Income Diversity in Rural Lithuania

Benefits, Barriers, and Incentives

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ABSTRACT

Economic hardship, agricultural policy reform and price developments have adversely affected incomes from agricultural production in Lithuania, and many farm households have accessed additional sources of income in the rural economy. In an analysis of recently collected survey data we find that non-farm wage employment particularly benefits poorer household, whereas non-agricultural enterprises are more common among higher-income farm households. Such enterprises diminish transaction problems typical for transition economies, allow households to capture more value added than in agricultural production, and create jobs in the local economy. Non-agricultural enterprises are more likely to be found with larger households and in more remote areas. Non-agricultural employment are more important income components for households that have more dependant members, are located in remoter areas, and have less access to economic institutions. We discuss the implications of these findings for the role of rural income diversity in economic regeneration.

Keywords: transition, Lithuania, rural economy, incomes, survey data

JEL: P46, Q12, R20, O12, O18

Income Diversity in Rural Lithuania: Benefits, Barriers, and Incentives[♣]

1. Introduction

Diversity of economic activities has been a prominent theme in the study of agricultural and rural development in recent years. Research in both the developing and the developed world has increasingly investigated the existence of, and trends in, economic diversity within rural households, villages, and regions. One reason for this is the growing evidence of 'de-agrarianisation' in rural areas in the last five decades. While traditionally rural areas are equated with farming, this is now broadly recognised as misleading (Start, 2001).

Historically, the transition from peasant agriculture into modern, specialised agriculture did mean a specialisation of labour within rural households as well as 'agrarianisation' of rural areas. As modern economic development during and after the Industrial Revolution gathered pace, the traditional peasant economy, where each household would have a variety of income sources, among them farming, gave way to specialised farmers and specialised manufacturers. With increasing urbanisation and the demise of rural crafts and cottage industries in the Modern era, specialisation took place also on the regional level as the countryside became more agricultural.

Over the last half century, this trend was reversed. Ever increasing labour productivity in agriculture combined with Engel's law – which implies that the share of the primary sector in the economy diminishes as economic development proceeds - continually decreased the share of the population employed in the agriculture, generating demand for other occupations among rural populations. The more recent and ongoing crisis of agricultural incomes across the developed world has given even greater impetus to the search for additional or alternative sources of rural income.

Particularly farmers' incomes have become diverse. In the European Union, typically only between half and two-third of farm household income is from agriculture, and this is as low as one third in Sweden and Germany (Eurostat 1999:64). Wages,

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income from other enterprise, and social transfers constitute the remainder. Many studies also from developing countries show that farm and other households in rural areas across the developing world typically derive between 40 and 60 % of household income from sources other than agriculture (for figures, see *e.g.* Ferreira and Lanjouw, 2001: 30; Reardon *et al*, 2000; Start, 2001; Haggblade *et al,* 2002: 6; Barrett et al, 2001:2; Deininger and Olinte, 2001:455).

Such research has been scarce to date for those countries that are in transition from central planning to a market-based economic system. Typically little is systematically known due to the recent, large changes in the structure of agriculture and the rural economies of these countries (for exceptions, see Christensen and Lacroix, 1997; Turnock, 1998; World Bank, 2001; and EBRD, 2002). As Bezemer and Davis (2003) observe, economic activities in rural areas were probably more diverse prior to the reforms than currently. One social objective of socialism was to transcend differences between towns and the countryside. With this policy aim, industrial employment in rural areas was created, either by locating industrial concerns in rural areas or by encouraging agricultural co-operatives to diversify into non-agricultural activities (e.g. computer hardware manufacturing co-operative enterprises in the Czech Republic). The former strategy was most common in Central European and Balkan countries that were pre-industrial before the central planning era such as Albania, Slovakia, Bulgaria, Romania and most of the CIS. However, the development of non-agricultural businesses with agricultural co-operatives was also practised there - around 88 per cent of Slovak agricultural co-operatives were engaged in non-agricultural activities as compared to 78 per cent in the Czech Republic, and 58 per cent in Poland by the 1980s (Swain, 1999). Rural non-farm employment existed during socialism on a larger scale than in Western Europe.

It is clear that much of agricultural production and rural industry has collapsed or was restructured during transition, and that subsistence agricultural production has grown in importance (Swinnen and Macours, 2000; Lerman et al, 2002). Beyond that, there is a lack of current information that could inform rural policies. Yet in the transition countries, typically a large part of the population live in rural areas, and rural economic growth and the reduction of rural poverty are significant challenges (Greif, 1997; Csaki and Tuck, 2000; Pearce and Davis, 2000; EBRD 2002). Given the large importance of agriculture in the rural economy, particularly the potentiality for diversification of enterprises in this sector is of interest.

This study aims to contribute to the study of agriculturally based rural diversity in Lithuania, one of the moderately successful and significantly agrarian transition countries in Europe. The next section provides a brief introduction to the country's key economic features and its recent experiences during the transition process. Section 3 presents the empirical basis of this paper, which is a recently collected survey data set of Lithuanian farm households. The subsequent four sections document the importance of non-agricultural rural incomes in this survey sample, by different measures; explore the benefits that such income diversity might bring as well as respondents' motivations to pursue income diversity; and investigates potential barriers and incentives for households to have income diversity. The findings are utilised to develop an interpretation of the role of agriculturally based income diversity in rural economic development in Lithuania. Section 8 concludes.

2. Lithuania: Background Information

Lithuania is a middle income country located at the Baltic Sea, bordering on Estonia to the north, Russia to the east, and Poland and Kaliningrad (Russia) to the south. It was an independent republic from 1918, but in 1944 incorporated in the Soviet Union along with the other Baltic states, until the restoration of its independence in 1990.

Market-oriented reforms have been pursued vigorously in Lithuania from the start of transition. Privatisation began in 1991, first by vouchers in a mass-privatization programme (1991-1995), later by company sales for cash, bringing the share of the private sector in the economy to 70 % of GDP; also land was privatised. In the early 1990s, Lithuania liberalised its trade and introduced income and VAT taxation systems, a pension system, bankruptcy and collateral law and a competition policy, as well as legislation allowing the formation and registration of joint-stock and limited-liability companies. With currently twelve private banks operating and a national stock exchange functioning from 1993, its financial sector is well-developed, and initially high inflation is now very low and stable. Following the abolishment of the Rouble in 1991, the country introduced a new currency (first named the Talonas, then the Litas), which is fully convertible and pegged to the Euro, after being pegged to the US Dollar until 2002 (EBRD, 1995). Lithuania is a now member of international institutions and alliances such as NATO, CSCE, WTO, EBRD, World Bank and IMF. It is expected to join the European Union in 2004, having graduated from the second to the first wave of

accessions in 2001. Table 1 presents some key indicators of structural developments in the 1991-2001 transition decade showing how trade developed, the transport and communication infrastructure improved, and average incomes rose.

Table 1 : Lithuania During Transition

	1990-1991	2000-2001
Economy		
Real GDP (index, 1989=100)	90	72
Share in GDP of Agriculture (%)	16.7	6.3
Share in GDP of Industry (%)	45.3	25.6
Unem	0.3	15.4
ployment (% labour force)		
Imports (million US$)	1,142	5,154
Exports (million US$)	1,041	3,064
Consumer price inflation (%)	224.7	1.0
Demography		
Population (million people)	3.71	3.69
Births (per 1,000 people)	15.0	9.2
Deaths (per 1,000 people)	11.0	10.5
Suicides (per 100,000 people)	26.0	33.7
Natural population increase (%)	+0.04	-0.13
Infrastructure		
Roads (1,000 km)	49	75
Private cars (million)	0.5	1.2
Telephone connections (per 100 people)	21	32

Sources: LSI (2001), EBRD (1995,2002)

The pronounced break with the past after Lithuania regained independence facilitated efforts to steer the reform process in a more radical direction, with the prospect of EU membership providing an added incentive to continue painful structural reforms (Korhonen, 2001). Vigorous market reforms notwithstanding, not all went well. Immediately at the start of the transition the country suffered from the loss of cheap fuel from the Soviet Union on which its industrial sector depended, deepening the transitional output crisis that all post-socialist countries experienced. In 1991-1993, its economy contracted by a third. The 1998 Rouble crisis in Russia dealt the Lithuanian economy a heavy blow, and led to the loss of markets for its agricultural output to the

East. Agriculture further suffered from a flawed land reform leading to extreme fragmentation of land ownership (discussed in more detail below). Lithuania has not been able to balance these blows by attracting much foreign investment during transition; its 1989-2001 FDI per capita inflow of only US$ 813 is the lowest of all Baltic and Central European states, where per capita in FDI was 1,402 US$ on average. With both agriculture and industry collapsing, the services sector - traditionally neglected in the Soviet system - has relatively expanded from 40 % of GDP in 1992 to 60 % in 2001. Also transport, retail and professional services have caught up since 1995. But overall, the contraction of Lithuania's economy has been larger than, again, any other country in the Central European and Baltic region, and its GDP in 2001 stood at only 72 % of its 1989 level, compared to 113 % on average for the region. Likewise, Lithuania's high unemployment rate (15.4 % in 2000) is exceeded in the region only by Slovakia. With large inequality in wealth and income (Hossain and Jensen, 1999), a contracting population, and the world's highest suicide rate, the social transition is still a struggle for most Lithuanians (EBRD, 2002; EIU, 2001).

During the 1991-2001 decade, Lithuania's rural population has been stable at 1.18 million people, or 32 % of the total population; but the structure of its rural economy altered drastically. With the collapse of collective and state farming and the 1994 land distribution, the number of people involved in small-scale agricultural production has increased dramatically. During 1991-2000, 688,000 claims for land restitutions were filed, and 478,000 restitution decisions were taken. In 2000, there were 523,000 owners of agricultural land, which is 17.4 % of Lithuania's 3 million adult population.

Of these, 132,000 were actually involved in family farming (67,000 of them officially registered as such). Other farm structures included companies, partnership, and remaining state farms; these counted 1,138 in 2000 and have an average size of 486 hectares. In contrast, family farms are small: 12.6 hectares on average, and 84 % are smaller than 10 hectares. In addition there were 300,000 household plots. Owners of family farms and registered household plots between them account for a quarter of Lithuania's 1,586,000 working population. Yet officially, the share of the working population employed in agriculture was 16 % in 2000, down from 23 % in 1995. This compares to less than 5 % in the European Union (LMS, 2001; LAEI, 2001).

Partly as a result of the collapse of the largest sector in the rural economy, the rural-urban welfare gap, which was small until the mid-1990s, appears to have widened recently. Indexed disposable income per household (in current Litas per month) increased from 1995=100 to 212 and 146 in the year 2000 for urban and rural

households, respectively. Particularly farm households have been falling behind, their incomes rising to index value 118 only over the same period. With cumulative inflation over 1995-2000 of 206 %, the loss in real terms for rural and particularly farm households is clear (LIAE, 2001; EBRD, 2002).

A 2001 survey by the Lithuanian Statistical Institute highlighted the welfare situation as well as the rural-urban difference. Rural and urban respondents were asked to class themselves in one of five categories, from very wealthy to very poor. In urban areas, 54 % of the poor and very poor (accounting for 34 % of the total population) indicated they had been in poverty for over 5 years. For rural respondents, the poor and very poor accounted for 32 % of the population, 65 % of these for over 5 years (LSI 2002). Table 2 presents a number of other socio-economic indicators, separately for urban and rural Lithuanians in 200/2001, showing various dimension of welfare.

Table 2: Welfare indicators 2001, Rural and Urban Lithuania

	Urban	Rural
Population share 2001	32	68
Per capita income per month (Litas)	455.4	310.9
Per capita consumption expenditures (Litas)	450.6	327.3
Of which cash expenditures (Litas)	403.8	226.9
Share of food in total consumption (%)	38	54
Life expectancy at birth (years)	69.4	64.5
Deaths (per 1,000 population)	8.7	14.4
Suicides (per 100,000 population)	33.7	66.4
Natural population change (%)	-0.04	-0.32
Household size (persons)	2.6	2.7

Source: LSI (2001)

3. Data

The empirical basis of this study is a farm household survey in rural areas in Lithuania, implemented in mid-2001, which covered 6 of Lithuania's 60 municipalities (*savivaldybes).* The survey frame was targeted and designed to reflect regional differences, on two dimensions. It included both areas defined by the Ministry of Agriculture as being 'favourable to agricultural production' and regions less favourable to it. It also included villages in areas close to larger cities (0.1-17 km), villages remote from large cities (over

50 km), and villages on intermediate distance from large cities (17.1-50 km). 'Large' cities in the survey regions included the capital city Vilnius (population 576,400), Kaunas (409,700), Klaipeda (201,800), Siauliai (46,200), Panevezys (133,600), Alytus (77,600) and Maraijampole (52,100). Rather than aiming at statistical representation on the national level, the survey was designed to include the effects of natural conditions and access to urban markets on farm household livelihoods (Table 3).

Table 3: Survey Frame

Survey areas	Households in survey		Individuals in survey	
By Regions (rural/urban population ratio)	Count	%	count	%
Marijampole (0.42)	64	34	242	35
Alytus (7.25)	16	9	59	9
Svencionys (0.71)	20	11	74	11
Lazdijai (2.63)	33	18	102	15
Taurage (0.81)	25	13	101	15
Vilnius (14.00)	30	16	114	16
By agricultural condition				
More favourable	64	34	242	35
Less favourable	124	66	450	65
By distance to large city				
Close (0.1-17 km)	45	24	175	25
Intermediate (17.1-50 km)	33	18	102	15
Remote (> 50 km)	110	59	415	60
Total sample	188	100	692	100

Sources: survey, LSI (2001)

4. Diversity in Household Incomes and Activities

Non-agricultural activities provide a significant source of income to Lithuanian farm households in the sample. Table 4 presents the evolution of the structure of household incomes over the last decade of transition, as reported by survey respondents. We note that, although the survey is not intended to be nationally representative, both the official average per capita income per year in PPP Dollars (3,254 in EBRD, 2002) and the official

share of non-agricultural income in total farm household income (57.3% in Ministry, 2002) are very similar to the survey data, as shown in the table.

Table 4: Farm Household Income Structure, 1990-2001

Share of income source in total income	Year		
	1990	1995	2002
(%)			
Earned income:			
Agricultural production	31.9	53.9	57.8
Agricultural paid employment	33.5	9.1	0.2
Non-agricultural paid employment	24.6	20.2	17.7
Non-agricultural enterprise	2.4	5.1	9.4
Unearned income:			
Remittances	0.9	0.9	0.5
Social payments	6.1	9.9	11.9
Agricultural support payments	0.3	0.7	2.1
Asset income	0.0	0.0	0.3
Total	100	100	100
Total income per capita per year (PPP US$)[1]	n.r.	n.r.	3,240

(1) Per capita income was calculated assuming intra-household income equality and based on the most recently available (year 2000) PPP conversion rate of 1.7 Litai per international Dollar (World Bank, 2002). Given stable exchange rates in 2000-2002 and low inflation (1.4%, 2.0%, and 0.4% in 2002-2002), this should be reasonably accurate. On this basis, nearly a quarter (24 %) of households in the sample was under the poverty line of PPP $4.30 per person per day, used by Csaki and Tuck (2000) in their study of the rural economy in transition countries.

n.r. = not reported

Source: survey findings

The changes in income shares over the last decade reflect the rapidly changing structure of the rural economy in Lithuania. Total household income consists of earned income (related to an economic activity) and unearned income (transfers and rents). The share of unearned income rose from a reported 7.3 to 14.5 % of total household income. This was caused mostly by a general decrease in earned income; and also by the introduction of agricultural support policies during transition (OECD, 2002).

Unsurprising in this sample of farm households, agricultural production is the most important and largest source of earned income. Its share in total income rose from one third to two thirds over the last decade, reflecting both falling total incomes and the development of the private family farm sector in agriculture. Second in importance is non-agricultural employment, contributing nearly a fifth of total household income on average. Although the employment potential of the official agricultural sector has fallen during transition, the share of income from non-agricultural employment has decreased rather than increased. Indeed the collapse of much of rural industry during the same time was reportedly even more serious than the crisis in agriculture (Pearce and Davis, 2001; Tullock, 1997). Agricultural employment accounted for a third of incomes on average at the start of the transition, but is virtually absent now. This is in line with the ongoing decline of co-operative farms and farm companies that use wage labour.

The two economic activities other than agricultural production –enterprises and jobs –are diverse both in nature and location. Of all 189 respondents, 47 (27%) have some non-agricultural enterprise. Most of these (16%) are engaged in one activity. Most frequent non-primary activities are agricultural contracting (7% of respondents), food processing (6%), and providing tourist accommodation (6%). Restaurant services, providing sports facilities, construction, and forestry-based activities are each reported by 3-4 %. Other activities include a farm shop, wholesale and retail trade, manufacturing and crafts. Overall, non-agricultural enterprise is a non-negligible part of the rural economy. Even among registered farmers, over a quarter of respondents engages in it and it accounts for a tenth of their household incomes on average, comparable to the contribution of social payments.

Regionally, non-agricultural enterprises are most concentrated in the regions of Alytus and Vilnius, where the country's largest city is (table 5). Taurage, on the other hand, where non-agricultural enterprises are virtually absent, is the region most remote from large urban centres, and with a low population density. This pattern suggests that non-agricultural enterprises are demand-driven, depending on access to consumer markets for their viability. As shown in table 5, a similar variation is observable for non-agricultural employment. The table also reflects large regional income inequality, with differences between the richest and poorest region's average household income of over a factor 3

Table 5: Regional Importance of Non-Agricultural Activities

Regions	Household income	non-agricultural employment			non-agricultural enterprise		
		Incidence	Share in income	Share in labour time	Incidence	Share in income	Share in labour time
	(Litai)	(%)	(%)	(%)	(%)	(%)	(%)
Marijampole	1,225	39.1	14.0	12.0	26.6	10.3	16.1
Alytus	789	62.5	42.2	20.1	37.5	14.4	36.2
Svencionys	1,521	50.0	8.3	9.2	25.0	3.4	15.4
Lazdijai	1,069	48.5	21.0	9.7	24.2	8.7	23.0
Taurage	1,866	20.0	4.2	0.3	4.0	3.0	6.6
Vilnius	2,713	43.3	25.8	18.7	38.7	15.5	13.5
Total sample	1,595	41.7	17.4	11.6	26.7	9.4	17.4

Source: survey findings

The regional averages of income shares of non-agricultural enterprises are not consistently related to the frequency of their incidence. In Svencionys, an incidence of non-agricultural enterprises of 25% coincides with an average income share of only 3 %. In Lazdijai and Marijampole, where having a non-agricultural enterprise is about as frequent, income shares are about three times higher. Part of the difference may be accounted for by the somewhat lower household incomes in Lazdijai and Marijampole; most of it is plausibly related to differences in the remuneration to different non-agricultural activities. The same is true for non-agricultural employment, as a comparison of, for instance, Svencionys and Lazdijai shows.

The data indeed suggest that access to the more remunerative activities and jobs is to an important extent regionally determined, although the sample size limits the statistical significance of regional differences. For one example, average remuneration per hour of wage employment in the total sample is 4.1 Litai, varying between an average 5.3 Litai in the Vilnius region and 2.3 Litai in Marijampole. Wage income appeared to be the most remunerative of economic activities; for non-farm enterprises average financial return per hour is 2.9 Litai, for agricultural labour it is 2.8 Litai.

5. Motivations

The previous section has established that non-agricultural income constitutes an important part of respondents' livelihoods. Three questions then present themselves, which will be addressed in this and the next two sections. What motivates farm households to seek income diversity? How does it benefit them? And what are the barriers and incentives for households to diversify their incomes?

Motivations to diversity are multiple. Partly this is so because non-agricultural income itself is a heterogeneous concept, and motivations to seek an off-farm job will be different from those underlying the start of a non-farm enterprise. Partly also economic motives differ between households, with some individuals pursuing diversity in order to capture new market or technological opportunities, while others seek additional non-farm income in order to preserve a level of households income in the face of economic duress. These alternative strategies are motivated by opportunity and necessity, respectively. They have been referred to as 'demand-pull' and 'distress-push' diversification (Efstratoglou-Todoulo, 1990; Reardon, 1999; Ellis, 2000; Barrett *et al*, 2001; Pearce and Davis, 2001; Haggblade *et al*, 2002). Different motivations tend to be related to differences in outcomes in the pattern of rural occupations and enterprises.

In recognition of the importance of these, often elusive, factors in rural economic diversification survey respondents were explicitly asked why their household had or had not entered non–farm employment or started a non-agricultural enterprise. Respondents assigned a value from 1 (least important motivation) to 5 (most important motivation) to the options offered, which were pre-selected from the relevant literature. Motivations were chosen so as to reflect motivations of the 'demand-pull' and 'distress-push' types, i.e. those primarily related to household needs or those primarily related to opportunities offered in non-agricultural activities. While we recognise that actual incentives are a mixture of both, the scaled responses to concrete motivations may offer some insight into the relative importance of both types of motivations. Table 6 presents a summary of findings.

The table shows that motivations are diverse. For those who started their own non-farm enterprise, the attraction of it ('capturing market opportunities') was most important on average; for wage employment, it least important in the top three motivations. For both non-agricultural activities, two of the three most important motivations relate to household needs rather than market opportunities. Also the motivations not to seek such income diversity suggest that this absence was imposed by external constraints rather than preferred.

Table 6: Motivations (not) to seek income diversity

motivations	Mean scores	Type
Positive motivations		
Top 3 motivations to have a non-farm enterprise (n=49)		
'to capture a new market opportunity'	3.9	Opportunity
'to dampen income fluctuations from agricultural production'	3.7	Need
'To use surplus farm labour'	3.0	Need
Top 3 motivations to have wage employment (n=78)		
'to dampen income fluctuations from agricultural production'	3.3	Need
'use of surplus farm labour'	3.3	Need
'availability job opportunities', 'prestige off-farm employment'	3.1	Opportunity
Negative motivations		
Top 3 motivations not to have a non-farm enterprise (n=139)		
'lack of capital'	3.9	Constraint
'interest rate volatility'	3.8	Constraint
'lack of demand'	3.7	Constraint
Top 3 motivations not to have wage employment (n=111)		
regional unemployment	3.6	Constraint
'no time'	3.6	Lack of interest
'we want to concentrate on farming'	3.2	Lack of interest

Source: survey findings

6. Benefits

Four different gains from diversification for respondents in the survey were identified in the survey. It supports rural household incomes, particularly those in the lower-income range; it benefits the local economy through linkages of investment and employment; it may better allow rural entrepreneurs to capture value-added of their products; and it appears to be less susceptible to transaction problems pervasive in transition economies. Consider the findings of this research in each of these areas.

As shown in table 6, non-agricultural income in general increases with falling income levels; diversity of income, measured either by the number of income sources or by an income concentration index, also is larger for lower-income households. This rise is mainly constituted by an increase in the share of social payments in household income, but is also due to the increase of the contribution of wage income to total income with

decreasing income level. For non-agricultural enterprises, the pattern is more erratic, and falling rather than increasing with decreasing incomes. In sum, the poorer households rely more on diversity of income, especially wages. In this sense, employment in the rural non-farm economy in Lithuania can be said to be pro-poor.

Table 6: Structure of Total Income over Income Levels

Share in total income	Population quintile, by per capita income				
	Richest	2	3	4	Poorest
(%)					
Agricultural production	59.8	67.8	60.5	50.2	46.2
Agricultural paid employment	0.0	0.0	0.0	0.0	1.5
Non-agricultural paid employment	15.9	15.9	17.1	20.3	21.1
Non-agricultural enterprise	16.4	4.8	6.4	12.1	5.5
Remittances	0.2	0.2	1.1	1.1	0.0
Social payments	5.2	8.2	13.1	14.3	24.5
Agricultural support payments	2.4	2.1	1.8	1.8	1.2
Asset income	0.0	0.0	0.1	0.2	0.4
Number of income sources	1.2	1.4	1.4	1.7	1.5
Diversity index[1]	0.28	0.32	0.32	0.41	0.42

(1) Diversity of income deriving from i sources is measured as 1 - Σ(income share j)^2, with j=1,2,…,i. With one source of income, the index equals zero, approaching 1as i increases.

Source: survey findings

A second beneficial effect of non-agricultural enterprises is employment creation. Non-agricultural wage income is direct evidence of such rural employment. In addition, of 49 respondents with a non-agricultural enterprise, half reported that jobs had been created in these activities, varying in number between 1 and 15 jobs. On average farm households with non-agricultural enterprises created 2.6 full-time jobs and 3.5 part-time jobs. Of these jobs, on average 1 full-time and 1.5 part-time job were taken up by household members. This implies that the majority of non-agricultural jobs created in small independent enterprises is not merely a reflection of farm under-employment, absorbing idle household labour. Rather, such jobs constitute genuine employment creation.

This is in most cases local employment. Of 25 respondents reporting on the place of residence of employees at the time of recruiting, 20 reported that for almost all employees (93 %) this was in the same municipality. Two respondents recruited three

quarters of their employees outside the municipality, but in the same region; another two respondents recruited half their employees from outside the region. This beneficial effect to the local economy is not only observable for employment. Also expenditures on enterprise-related investments are often incurred with local suppliers. Of all investments by respondents with a non-agricultural enterprise, 35 % are purchased from local, rural enterprises. For respondents with only agricultural production, this is considerably lower only 24%. Overall, it appears that farm households with non-agricultural not only supplement their own incomes, but also create benefits for the local, rural economy through linkages of employment and expenditures.

The role of non-agricultural enterprises in local employment can be expected to remain modest but stable. In total 8 of 49 respondents (16 %) expected to increase the number of employees in their non-agricultural enterprise over the next three years; the rest expected no change. Most (65%) also expected to maintain business size as it was, and about a quarter expected moderate (16 %) or significant (8 %) growth. Four respondents (8%) planned retirement within three years and one expected a decrease in business size.

A third gain from diversification is that there appears to be more value-added for the producer/provider of non-agricultural activities and services compared to agricultural production. More of it is sold directly to consumers, thus allowing the entrepreneur to capture the full profit margin between production and final sale. In agriculture, the role of intermediaries is much larger (table 7).

Table 7: Sale Channels for Different Activities

% of revenues sold …	Agricultural production (n=180)	Other activities (n=48)
Directly to consumers	27.8	90.7
To retail shop	0.4	4.5
To wholesale trader	0.6	2.7
To processor	66.7	0.0
To village market seller	4.4	2.1
Total	100	100

Source: Survey Findings

Especially the large role of processors, in combination with the usually large concentration, is known to weaken the market position of primary producers in

agriculture. This problem, which currently is a serious one for the sector in transition economies (Gow and Swinnen, 1998), typically leads to depressed off-farm prices and payment delays.

A fourth beneficial effect of non-agricultural activities is that it appears to allow entrepreneurs to circumvent transaction problems, which are generally serious in the less successful transition economies. Respondents were asked to rank a number of potential problems relating to market development, the quality of state assistance, and corruption and crime on a scale between 1 and 5, where higher scores indicate a larger problem in transacting. They assigned scores separately to transaction problems in agricultural and non-agricultural activities (where relevant).

Nine out of the eleven factors listed were on average assessed as more problematic in agricultural production than in non-agricultural activities on average (n=186 and n=49, respectively). The largest obstacle in the latter area was finding transaction partners (buyers and sellers) and bureaucracy (scores 3.2 and 3.0, respectively). These were also seen as problematic in agricultural production (both with score 3.2), but late payments and disputes over quality with buyers were felt to be more serious (both scored 3.6), while in addition also bureaucracy scored 3.2. Values assigned to all other factors were significantly lower, ranging between 1.5 (fees for property protection) and 2.7 (theft) for agricultural production and between 1.7 (fees for property protection) and 2.6 (for both quality disputes and theft) for non-agricultural activities. The two factors seen as more problematic outside agriculture were payment of fees and bribes. Other factors suggested in the questionnaire included lack of wholesale markets, lack of market information, disputes over packaging and transporting responsibilities, and time costs of negotiation – all evaluated more negatively for agricultural than for non-agricultural production.

7. Factors in Income Diversity

In view of the considerable share of income from non-agricultural sources as well as the benefits that accessing non-agricultural income can bring, it would be important to know which factors facilitate and constrain such income diversity. The literature on farm diversification suggests a number of potentially relevant variables. Shucksmith and Winter (1990), Olfert (1992), Shucksmith (1993), Shucksmith *et al* (1989) and Evans and Ilbery (1993) provide overviews and discussion of factors in farm diversification in a

Western European context. Shucksmith and Smith (1991), Mishra and Moorehart (2001), and McNally (2001) are examples of empirical studies, among many others. Surveys of this literature include Schoen (2000) and Chaplin (2002).

This literature demonstrates that the number of variables that have been found to be relevant to farm diversification in some context is large. This is unsurprising; as Ellis (2000) and others argue, such livelihood choices can only be understood in a framework integrating households' human, social, natural, physical and financial capital. Although such a wide-raging enquiry is beyond the scope of this paper, an attempt was made to identify the main factors in a farm households' preference for deriving income from non-farm employment or a non-agricultural enterprise. (Note that we consider only non-agricultural income source related to activities, and thus representing choice, rather than unearned income sources such social payments.)

As measures for involvement in such activities we calculated the share of income from both non-farm employment or a non-agricultural enterprise in total household income, and also the total share from non-agricultural activities in total household income. These three variables were utilised as independents in three separate regressions. As independents we included a variety of variables including age, household size and composition, education, professional experience, proximity to cities, agricultural production conditions, financial return to agriculture, access to unearned income, and access to economic institutions. Estimations were performed with stepwise selection based on a 10 % level of statistical significance. Because shares in incomes, as percentages, are censored, the appropriate specification is the Tobit equation. Variables significantly associated with either or both of the measures for non-agricultural income diversity include the following:

- AGE: average age of adults in the household;
- HHSIZE: number of household members;
- DEPRAT: dependency ratio, the number of household members not of working age – i.e. younger than 16 or older than 65 years – divided by household size;
- EXPERIENCE: (whether (1) or not (0) there is professional experience on the managerial;
- FAVOURABLE: location (1) or not (0) in an areas favourable for agricultural production;
- UNEARNED: share of social payments in total household income;

- CITYNEAR: whether (1) or not (0) the household lives closer than 17 km to a large city, as defined in section 3;
- FARMSIZE: the size of the farm in terms of annual revenue level;
- PCI: per capita income;
- INSTITUT: average reported frequency of use of accountancy and business advice, job centres, banks and insurance companies, and government agencies, from 1 (seldom) to 5 (frequently).

Table 8 reports the sample means of these variables, and their statistical relation to diversification choices as estimated in the Tobit censored regression model.

Table 8: Variables Determining Income Diversity

Independent Variables		Dependant variables					
		Regression 1: % income from non-agriculture (A+B)		Regression 2: A. % income from wage employment		Regression 3: B. % income from non-farm enterprise	
	Sample means (sd)	Coefficient estimates (standard errors), significance levels					
EXPERIENCE (counts)	41 %	0.191	(0.093) **	0.300	(0.099) ***		
AGE (YEARS)	42 (10)	-0.017	(0.005) ***	-0.013	(0.006) **		
FAVOUR (COUNTS)	34 %	-0.328	(0.111) ***	-0.240	(0.119) **		
UNEARNED (%)	0.14 (0.19)	-0.004	(0.003) *	-0.007	(0.003) **		
DEPRAT (ratio)	0.19 (0.23)	0.466	(0.199) **				
INSTITUT (scaled 1-5)	3.8	-0.088	(0.032) ***	-0.071	(0.034) **		
CITYNEAR (counts)	59 %	-0.333	(0.067) ***	-0.181	(0.070) ***	-0.249	(0.093) ***
HHSIZE (persons)	3.7 (1.4)					0.122	(0.054) **
FARMSIZE (ths Litas)	100 (132)					0.000	(0.000) **
PCI (Litas)	418 (270)					0.000	(0.000) **
(Constant)		1.646	(0.267) ***	0.996	(0.284) ***	-0.539	(0.289) *
Regression statistics							
Observations		167		168		167	
LR chi2(n)		56.18		39.50		18.27	
Prob > chi2		0.0000		0.000		0.00011	
Log likelihood		-117.425		-103.999		-92.219	
Pseudo R		0.1930		0.1596		0.0901	

Notes:

Multicollinearity was tested for by regressing independent variables on each other (adjusted R^2 levels of between 0.03 and .38). Covariance and covariation matrices contained small and insignificant values between any pair of variables.

One asterisk (*) indicates that the marginal effect is statistically significant for $p<0.10$; two asterisks (**) indicates significance for $p<0.05$; with three asterisks (***) significance also holds at $p<0.01$.

Source: Survey findings and authors' analysis

The first thing to note is that there is almost no overlap between factors significantly associated with non-agricultural wage employment and those linked to non-agricultural enterprise. The exception is CITYNEAR, related to less income from both sources. The factors significant in the wage employment equation return in the equation for total non-agricultural incomes, but that is not true for non-farm enterprise variables. This is mainly so because non-farm employment is so much more frequent. The implication is that understanding rural diversity requires a differentiation between income sources and the factors facilitating them: rural diversity is a heterogeneous concept and should analytically be treated as such, with appropriate breakdowns into at least wage employment and self employment.

Another observation is that the findings are in line with the interpretation of income diversity as importantly driven by household needs rather than market opportunities, and by economic adversity rather than economic opportunity. Non-agricultural enterprises are more likely to be found with larger households and in more remote areas. Non-agricultural employment is a more important income components for households that have more dependant members, are located in remoter areas, and have less access to economic institutions. Non-agricultural employment appears to compete with agricultural production; in areas more suited to this, the income share from employment is lower. Conversely, this suggests that poor agricultural production potential is one factor for households to seek income from employment. Likewise the need for employment income seems to be smaller when households have more social payments. Again, all this suggests that it is mainly household needs that determine uptake of non-agricultural activities.

Other findings are that there are human capital barriers to entry to wage employment: those who are younger and those with previous managerial experience (which may also be a proxy for social capital) tend to derive more of their income from jobs. Per capita income is not shown to have a significant association with either form of non-agricultural activity. Apparently it is the other factors, associated with low incomes, which capture the association. While it is still true that wage employment mainly benefits

the poor, as shown in Table 6, this analysis suggests that this is so not just because they are poor, but because of their other attributes.

8. Conclusion

This study is motivated by the increasing importance of the non-agricultural rural economy in both the developing and developed world, as reflecting in a growing body of empirical literature. A survey of farm households in Lithuania, one of the poorer European transition economies with significant agricultural and rural population shares, is the basis for an analysis of agriculturally based rural diversity.

Non-agricultural income sources are found to provide just under half of average total household income in the sample, with large regional variations. Respondents' motivations to be engaged in non-agricultural activities are diverse, related to both necessity and opportunity. Non-agricultural activities, both through wage employment and enterprises, contribute significantly to employment in the rural economy, both in and beyond the farm households surveyed. Other benefits of non-agricultural activities suggested by the survey findings include larger value-added retained with farm households compared to the situation in agriculture, as well as more advantageous transaction conditions.

Both the number of income sources per household and income diversity, as measured by a concentration index, are larger among the lower-income households. Particularly non-farm wage income appears important for reduction of income inequality and income poverty. In line with this observation, a regression analysis of factors facilitating households' involvement in the non-agricultural rural economy suggests that it is overall pursued as a distress-push strategy, i.e. a livelihoods components that supports the poorer households but that the richer households prefer to dispense with. Non-agricultural activities (which is mainly employment) are more important income components for households that have more dependant members, are located in remoter areas, and have less access to economic institutions. There are trade-offs between income from non-agricultural activities on one hand and agricultural production and social payments received on the other.

Overall, these observations suggest that farm-based rural non-agricultural activities and incomes are an essential part of the Lithuanian rural economy. They provide employment, support incomes, and aid poverty alleviation, but are not likely to

become a motor or rural economic growth via demand-pull processes, as is sometimes observed in other contexts. They are concentrated among the poorer households and are not expected to expand appreciable in the near future. This finding is unsurprising in view of the struggling Lithuanian economy and the fact that economic dynamism is more likely to start in urban areas. The findings both detail the contribution and importance of non-agricultural incomes among farm households, and highlights the limitations of the role these activities can have in replacing falling farm incomes and supporting rural economic growth.

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