The effect of shocks on agricultural income inequality in Scotland

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Key message: Agriculture suffers from high income inequality, i.e. there is a wide distribution between low income and high income farms. Economic shocks, such as high prices, have only had a short term effect on changing income inequality. However, in the long run, it is the underlying structural inequality in the industry that is found to be substantial and persistent.

Main Findings

- The evolution of agricultural income inequality over time was examined using the Farm Account Survey (FAS) for Scotland.
- The Gini coefficient, a measure of inequality, fluctuates over the years, but indicates a relatively high level of inequality (ranging from 0.44 to 0.57 over the period 1996 to 2010). Furthermore, the FAS does not include smaller holdings and so the actual level of inequality across the industry will probably be higher than this.
- The spread of incomes across the farms in the FAS and the mean value of income for farms in the FAS generally move in the same direction across the years. This means that economic shocks, such as high costs and spikes in market prices, have a broadly proportional effect in nature, that is, the effect of a price fall or cost rise is felt evenly across different income groups.

Figure 1: Average income, average absolute difference and Gini coefficient for a balanced panel of 151 Scottish farms, 1996 to 2010

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3Where a coefficient of 0 is perfect equality and a coefficient of 1 is maximum inequality.
Figure 1 shows the values of the Gini coefficients, the average incomes and the average absolute dispersion of incomes\textsuperscript{4} over time.

The proportion of inequality determined by the long-term structure of the industry settles at 86%. This means that transitory shocks play some role in the inequality levels observed in any given year, but that the structural inequality within the industry (\textit{inferred by the higher incomes held by a small proportion of the industry}) is substantial and persistent. This is in line with earlier research findings\textsuperscript{5}.

Introduction

Farm income inequality is a concern within agricultural policy and a central aim of the Common Agricultural Policy has been to support incomes in the farm sector. In order to understand the underlying structural determinants of farm income instability, a dynamic analysis is needed to review how incomes change over time. Hence, analysing net farm income data over a long time using a robust economic framework will help to characterise observed changes in inequality and what is driving these changes. Moreover, studying the dynamics of incomes allows us to determine whether inequalities are either a transitory (i.e. short-term) or a chronic (i.e long-term) problem within the Scottish farm sector, which has important implications for policy.

Methods

A panel of 151 farms was constructed from the Scottish FAS which could be observed over the period 1996 to 2010. Gini coefficients were then calculated for each year. This measures the spread of individual net farm income relative to the average income. This then allows an indicator of income stability to be calculated, referred to as Shorrocks rigidity index. This index is based on a comparison of the inequality of longer-term average incomes and that of annual incomes, which will be subject to fluctuations, caused by transitory income shocks. Hence, this examines how individual farm incomes move over the long term, i.e. in terms of increasing or decreasing their position relative to other farmer’s incomes.

Policy Implications

Variability of incomes is a common risk factor at the farm level and policy interventions seek to reduce the effect of price shocks to ensure greater stability levels. These include direct support for incomes through the Common Agricultural Policy (CAP) and related schemes, but also other indirect means, such as investment in research and advice for promoting resource efficiencies. Identification and reduction of these variabilities assists long-term planning and ensures a stable environment for investment by the farm sector.

However, despite these interventions, this research still finds a high degree of income inequality within farms over the time period 1996-2010. This perhaps justifies the emphasis of the most recent CAP reforms towards a fairer distribution of incomes, as ‘structural inequality’ seems to dominate this sector. Ensuring that incomes are distributed further may, in the future, ensure greater resilience for Scottish farms.

\textsuperscript{4}Where the average absolute difference is calculated as Gini coefficient times twice the average income (Charles-Coll, J. (2011), Understanding Income Inequality, International Journal of Economics and Management Sciences, 1, 3, 17-28).


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