiary	29.636	7.568	0.08	0.07	0.25	0.16	0.15	0.10
Total	72.996	22.791	2.97	1.56	0.94	0.59	3.38	1.99

Factor Income

Factor income changes provide the most general indicator of labour and capital incomes (Table 3). All scenarios give positive effects in the income of both rural and urban labour and rural and urban capital factors, with the “Investment in Public Sector with envelope” scenario giving the highest impacts. Also, all three scenarios seem to affect more the income of rural labour factors; that is, rural unskilled, skilled labour and rural capital.

Table 3 - Impacts on Factor Income (% changes)

Factors	No Latgale Envelope (1000 LVL)	Investment in Public Sector and No Envelope (%)	Enhanced Financial Envelope (%)	Investment in Public Sector with Envelope (%)
R-Unskilled Labour	249.386	3.74	1.28	4.45
R-Skilled Labour	862.786	4.00	1.32	4.94
U-Unskilled Labour	415.860	0.30	0.18	0.52
U-Skilled Labour	1.367.259	0.49	0.30	0.70
Urban Capital	1.380.206	0.45	0.34	0.66
Rural Capital	788.159	3.01	2.20	4.74

Household Income

The impacts of the policy scenarios on the distribution of income of different household categories are presented in Table 4. In the case of agricultural households, the “Enhanced Financial Envelope” scenario has the highest incomes, which is due to the direct transfer of area payments to their budgets. In contrast, the “Investment in Public Sector with envelope” scenario results in a very big decrease in the income of agricultural

households, because area payments are transferred to investment support for public infrastructure. However, the increased investment support has the ability to result in highest positive impacts on the incomes of the rest of rural and urban household categories. Rural local households and those urban households working in rural areas benefit from the largest income increases. An important finding is that all scenarios result in positive diffusion of impacts towards the income of urban households.

Table - 4 Impacts on Household Income (% changes)

Households	No Latgale Envelope (1000 LVL)	Investment in Public Sector and No Envelope (%)	Enhanced Financial Envelope (%)	Investment in Public Sector with envelope (%)
Rural HHS	249.761	-13,38	1.12	-12.56
Rural Local	30.153	3,18	1.40	4.15
Rural Commuter to the Urban area	32.841	1,68	0.80	2.25
Rural Commuter to the RoW	14.160	1,50	0.75	2.05
Agricultural HHS	172.608	-20,36	1.15	-19.29
Urban HHS	318.846	0,70	0.42	1.00
Urban Local	282.806	0,56	0.38	0.83
Urban Commuter to the Rural area	26.077	2,42	0.89	3.01
Urban Commuter to the RoW	9.963	0,33	0.22	0.49
Total HHS Income	568.607	-5,48	0.72	-4.96

Conclusions

This analysis has focused on the description of distribution of effects that result from the implementation of three alternative policy scenarios for the Latgale region. The results show that each scenario is predicting different qualitative and quantitative impacts in total and also in sectoral effects as well as differences in the distribution of effects between its rural and urban parts.

Comparison of the “No Latgale Envelope” scenario to the “Enhanced Financial Envelope” reveals the positive impacts of the increased financial allocation to Latgale Region. The addition of this extra funding resource has the effect of increasing all the indicators related to employment, GDP, and factor income even though area payments remain the same as in the “No Latgale Envelope” scenario. Also, this scenario seems to affect more positively the primary and secondary sectors, and that is due to increased investments in the agriculture and agribusiness sector.

The comparative analysis of the scenario results show that in terms of GDP, the two scenarios concerning the investment in Public Sector have the same distribution of effects but in the case of the scenario with no envelope the resulted effects are lower. The

“Investment in Public Sector with Envelope” scenario is the one that leads to the largest increase in the total and regional (rural-urban) GDP. Focusing on the aggregate sectoral effects, it seems that this scenario increases the GDP of the rural tertiary and urban secondary sectors more, while the “Enhanced Financial Envelope” scenario has the ability to increase the GDP of the rural primary sector more. In the “Investment in Public Sector with Envelope” scenario, rural GDP has a net increase despite the fact that removal of area payments reduced agricultural GDP. This means that non-agricultural employment and economic activity increases enough to more than offset the loss of jobs and economic activity in the primary and related secondary sectors. The strongest growth is in the rural tertiary sector, since that encompasses all the public sector activity that is emphasized in the investment priorities. Factor incomes for rural skilled and unskilled labor and for rural capital are the highest in this scenario.

Overall, the results suggest that in order for an economy to have a good economic performance it’s not only about enhanced funding but is about the targeting of these funds to the more productive sectors of the economy. These would be the sectors that have the highest linkages within the economy and have the potential to create strong direct and indirect effects spread to the regional economy. In particular, the “Investment in Public Sector with Envelope” scenario is the one that leads to the strongest positive effects both in the rural and also in the urban part of the region. These effects are mainly attributable to the positive effects that are recorded in the tertiary sector and also in the positive effects that are recorded in the tertiary and secondary commodities. As for the “Enhanced Financial Envelope” scenario, it is the one that affects more the primary sector in both areas.

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