The net value added approach as a tool for integration at the micro level

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Abstract

There are major changes in the structure of farms and farm households, the levels of enumeration in agricultural statistics, and in the linkages between these levels. To record and enhance understanding of these developments this paper proposes use of a net value added (NVA) approach at the micro level to reflect the participation of a wide variety of stakeholders in the organization and output of farms. NVA is widely used and internationally standardized. NVA concepts can be applied at the micro level to show to which stakeholders the income of the farm is distributed. We show in the paper that stakeholder involvement and distribution of NVA differs among countries, based on economic opportunities and institutions. Being aware of such differences is relevant in the international policy context because many policies involve distributional impacts, particularly for income and wealth. Based on results, we present an agenda for future work to promote the international integration of micro economic statistics in agriculture.

Introduction

There have been major changes in the structure of farms and farm households, the levels of enumeration in agricultural statistics, and in the linkages between these levels: some farms support more than one household, households have several farm and off-farm income sources and some farms are incorporated together in one company or are engaged in contract farming. To record and enhance understanding of these structural developments, this paper utilizes a net value added (NVA) approach to the measurement of output and income at the micro level. Over the last few years we have developed micro-economic approaches to record NVA and its distribution in the EU, USA, and Canada. A logical next step is improved international integration of these data sets. NVA and its distribution have important advantages for understanding the farm sector's contribution to national economies in the broadest possible terms and for providing a basis from which to assess the contribution of all factors of production within the farm sector, regardless of ownership (Strickland, 1992). Value-added reflects the net value of goods and services generated by farms, accounting for total production, whether sold or consumed within farming as food, feed, or seed. Value-added and income are alike in this regard. The difference is that value-added encompasses the contributions and earnings of a larger block of stakeholders and resources than net income (in the EU labeled as: family farm income). Thus, value-added can be considered as the value produced by a larger "team", including non-operators. A simple accounting equation illustrates the relationship between value-added and net income:

> Value-added = Payments to Stakeholders (employee compensation, rent, contractors fee, interest to lenders) + Residual Net Income.

Value-added estimates enhance information about farms or the aggregate farm sector drawn from traditional measures of income through provision of additional insight about the organizational and operating structures of farms as revealed by stakeholder payments. Data on the distribution of NVA can be used to make comparisons: between farms with a different organizational and juridical structure (family farms, limited companies, co-operatives etc.) and hence between countries with a different structure of farms. This is relevant for users in international agricultural policy. In extension and farm management it might help to think about strategic management of the business (Porter, 1987). For statisticians it might help to explain differences in survey integration.

Literature review

The need for microeconomic data to support comparative analyses has long-standing acceptance. Hathaway in the 1960's, for example, noted that two major purposes of comparative income data were to provide economists and policy makers with information regarding resource allocation in the economy and to support analyses of comparative welfare (Hathaway, 1963). This implies a need for more detailed information on relationships between individuals, resources they control, and their incomes. In a similar vein, Schertz (1982) indicated that farm structure issues relate to many aspects of the farming industry including, "the way that resources are organized and managed in

farming and the distribution of income". Recognizing greater heterogeneity in the organization, ownership, and management of farm resources, Schertz called for movement away from data geared to an individually controlled farm concept to a data model that recognized separation of resource ownership and use. Baum and Johnson (1986) incorporated the heterogeneous nature of the farm sector into their argument that use of aggregate data to assess the economic condition of the farm sector, "could preclude a quantitative understanding of how changes in output or input levels, technology, price, or policy may affect or be affected by different types and sizes of farms within regions". Vogel and Johnson (2000) in addressing the implications of changes in farm structure for income measurement and data collection noted that changes in business arrangements and production and marketing practices make it necessary to address measurement problems to have confidence in the levels of income developed for public use. In a more recent recognition of the need for microeconomic data in farm policy analyses, Hill (2000) as well as Offut (2002) and Morehart, et al (2004) argued that micro-level analysis is necessary in order to understand the distributional implications of policy. Canada recently (March 2007) had a farm income workshop to examine its farm income indicators. One major concern was that macro-farm income measures were become a poorer indicator if the state of agriculture in Canada becomes more complex. The workshop recommended the increase use of value added as well as more emphasis of farm level micro data. Poppe et al. (2004) arrived at a similar conclusion. He argued that in a "tradition of reframing our concepts of the family farm…" we need to update our references of the farm and its relation to farm households, as farms in Western Europe would show much more complexity in farming than older models. An assessment of data for farms leads to the conclusion that a 'farm' is, nowadays, a complex notion (Poppe et al, 2006). The OECD (2003) made a first attempt to provide international policy makers with micro economic income data. These studies highlight conflicts between structural change in agriculture, data collection, and its use in statistical reporting and policy analysis. The crux of this conflict is recognized by Garder (1975) in his argument that the demand for statistics is, "derived from the demand for knowledge". The needs for data change in response to economic and other events. Demands on the data system change. Gardner advocated a more flexible system and he argued that, "adaptability is enhanced by having statistics available for microunits and for microconcepts".

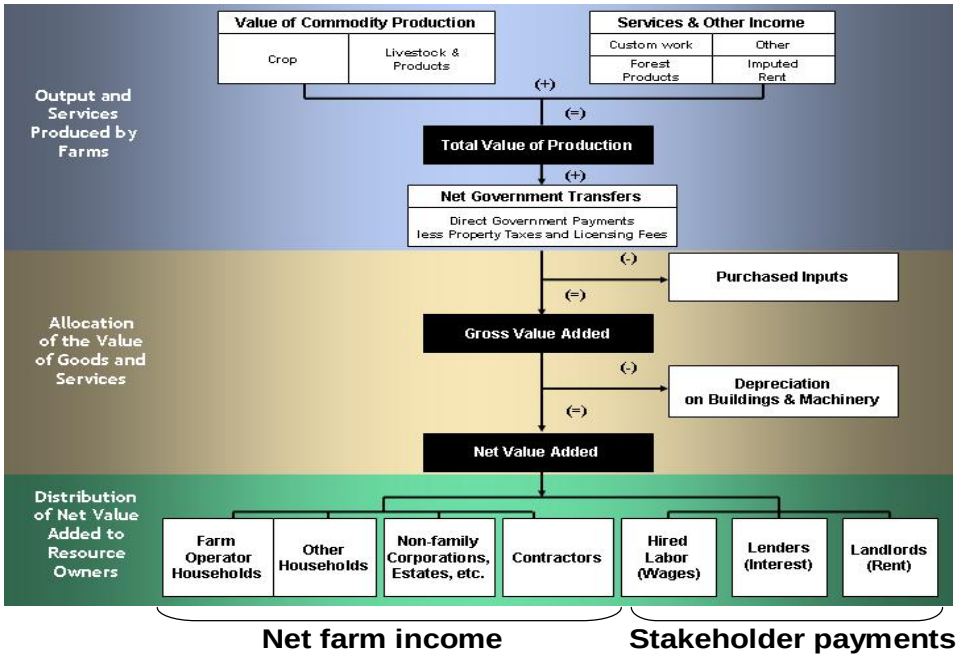
The Net Value Approach to Measurement and Analysis

NVA is widely used and internationally standardized. Typical portrayals of a value-added account show final value of agricultural output where output is usually presented for crops, animal output, and some miscellaneous items which include services, forestry and other items related to the farm holding (figure 1). From this amount intermediate consumption is subtracted, leaving an estimate of gross value at market prices, or the margin generated from farming over inputs purchased from other sectors of the economy. Net government transactions are then added and depreciation subtracted to yield an estimate of net value-added for the "holding". At the sector level, agriculture is typically accepted as one "holding", a sector of the national or regional economy. Further adjusting the estimate of net value added for compensation of employees and payments of rents and

interest moves the account to an estimate of operating surplus and net income from agriculture (often labeled Family Farm Income in Europe, a term that reflects the classical thinking of family farms). Constructing estimates of value-added for use in deriving net income estimates leads to consideration of returns to factor providers. Some factor providers earn payment through agreement or contract while others share business risk. The factor providers who share business risk are the recipients of the net income from agriculture, as a reward for their labor and capital input and their risk taking. The types of individuals and entities that might share net income from agriculture would differ among countries (and farms) depending on the business arrangements, legal forms, and other customs accepted for use.

If a holding has only one owner and operator, the net income from agriculture would flow to the owner/operator's household as a return to the factors of production provided by the household. But as is the case for many farms, multiple owners and operators may be engaged in the business. In this case some arrangement for allocating the farm's operating surplus or net income exists. At the level of the farm household(s) the share in net value is often supplemented by other sources of income (that is a share in net value added of other parts of the economy or transfer income). Many households choose to use labor and financial capital to develop off-farm businesses that provide additional self-employment opportunities for household members. In these cases, farm households share in the value-added generated in non-farm sectors of the economy.

Figure 1. Value Added Framework Gives Broadest Measure of Farm Resource Providers' Contribution to Economy



Sector aggregate accounts often do not provide information on all these distributional aspects of agriculture. NVA concepts can, however, be applied at the micro level to show to which stakeholders the income of the farm (or holding) is distributed. Employing this concept through the use of micro-level data enhances the ability to recognize where value-added is generated within agriculture and how agriculture's operating surplus and income is distributed to owners of factors of production and their different households. If statistics would only focus on an enterprise, the complex arrangements in today's farms would be missed as many of the largest farms have many activities and profit centers. If the focus would be on the farm/firm, the many business-to-business interactions, like contract farming, joint ventures etc. would be missed. Income sources for rural households that mainly provide labour (on large scale operations in vegetables or reformed cooperatives in Eastern Europe) or the multiple households from the farm owners would go unreported. A focus only on the household's income or wealth for a selected farm operation would miss the household dynamic that includes saving and investment across multiple enterprises and activities. And would not show how well the farm competes with alternative economic activities, perhaps outside the farm sector, for the household's resources, which is a major indicator for competiveness. The value added framework with its emphasis on capturing total output, total input use, and stakeholder engagement in the farm provides a strong basis from which to undertake distributional measurements and analyses.

Farm Defintions and Farm Structure: Differences Among Countries

Definitions of the farm and lower limits on "qualification" make the problem of integration more difficult. Not only do countries have differences in how farms are organized and operated, they have differences in what is considered a farm. EUROSTAT defines a farm as: a single unit both technically and economically, which has single management and which produces agricultural products. Other supplementary (non-agricultural) products and services may also be provided by the holdin*g.* There are two types of critique of this definition and data. The first is that it is relatively broad for a business statistic and includes businesses and persons (like pensioners) who earn their main income from other sectors. The second critique is that in some cases the definition is not very well applied. For instance in the Netherlands it is not uncommon that a farmer owns more than one holding (on different locations, sometimes with a different juridical structures) that are included as separate farms in the census. Moody (2007) presented similar experiences for the UK, where contract farming has become important.
In the US, a farm is defined as "any place from which $1,000 or more of agricultural products were produced and sold, or normally would have been sold during the year," (NASS, 2007). Like in Europe this includes a diverse set of operations that range from farms with very little annual product and sales to businesses that generate multiple millions of dollars in sales. The National Agricultural Statistics Service (NASS) reported that 17% of farms in the 2004-2005 timeframe were "point farms"—they had no sales and qualified as a farm based on the fact that they had enough output of some sort that they could have generated $1,000. Meanwhile, the largest 2 percent of farms, those with over $1 million in sales, generate nearly half of all farm value of production. Like in Europe, it is much more common for these large farms to feature more complex

organizational structures, such as being organized as company farms or utilizing some form of shared management. While the economic portfolios of households associated with large farms may be more dependent on the farm for sources of income, these large farm units typically have more stakeholders engaged in the business than smaller farms (Johnson and Morehart, 2006). These stakeholders obscure farm-household relationships with regard to the ownership and control of assets and the distribution of output and income (Morehart et al., 1996; Barthalomaeus and Hardaker, 1981).
Canada also has many sources of farm level data that illustrate the complexity of farms and farm households. Results from the 2006 Census of Agriculture indicated that Canada had 38.5 % of the farms with sales of Can$1-$24,999 accounting for 2% of sales while farms with Can$1 million and over in sales accounted for 2.6 % of farms and 39.7 % of production. Contract farming is becoming a more important production system in Canada as in many other countries.

Data sources

We used three well-known micro-economic data sets to show that international integration of micro economic statistics in agriculture is feasible and useful. These data sets support analyses at multiple levels of measurement—sector, farm, household, and individual. Composite sector-wide measures mask the distribution of income to stakeholders in farms and the farm sector. Farm-level data address this sector-wide shortcoming by measuring the number and participation of individuals and legal entities in farm businesses. In addition they make it possible to provide this data for different groups of farms, e.g. at the level of regions, farm types, size classes or income classes.
The Agricultural Resource Management Survey (ARMS) provides information on a stratified random sample of farms for the USA. The sample of over 34,000 holdings is designed to represent all types and sizes of farms that fit the official USDA definition of a farm, which places it on the same footing as the Census of Agriculture.ARMS is a sample stratified by size of business and farm type groupings. The survey has three parts. The first part is to identify records from a list of farms that features attributes of interest. From this sample units are assigned to a phase of the survey. The second phase is used to collect field-level data for crop enterprises on production practices and chemical use. The third interview phase includes good responses to phase II plus sample selected to provide a more in-depth inquiry into whole-farm economic, finance, amd management, along with information about farm operators and the primary operator’s household.
The **F**arm **A**ccountancy **D**ata **N**etwork of the European Union (FADN) gathers, since 1965, accountancy data from farms for the determination of incomes and business analysis of agricultural holdings. Member states are obliged to deliver data in a harmonized way. Currently, the sample covers approximately 80,000 holdings. They represent a population of about 5 million farms in the 25 Member States, which account for more than 90% of the total agricultural production of the Union. These are labeled as ‘commercial farms’. All member states have a lower size threshold for selecting farms but this threshold differs between countries from 2 ESU (€ 2400 Euro of gross margin) to 16 ESU. The information collected for each sample farm refers to physical and structural data, such as location, crop areas, livestock numbers, labor force, etc as well as to economic and financial data. Net Value Added has been a central indicator (next to

Family Farm Income) from the start of the FADN. Off farm income data of households involved in farming is not assembled in the EU-FADN (for which the EU has been criticized by academics (Hill, 2000) and the European Court of Auditors (2003), but a lot of countries have data available on national level.
Canada also has many sources of farm level data that illustrate the complexity of farms and farm households. Canada undertakes a Census of Agriculture every five years which provides information on farm expenses and revenues. The Census is also linked to the Census of Population to provide income information on farms households. Under a joint project between Agriculture and Agri-Food Canada and Statistics Canada detailed farm financial data is produced based on tax records and the Farm Financial Survey (FFS). The FFS collects data on farm income, farm balance sheet and farm investments to provide a complete picture of the financial situation of the farms in Canada. Family income is also collected for the major farm family operating the farm. Farm tax data provides detailed revenue and expense data by farm type and farm size The tax data also produces farm family income estimates by farm type and size. Currently both these data sets cover farms with sales of CAN$10,000 and more.
The lower threshold of the three data samples we use, differ. It is lowest in ARMS (USA) with $ 1000,- of sales. The thresholds for Canada (Sales of CAN$ 10,000.-) and the EU's FADN (Standard Gross Margin of at least € 2,400.- and often much more) are much higher and not comparable. Here is a clear issue for future work on data integration. A first attempt is made in this paper by looking to quintiles. One should also note that in analyzing data on the distribution (in %) of NVA to stakeholders, the effect of small farms on the average distribution is probably rather limited. A comparison of average income per farm would be much more problematic.

Results

Distribution of NVA at the sector level

The distribution of net value added to the stakeholders as shown in the national accounts at sector level provides a reference point for our work on integration, as these calculations are largely harmonized by statistical standards (table 1). Average net value added per farm has been calculated by dividing the NVA in the sector by the number of farms. This implies that the average NVA per farm is heavily dependent on the lower threshold that counts the number of farms. International comparability is also dependent on the definition of a farm. This underlines our argument that there is a need to complement macro data with micro data on distributions.
For the US and EU contractor stakeholder group is not identified separately, but the earnings of contractors are included in the aggregate estimate of NVA. Data from Canada show that this stakeholder group is indeed important – at least for that country, where more than 8% of NVA is distributed to contractors.
The distribution of NVA differs between countries (table 1). Some interesting results appear. In Canada and the USA a much larger share of NVA is paid out to banks and other lenders than in the EU. Landowners also take a bigger slice of the cake. In the US labour is a less important stakeholder than in Canada and the EU. As a result farm operators in the EU and US retain about 60% of NVA. In Canada this share is lower. This partly reflects the B.S.E. crisis in Canada during this time period that significantly impacted on Canadian cattle producers. In the EU Denmark stands out, where nearly 50%

of the added value is paid to the banks. Danish farms are heavily indebted, which is related to its institutions in inheritance and tax. Only 10% of the NVA results for farmers. In countries like Germany, Denmark, Luxembourg and Sweden, a large part of NVA is paid for rent. In some countries this is caused by the large part of agricultural land that is rented (for example Germany) while in others this is mainly caused by the relatively high rent per ha (Denmark). In countries like the Czech Republic and Slovakia where nearly all land is rented, rent per ha is so low that it is still a relatively small part of NVA. In countries where average farm size is small, farms sometimes have a subsistence character and are less mechanized, and the residual income is a larger percentage of NVA. Bulgaria, Romania, Latvia and Poland are examples. In countries where (reformed) large cooperatives are an important form of organization (e.g. Czech Republic and Slovakia), a large part of the added value is paid to employees.

Table 1 Distribution of net value added to stakeholders at the average farm, selected countries, 2004, derived from national accounts

Country	NVA in 1000 $ per farm per year *)	NVA in a % of total output	% of NVA distributed as … to…..:				
			Interest to Banks and other lenders ****)	Rent to Land owners	Income to Contractors **)	Wages to Labour	Residual net income to Farm operators ***)
USA	61.2	45.5%	10.2%	7.7%	n.a.	15.9%	66.2%
Canada	39.0	24.3%	24.6%	11.8%	8.4%	23.8%	31.5%
EU-27	11.2	39.1%	6.2%	5.7%	n.a.	24.3%	63.8%
Belgium	46.4	29.4%	13.8%	8.7%	n.a.	18.8%	58.7%
Czech Rep.	26.3	26.8%	2.3%	8.3%	n.a.	61.8%	27.6%
Denmark	52.8	24.2%	52.1%	12.9%	n.a.	33.8%	1.2%
Germany	38.4	28.9%	8.5%	14.9%	n.a.	25.8%	50.8%
Spain	28.0	61.9%	4.0%	3.5%	n.a.	13.4%	79.0%
France	43.2	33.3%	4.3%	9.1%	n.a.	28.6%	58.1%
Italy	12.7	43.2%	4.1%	2.1%	n.a.	33.1%	60.8%
Hungary	3.6	34.3%	6.2%	6.3%	n.a.	31.3%	56.1%
Netherlands	78.8	26.6%	15.1%	0.7%	n.a.	42.5%	41.6%
Sweden	23.6	26.6%	18.0%	17.0%	n.a.	25.5%	39.5%
Un.Kingdom	39.6	36.8%	8.4%	4.0%	n.a.	32.3%	55.2%

Sources: national accounts; EU: Economic Accounts of Agriculture.

*) For EU calculated as total NVA (minus taxes and including subsidies) 2004 divided by the number of farms in 2003. € 1 = $ 1.24; Can$ 1 = $ 0.77

**) contractors are agri-businesses in the food chain (e.g. feed companies, processing industry) that hand out production contracts to farmers in such a way that also these agri-businesses realize net value added in primary production, e.g. by owning the cattle. Custom work is included as a normal business expense and value added in this is not taken into account. These definitions also apply to the following tables.

***) farm operators is operators and unpaid household labor

****) Interest paid minus interest received. Interest received is not available in some countries but is small in comparison with interest paid in most countries. For the USA, land-owners include only non-farming landowners.

Distribution of NVA at the micro level

Data integration between the macro and micro level requires that micro-economic datasets provide a comparable picture as the national accounts. Table 2 provides the data as presented in the national micro economic databases. A comparison between table 1 and 2 shows that, in general, the same picture evolves, which supports our working method. For instance, in Table 2, Denmark also shows a very small share of NVA distributed to residual income for farm operators. And, in Belgium this share is in both tables larger than in its neighboring country the Netherlands.

Absolute net value added per farm is considerably higher in the micro-economic datasets than in the national accounts for all EU countries with the exception of Portugal. This could be due to differences in reference period (2004 versus "2003") and to differences in the definitions of indicators (Boone et al, 2002). A very important cause is however the fact that the FADN refers to commercial farms only. This suggests that the national accounts / accounts for agriculture could overstate the farm income problem if averages per farm are used as an indicator of performance. As do averages from micro economic data sets with a low threshold.

*Table 2 Distribution of net value added to stakeholders at the average farm, selected countries *), average 2002-2004, NVA definitions as used in national micro economic information systems*

Country **)	NVA in 1000 $ per farm per year	% of NVA distributed as … to…..:				
		Interest to Banks and other lenders	Rent to Land owners	Income to Contractors	Wages to Labour	Residual net income to Farm operators
USA	48.7	9.1%	9.9%	12.0%	18.0%	51.0%
Canada	34.4	24.8%	12.5%	8.8%	23.7%	30.2%
EU-12	34.0	6.8%	10.4%	n.a.	16.9%	65.9%
Belgium	73.4	12.8%	9.6%	n.a.	10.0%	67.6%
Denmark	65.5	51.6%	13.7%	n.a.	30.6%	4.1%
Germany	59.8	9.6%	20.4%	n.a.	26.2%	43.8%
Spain	29.9	0.9%	3.6%	n.a.	13.2%	82.3%
France	54.2	8.4%	18.1%	n.a.	17.7%	55.8%
Italy	30.6	0.7%	4.7%	n.a.	14.6%	79.9%
Netherlands	100.0	22.5%	11.1%	n.a.	30.6%	35.8%
Sweden	31.7	27.1%	22.5%	n.a.	26.0%	24.4%
Un.Kingdom	82.2	8.2%	14.0%	n.a.	31.3%	46.4%

Sources: USA: ARMS, EU: FADN, Canada: FSS

*) data are not (yet) fully comparable due to differences in thresholds of samples and differences in valuations. Data for the EU based on a constant sample of farms, Canadian data based on an average of the results for the three individual years; For the USA based on an avaerage of the individual years 2003-2005

**) New EU member states not yet available € 1 = $ 1.09; Can$ 1 = $ 0.71

There are, however, also some differences in the allocation of NVA between table 1 and 2. In nearly all countries the share distributed as residual net income to operators is different between the two data sources. In some cases it is considerably higher in micro data (e.g. Italy: 80% instead of 68%), in others it is much lower (e.g. Sweden 24% in stead of 40%). On micro data the US and EU are more different than in the national accounts. The differences in time period between the two tables and the absolute level of NVA, but also differences in definition could play a role. The share of NVA distributed to labor for instance differs in a number of countries quite sharply (e.g. Netherlands, Finland). In some countries a much larger share of NVA is also distributed to landowners in micro-economic datasets (e.g. Germany, Sweden). We conclude from this analysis that applying the NVA concept in the macro and micro datasets result in data that are close enough (e.g. Luxembourg, Denmark) to try to integrate them and use the datasets as supplementary, but that also more work is needed to investigate methodological differences.

Comparing Canada, the EU and the USA, table 2 also shows that the distribution of NVA over the stakeholders differs between the EU, USA and Canada. Hired labor and banks are more important Canada. Also in the USA lenders take a bigger portion of NVA than in Europe. The share of NVA that goes as a residual to the operators of farms is clearly lower in the US than in the EU, and it is lowest in Canada in this time period – making it more similar to the Netherlands or Germany. The income to contractors is substantial in the USA and Canada, and unclear in Europe.

Differences in distribution

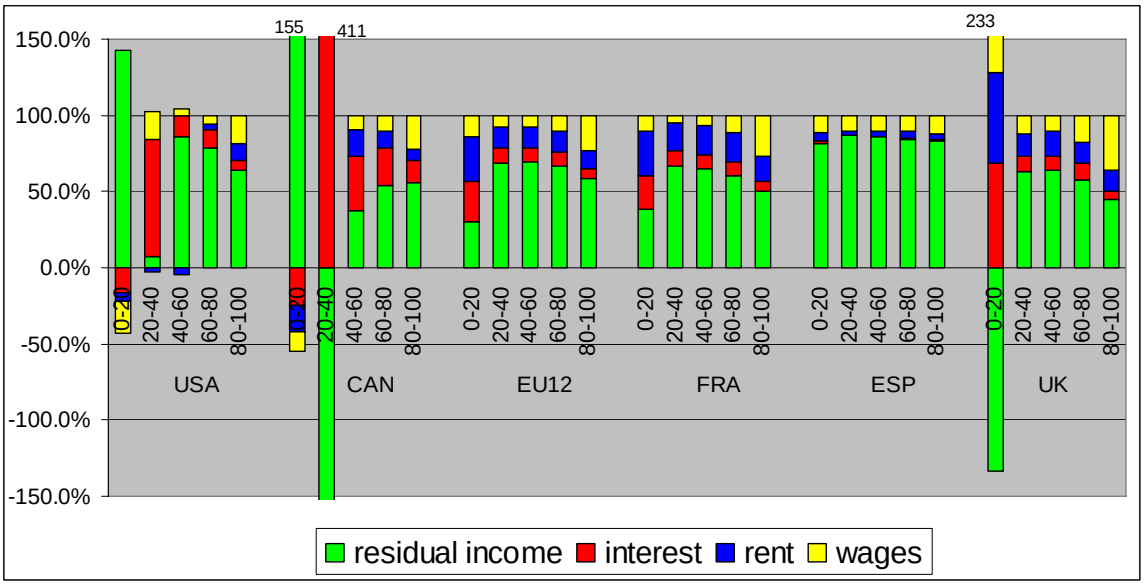
The most important advantage of micro-data is that is makes a drill down possible from the national average to groups of farming that represent certain regions, size classes and farm types. That also supports international integration of statistics. It makes differences between countries (also on the national, aggregated level) easier to understand, e.g. by disaggregation to size classes. It also can help to overcome differences in the lower threshold of data samples.

Based on our micro-economic datasets we prepared tables on the distribution of NVA for each country for the distribution of farms into quintiles. We choose NVA instead of output or sales as a criteria for farm size as this reflects best how much farms contribute to the (agricultural) economy. Graph 1 provides the results for the different quintiles for a selected number of countries (USA, Canada, EU-12, France, UK and Spain). The well known fact that incomes are very skewed in agriculture is also shown here. The 20% of the farms with the lowest NVA often have a NVA that is close to zero or negative. It is for this reason we used a constant 2002-2004 panel for the EU to calculate average NVA. For the USA and Canada this method is not available and we had to take 2005 data. Very low or even negative amounts for NVA lead to extreme percentages in the distribution of NVA over the stakeholders, especially for the residual income from farming.

Although there are interesting differences between countries, the general impression from Graph 1 is that on median sized farms a relatively high proportion of NVA remains with farm operators as a residual income. Smaller and larger farms tend to share relatively more of their NVA with outside stakeholders. On large farms a higher percentage of (a higher) NVA is paid out as wages. The data for France and the UK clearly show this effect. On small farms the fixed payments to landowners and banks take out a relatively

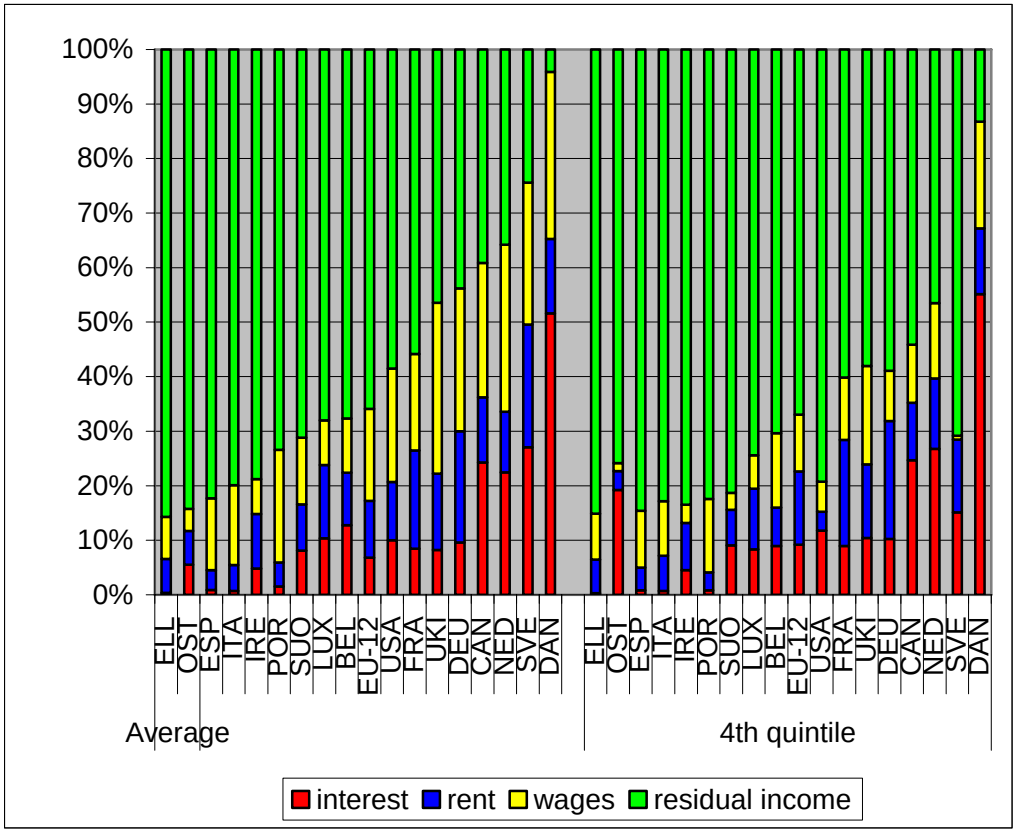
larger share of the NVA-cake, with the effect that the residual income takes a smaller share. Graph 1 suggests that differences, and perhaps also competition, within countries are larger than between countries.

Graph 1: *Distribution of net value added to stakeholders for quintiles of farms grouped to their average Net Value Added, different countries (EU, France, Spain and United Kingdom: constant panel average 2002-2004; US and Canada: 2005), NVA definitions as used in national micro economic information systems (for Canada fees to contractors are included in the residual income)*



The break down to size classes makes it possible to improve the international comparison. As argued above the thresholds of the micro-economic data sets are not harmonized, which hampers international integration of statistics. Graph 2 compares the distribution of NVA for the groups of farms that make up the 4th (60-80%) quintile. We think the two quintiles with the best NVA are most interesting for international comparison and farm policies, as they are responsible for the lion's share of production and have the best viability – which means that they will also be the farms of the future. However the results in the top quintile can be influenced by outliers and upper thresholds in the samples and by special structural characteristics in some farm types in some countries (e.g. large wine or vegetable growers in California). We therefore focus on the 4th quintile and compare this with the average. Graph 2 shows that the distribution of NVA in the 4th quintile is also quite different among countries. The order of the countries (sorted in both panels on the average share of residual income in NVA for all farms) is not much influenced within the EU, with Sweden as an exception. However the comparison between the EU and the USA leads to different conclusions for the average (EU operators have a larger share in NVA than in the USA) and the 4th quintile (US farmers have a larger share). It shows that for an international comparison averages (and aggregates) can be misleading with different structures and when different thresholds of samples are used.

Graph 2: *Distribution of net value added to stakeholders the average farm and the 4th quintile of farms when grouped to their average Net Value Added in dollars, different countries; years and data as in graph 1; countries in both panels of the graph sorted in descending order to the share of NVA available as residual income for the farm household on the average farm (left panel)*



Agenda for future work

The international integration of micro-economic statistics has a long way to go, compared to the work done at the macro level in the national accounts. At macro level NA 93, its 2007 version and Eurostat 97 form the basis for international comparison that are used within the national accounting framework worldwide. Differences are sometimes introduced when policy departments within various countries, in attempting to monitor policy programs in place, start to change, adapt and generally deviate to meet their specific needs. At micro-level such international integration is just starting up. A first step has been undertaken with the publication of to the Wye Group Handbook (UNECE, 2006). The importance of this work (to which OECD, USDA-ERS, FAO, the World Bank, UNECE, Eurostat and the Pacioli-Network contributed) has been recognized by the United Nations by giving this group the so-called 'City Group' status.
Based on our experience we see the following issues to explore for further harmonization as most pressing:

- Treatment of taxes and subsidies. NVA can be calculated at factor cost or market prices and our samples are probably not harmonised on this point. As agricultural

support mechanisms, including direct payments, differ between countries and over time, this is an important issue for further harmonisation. It seems most attractive to include all such payments in the income and NVA of the farm business, also as a separation between subsidies / direct income payments and payments for environmental / public services is hard to make. But this would be different from the national accounts.

- Treatment of costs of farm houses. These are sometimes included in the costs of the business (and lower NVA), where in other countries costs are on the household budget, or an imputed rent of the farm house as a business revenue is taken into account.
- Other differences in accounting principles. This could for a large part be solved if IFRS (International Financial Reporting Standards) would be used as a standard. That means for example the use of fair values for biological assets and stocks at balance sheet date and inclusion of differences in fair value in the added value.
- Thresholds of surveys and different typologies could hamper international integration.

Based on these very first results of an international integration of micro statistics, we think this work can be broadened to adjacent areas. Based on our experieces, we think this would be policy relevant and possible for the following topics:

- Time series
- Data on certain key sectors like dairy or cereals
- Data on farm subsidies and distributional aspects
- Data on households, their net farm (family farm) income and their income from other sources.
- Data on net-equity invested in the farm and total wealth, also to assess return on investments
- Data on viability of farms and households (to assess financial stress), especially for sectors undergoing policy reform.
- More data on inputs, especially factor inputs to analyse efficiency and competitive advantage.
- Effects of changes in energy and product prices (e.g. effect of 10% change of energy price or milk price with unchanged behavior on income and viability)

Persons and countries interested in this agenda are invited to join this future work.

Conclusions

We have shown in this paper that the stakeholder involvement and distribution of NVA differs between countries, based on economic opportunities and institutions. Being aware of such differences is relevant in the international policy context because many policies involve distributional impacts. Effects of e.g. changes in interest rates and agricultural policy reforms can have quite different effects in different countries, regions and farm systems. For statisticians the need for and the methods of survey integration are also dependent on these differences in stakeholder involvement and distribution of NVA. Finally, we conclude that the international integration of micro economic statistics in agriculture is feasible and useful and that this very first trial sets an agenda for future work.

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