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The Importance of Farm Income in North Dakota

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Introduction

The issue of farm support has occupied numerous members of Congress and many inches of newspaper columns in recent months. The debate focuses currently on the amount of support likely to be forthcoming to farmers and the “fairness” or equity of the system. Such arguments tend to rely too much on personal opinion and sentiment when perfectly adequate rationales can be offered based on quantitative data. At this point in time there are too many versions of a farm bill and too many amendments to offer reasonable opinions about the resulting impact of specific legislation, however a simple examination of personal income figures provides some convincing arguments about the importance of farm income in the state of North Dakota.

Personal Income

Total personal income (PI) in any year t can be divided into nonfarm personal income (NFPI) and farm income (FI) from that same year t . Equation (1) shows this relationship.

$$PI_t = NFPI_t + FI_t \quad (1)$$

Figure 1 plots all three quantities from Equation (1) from Q2-1948 until Q4-2006. Notice, the overall upward trend in personal income is clearly driven by the upward trend in NFPI, while the fluctuations around that trend are from the variability of FI. This is our first result: FI does not drive overall growth in personal income, but it creates the fluctuations around that trend. The statistics back this up as well.

Figure 1. Personal Income, Nonfarm Personal Income, and Farm Income, 1948Q2 - 2006Q4

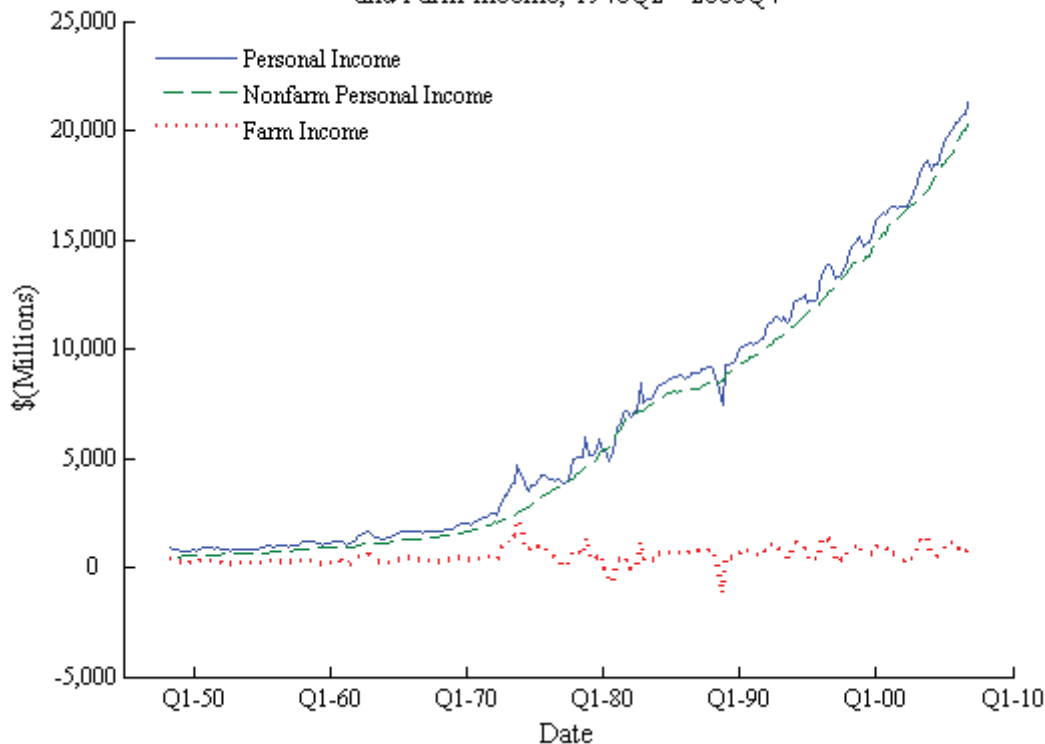
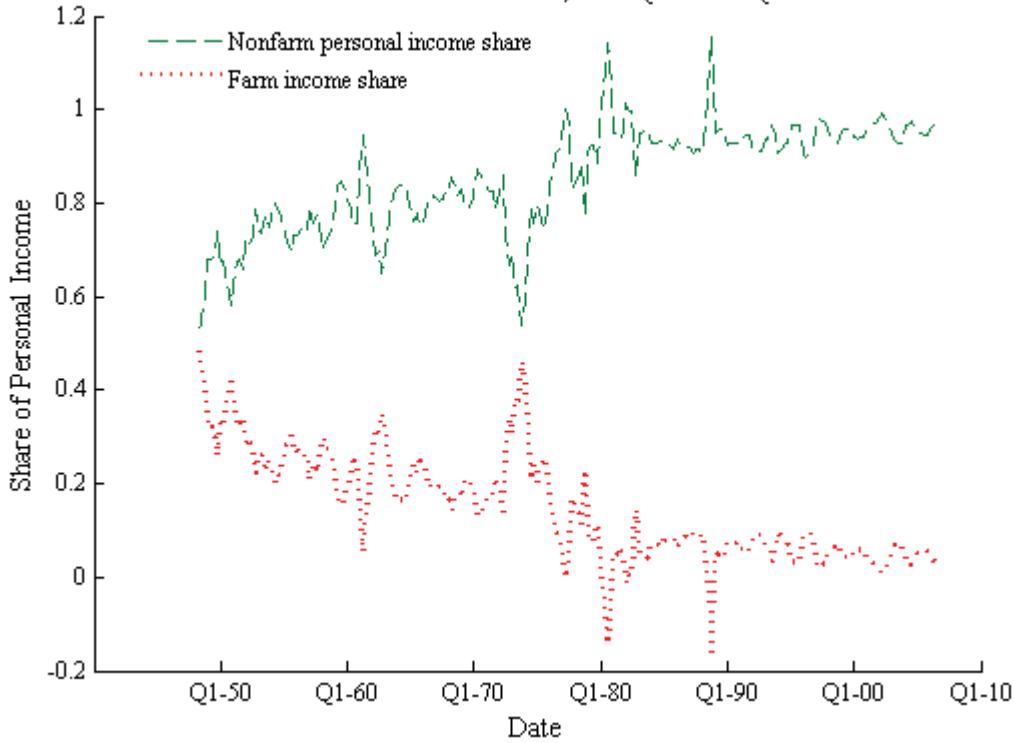


Figure 2. Share of personal income represented by nonfarm income and farm income, 1948Q2 - 2006Q4.



Share of Personal Income

Figure 2 plots the NFPI and FI as a percentage of total PI. The farm income series exhibits a definite downward trend over time, though there are peaks and troughs.

Over the entire 58 year span of data NFPI represents, on average, better than 85% of the total value of PI. As a result, FI represents less than 15%. The shares become even more lopsided when we examine more recent time periods.

When we look at only the last 20 years of data FI was just over 5% of PI. In the last 10 years FI was 4.3% of PI, and in the last 6 years FI was only 3.99% of PI. Clearly the trend is for FI to be a lower share of personal income.

These results are not surprising given what we already observed in Figure 1. Here is our second result: the share of total PI represented by FI is declining.

It is tempting to conclude, based on these outcomes that perhaps farm policies should be moving towards freer markets and reduced support mechanisms. We will see, however, that such is not necessarily the case.

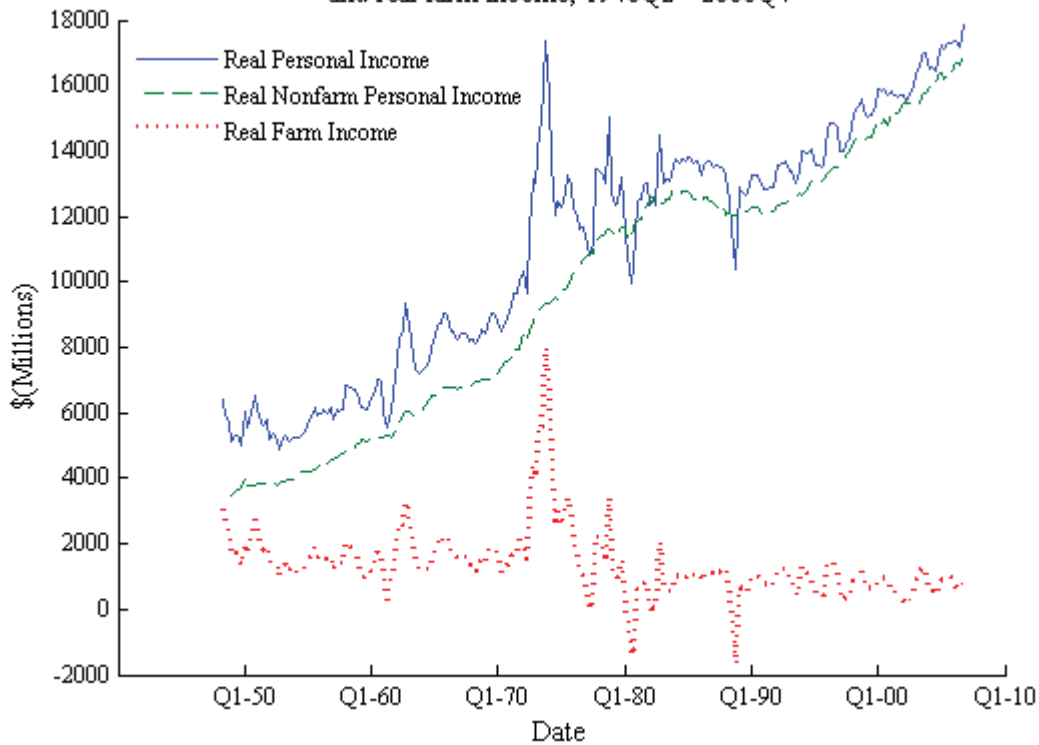
Real Values and Changes in PI

Before we continue a few adjustments are needed. First, we convert the personal income numbers into real values so that varying price levels do not affect the analysis. Using the consumer price index (CPI) we converted all nominal income dollar values into constant (real), year 2000 dollars. These results are displayed in Figure 3 (next page). A comparison of Figures 1 and 3 shows that, aside from a bit of vertical adjustment, the relationship from Figure 1, that trend in PI is driven by NFPI while fluctuations around trend come from FI, still holds.

Our focus now is on the fluctuations around the trend. It is here where FI becomes very important. We compute the changes in our nonfarm personal income and farm income variables as a percentage of the change in personal income, illustrated in equation (2).

$$\frac{\Delta PI_t}{\Delta PI_t} = \frac{\Delta NFPI_t}{\Delta PI_t} + \frac{\Delta FI_t}{\Delta PI_t} \quad (2)$$

Figure 3. Real Personal Income, Real Nonfarm personal income, and real farm income, 1948Q2 - 2000Q4



It is important to realize that over most time horizons, the calculation of percentage change in personal income will reveal a positive number. When we select a time horizon that spans the entire data set we see that real farm income has been responsible for 60% of the fluctuations in real personal income in North Dakota. As we saw in our nominal analysis the numbers start to diminish, but not necessarily the importance. Over the last 20 years FI accounted for 36.8% of the change in PI, a number that shrunk to 6.24% over the last 10 years. The real surprising result is over the last 6 years, where the fluctuations in FI accounted for -12.6% of the fluctuations in PI (11 of the last 24 quarters saw a negative change in real farm income). NFPI accounted for 112.6% of the eventual change in PI. Simply put, FI was a drag on the growth in PI.

Policy Implications

Formulation of any policy is, hopefully, a thoughtful and deliberative process. Farm policy clearly needs to be given such careful consideration. The data indicate that: 1) farm income is becoming a less important part of total income in North Dakota, and 2) farm income is still an important source of fluctuations in North Dakota total personal income, and recently reduced the levels of personal income.

Many other factors are fixtures of the current debate: as already mentioned fairness and equity, but there are also domestic security concerns, quality concerns, and “fair trade” issues. All of these issues have their place, however, an inspection of the income numbers for North Dakota reveals that this issue is also about dollars and cents.

Sources: State personal income figures are from the Bureau of Economic Analysis (<http://www.bea.gov>); Consumer price index figures are from the St. Louis Federal Reserve FRED database (<http://www.stlouisfed.org>).

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