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Feast or Flee: Government Payments and Labor Migration from Agriculture in the United States

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Feast or Flee: Government Payments and Labor Migration from Agriculture in the United States

Abstract

Government payments have been a part of agriculture since 1933 and at no time has the government stated a policy objective of decreasing the agricultural labor force. The reality of the matter may be considerably different. Using time series data and new econometric techniques, this study finds agricultural policy may have an unintended impact on labor migration. Specifically, we find that government payments increased labor migration from the farm. From 1939 to 2007, increased direct government payments resulted in greater migration of labor from agriculture. Government policy appears to have shown limited success at sustaining the agricultural labor force.

Keywords: labor migration, agricultural policy, direct government payments, farm income, farm households, time-series analysis

JEL codes: J43, J22, Q12, Q18

Feast or Flee: Government Payments and Labor Migration from Agriculture in the United States

Introduction

The government has provided financial assistance to farmers since the 1930's. The various programs suggested by policymakers are often proposed under the moniker of preserving the farm family. Attempts to uphold this way of life have been in the face of rapid industrial growth, dramatic technological advance, sharp population growth, and a rise in relative wages off-farm. These changes over past decades have impacted all sectors of the economy including agriculture. According to Mishra, El-Osta, and Gillespie (2009), if the purpose of farm policy is to raise farmers' income and standard of living, then policy provisions need to be reconsidered as changes occur in farm households and businesses.

Today, off-farm income is approximately six times greater than cash farm income and comprises nearly 80% of total household income (Mishra et al. 2002; El-Osta, Mishra, and Morehart 2008). Off-farm labor is no longer classified as transitional but rather the primary source of income for farm households. Considering the nature of government payments remained relatively unchanged until the development of decoupled payments in the 1996 Farm Bill, the performance of government programs in achieving their stated goals is unclear.

Considerable research has focused on the effects of government payments on the labor allocation decisions of farm operators and spouses (Ahearn and El-Osta 1992; Ahearn, El-Osta, and Dewbre 2006; El-Osta, Mishra, and Ahearn 2004; Mishra and Goodwin 1997; Goodwin and Mishra 2004). These studies have largely been cross-sectional in nature and often used farm-level data. Results from the above studies indicate that increased government payments, particularly decoupled payments (direct payments), decreased the number of hours worked off-farm by operators—essentially reinforcing the wealth effect.

Only a few studies have focused on how government payments have affected the migration of labor from a macroeconomic perspective. Barkley (1990) while studying the effect of government payments on labor migration concludes that total government payments have no effect on the migration of labor from agriculture from 1940 to 1985. His results are inconsistent with the findings obtained in the micro-level analysis (farm-level data) of U.S. farm households (Dewbre and Mishra 2007; El-Osta, Mishra, and Ahearn 2004).

The objective of this paper is to re-assess the impact of government payments on agricultural labor migration in the United States. Specifically, the primary research question is presented by the following null and alternative hypotheses:

H_o: Increased direct government payments has had no effect on the migration of labor from agriculture.

H_a: Increased direct government payments has altered the migration of labor from agriculture.

Our results provide evidence for rejecting the null and indicate that increased government payments are positively correlated with greater migration of labor from agriculture from 1939 to 2007. A shrinking agricultural labor force is certainly not desirable by policymakers' standards and lends supports the proposition that policy provisions have not been adequately reconsidered as changes have occurred in farm households and businesses. There is evidence to suggest longstanding programs designed for conservation and commodity buyouts may be attributable to migration from agriculture (Snell 2005; Gardner 1999; USDA 2010; Edwards and DeHaven 2001). More recent trends in agricultural programs, like decoupling of payments, may also be credited with the out-migration of labor (El-Osta, Mishra, and Morehart 2008).

Background and Conceptual Model

Direct government payments in the U.S. began modestly in the early 1930's and remained relatively stable through the 1960's (see figure 1). With the passage of the 1973 Farm Bill direct government payments began an upward climb. Today, an average of $18.2 billion is distributed annually by the federal government to farmers in the form of direct government

payments. These payments comprise nearly 30% of farm net income on average (USDA 2009) and include fixed direct payments, emergency/disaster payments, commodity programs, counter-cyclical payments, marketing loan benefits, tobacco transition payments, and conservation program payments.

A comprehensive list of programs included in direct government payments is presented in Table 1, both preceding and following the 1996 Farm Bill. The 1996 Farm Bill legislation established production flexibility contract (PFC) payments and significantly altered the manner in which payments are distributed to farmers. The 2002 Farm Bill later reclassified PFC payments as fixed direct or decoupled government payments. Figure 2 shows the prominence of decoupled payments, especially in 1996 and 1997, when decoupled payments accounted for 81% of direct government payments. While the share of decoupled payments has declined in recent years, the average has remained relatively stable at $5.244 billion (see Table 2). Together, the average amount of marketing loan gains, loss deficiency payments (LDP), and ad hoc emergency payments are approximately equal to decoupled payments but exhibit greater variation.

The components of direct government payments from 1939 to 1996 are also presented in Table 1. From 1961 to 1996, crop specific payments averaged about 70% of total direct government payments. Feed grains comprised a maximal share of 56% of direct payments in 1965 and minimal share of 4% in 1984. Table 3 provides additional summary statistics on the

four largest components of direct government payments prior to 1996. While feed grain payments were the primary component of direct government payments from 1961-1996, significant resources were also devoted to conservation and miscellaneous payments over this period. Conservation and miscellaneous payments were also significant sources of variability for this period.

Coinciding with the trends in direct government payments has been a steady migration of labor from agriculture. Bloom and Freeman (1988) document the shift in labor forces of developing countries from agriculture to industry and service sectors during the period of 1965 to 1985. In the U.S., farm labor has declined over 50% in just under 50 years, from total employment of 5.5 million in 1960 to 2.1 million in 2007 (U.S. Department of Labor 2009). Cochrane (1993) describes a structural change in U.S. agriculture. He notes a long-run trend of declining inputs of human labor and increasing inputs of mechanical power/machinery. This trend still holds in agriculture domestically and abroad, thereby resulting in downward pressure on agricultural labor. Prior studies using a time series approach have provided little evidence of a significant relationship between direct government payments and migration of labor from agriculture. Barkley (1990) found there was no significant relationship between migration from agriculture and total direct government payments.

A theoretical model for labor migration was originally proposed by Mundlak (2000) and further developed by Barkley (1990), where an individual exists in a two-sector economy and faces a decision to allocate labor to agriculture or non-agriculture. The individual will migrate from agriculture to the non-agricultural sector if their expected discounted utility from non-agricultural employment is greatest. Specifically, let us assume that the indirect utility functions for an individual i is evaluated for the conditions in agriculture and non-agriculture by $V_i(a)$ and $V_i(n)$, respectively, and introduce an index function J that takes on value 0 or 1 to be determined by:

$$[V_i(n) - V_i(a)] J_i(a, n) \geq 0 \tag{1}$$

In equation 1, if the first term is positive then the individual benefits from migration and the function $J_i(a, n)$ takes on a value 1 and 0 otherwise. Potential migrants must estimate the probability of obtaining a job in nonagricultural sector. This probability is incorporated into the empirical model through inclusion of variables like non-agricultural unemployment rate and relative size of the sectoral labor force. Finally, economic conditions within the agricultural sector, such as, government payments to farmers and farmland values are also expected to affect the flow of labor out of agriculture. On the other hand, labor can also migrate into agriculture and can be represented as:

$$[V_i(a) - V_i(n)] J_i(n, a) \geq 0 \tag{2}$$

Summing equation 1 and 2 yields the number of migrants:

$$M(a,n) = \sum_i^{La} J_i(a,n) - \sum_i^{Ln} J_i(n,a) \qquad (3)$$

In equation 3, $M(a,n)$ is a function of the arguments of the indirect utility

functions in the two sectors $(\lambda(a,n))$ and is also a function of the size of the

labor force in the origin. The number of migrants generated by the same

economic environment characterized by (a,n) will vary by the size of the

labor force and its sectoral composition. A larger labor force in agriculture

results in greater potential for migration. Similarly, larger the labor market

in the destination, the easier it should be for the new migrants to find

employment. Finally, labor force can be introduced in equation 3 while

maintaining the constant-returns-to-scale property with respect to the

sectoral labor:

$$M(t) = \lambda(a,n)L_F(t)^{1-\alpha}L_{off}(t)^{\alpha} \qquad \forall \quad 0 \le \alpha \le 1 \qquad (4)$$

where $L_F(t)$ and $L_{off}(t)$ are the labor force in agriculture and non-agriculture,

respectively. After dividing both sides of equation 4 by $L_F(t-1)$, the

migration as a proportion of agricultural labor is represented by $m = \left(\frac{M}{L_F}\right)$, the

sectoral labor ratio by $r = \left(\frac{L_{off}}{L_F}\right)$, and the ratio of sectoral income by $\eta =$

$\left(\frac{W_{off}}{W_F}\right)$. When $(\eta = 1)$ the sectoral incomes are equal and no migration takes

place. However, due to cost associated with migration (c) there are reasons

to believe that migration will stop when $(\eta = c)$.

Data and Empirical Model

In addition to the explanatory variable for government payments, controls for the relative size of the agricultural labor force, probability of obtaining work off-farm, the relative returns to working off-farm, and farmers' expectations for the future of agriculture were also included in the model. The time-series data used for this research was collected from multiple sources and covers the years 1939 to 2007. First was the Current Population Survey (CPS), a monthly survey collected by the Bureau of Labor Statistics (BLS). It is important to note that there were several changes in variable definitions and survey methods for the CPS over the period of study. Dummy variables were included for these years to control for these transitional periods. Three of the years in which the survey methodology changed were found significant (1972, 1978, and 2000).

The CPS was the source for the employment data used to calculate the dependent variable, labor migration, and the explanatory variable representing the probability of obtaining work off-farm. An empirical measure of outmigration follows the work of Mundlak (1979) where labor migration is limited to occupational migration at the aggregate level. In particular, migration from the agricultural sector is defined as the percentage change in agricultural employment from one year, say (*t-1*) to the next year (*t*). Here the definition considers only changes in the number of jobs in the farm agricultural sector. In particular, the dependent variable is defined as:

$$m = \frac{L_{F,t-1} - L_{F,t}}{L_{F,t-1}} \tag{5}$$

where $L_{F,t-1}$ is total agricultural employment in previous year (t-1) and $L_{F,t}$ is

the total agricultural employment in current year (t).[2] Also provided by the

CPS was the annual non-farm, unemployment rate (U) used as a proxy for the

probability of obtaining off-farm work. As the probability of obtaining a job

off-farm falls (unemployment increases), the migration of labor from

agriculture is expected to decrease.

Data on direct government payments, net farm income, and nominal

land values are from the "Farm Income Data" produced by the Economic

Research Service (ERS) (USDA 2009). Land values are then deflated using

the Producer Price Index (PPI) for Farm Equipment (U.S. Department of

Labor 2009) to obtain the real land values (*Land*). This inflation measure is

used rather than the PPI for farm products because, like equipment,

farmland is a capital input in the production process. Assuming efficient land

markets, the real land value represents farmers' expectations for the future

of the agricultural sector. The real land price is the present value of all

expected future cash flows; therefore, greater belief in the future of

agriculture will increase the expected future cash flows and thereby increase

land values.

Government payments (*Gov*) is defined as,

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[2] Although Mishra et al. 2002 point out that part-time farming is becoming a permanent
feature in American agriculture, due to data limitations this development is ignored in this
study.

$$Gov = \frac{Direct\ Government\ Payments}{Net\ Farm\ Income} \hspace{3cm} (6)$$

The *Gov* ratio measures government payments as a proportion of the annual
net farm income (Barkley 1990). One potential issue with this definition of
government payments is the accuracy of net farm income. Questions arise
from the manner in which farm operators are generally compensated and the
disincentive that arises from reporting net farm income on an annual basis.
First, operators generally are compensated by an "owner's draw" paid from
the farm profits. Secondly, greater pre-tax profits result in large tax
liabilities; therefore, when faced with the decision of paying additional taxes
on farm income or spending the farm earnings elsewhere the farmer is
expected to choose the latter.

In light these measurement issues, separate models with alternative
definitions of government payments are estimated in this study. The first
model follows the definition provided in equation (6). The second simply uses
direct government payments, thereby assuming net farm income equal to
one. These models will be referred to in Table 4 as "*Gov Ratio*" and "*Gov
Pmts*", respectively.

A measure of the relative returns of working in agriculture compared
to the non-agricultural sector is included. The expectation is that as the
returns to agriculture increase on a relative basis, labor migration from
agriculture will decrease. The return to labor in each sector is measured by

the average product of labor (*APL*) in the respective sectors. As defined by

Barkley (1990) the returns ratio (*Ret*) is calculated as,

$$Ret = \frac{APL_{off}}{APL_F} = \frac{GDP_{off}}{L_{off}} / \frac{GDP_F}{L_F} \tag{7}$$

The variables APL_{off} and APL_F represent the average product of labor for the

non-agricultural and agricultural sectors, respectively. Specifically, non-

agricultural average product of labor (APL_{off}) is defined as the gross domestic

product from the non-agriculture sector (GDP_{off}) divided non-agriculture labor

force (L_{0ff}). APL_F is defined as the gross domestic product from the

agriculture sector (GDP$_F$) divided by the agricultural labor force (L$_F$). Data

used to calculate GDP$_{off}$ and GDP$_F$ is from the Bureau of Economic Analysis

(U.S. Department of Commerce 2009), while the labor force data for L$_{off}$ and

L$_F$ is from the CPS.

A measure of the relative size of the agricultural and non-agricultural

labor force is also included. *LF* represents the ability of the non-agricultural

sector to absorb workers from agriculture.

$$LF = \frac{L_{off}}{L_F} \tag{8}$$

According to Barkley (1990), as the non-agricultural labor force grows relative

to the agricultural labor force (*LF* increases), the non-agricultural sectors of

the economy are expected to be increasingly able to absorb farm workers.

Therefore, a positive correlation between *LF* and *m* is expected.

A function describing the migration of labor from agriculture can then be developed using the time varying explanatory variables, a vector of dummy variables (z), and stochastic disturbance term (ε).

$$M = z^{\alpha_i} U^{\beta_1} Gov^{\beta_2} Ret^{\beta_3} LF^{\beta_4} Land^{\beta_5} \varepsilon \tag{9}$$

A semi-logarithmic transformation of the explanatory variables was then used and each variable was tested for stationarity via an augmented Dickey-Fuller test. With exception to the annual unemployment rate, all explanatory variables were found non-stationary. Therefore, the first difference (denoted by Δ) of the following variables was taken: $\ln(Gov)$, $\ln(Ret)$, $\ln(Land)$, and $\ln(LF)$. The first differences were stationary but not co-integrated. Using the first differences alters the interpretation of the results. Consider the government payment variable, greater changes in log government payments from (t-1) to (t) will increase/decrease migration of labor from agriculture in time (t).

Prior labor migration models lagged all dependent variables one period (Barkley 1990; Mundlak 2000). This was done to decrease the likelihood of simultaneity and accounts for the time delay required for farmers to observe, process, and formulate expectations. The first difference was not used for the non-agricultural unemployment rate so the variable was lagged one period. Meaning, the probability of finding off-farm work in the prior period (t-1) determines whether the farmer will decide to migrate from agriculture in the current period (t).

The migration of labor from agriculture is estimated by ordinary least squares (OLS) of the following form,

$$M = \alpha_1 + \alpha_2 Yr1972 + \alpha_3 Yr1978 + \alpha_4 Yr2000 + \beta_1 \ln(U_{t-1}) + \qquad (10)$$

$$\beta_2 \Delta\ln(Gov) + \beta_3 \Delta\ln(Ret) + \beta_4 \Delta\ln(LF) + \beta_5 \Delta\ln(Land) + \varepsilon_t$$

This model was estimated using alternative definitions of government payments. In each case, migration would be a strictly increasing/decreasing function in direct government payments and there will exist a constant elasticity ($E_{\Delta Gov}$),

$$\frac{dM}{d\Delta\ln(Gov)} = \frac{dM}{d\Delta Gov} \Delta Gov \Rightarrow E_{\Delta Gov} = \beta_2 \left(\frac{1}{M}\right) \qquad (11)$$

In addition to estimating the model for the full data set, the model was partitioned in two groups, 1939–1995 and 1996–2007, to evaluate the importance of decoupled payments on the migration of labor from agriculture. In the time-partitioned models, government payments are included as a ratio of net farm income as described in equation (6). Following each estimated model, the Breush-Godfrey test and residual correlogram were used to test for autocorrelation.

This model was also estimated as an AR(1), autoregressive distributed lag model with M_{t-1} included as an explanatory variable. This approach yielded nearly identical results to ordinary least squares (OLS) in terms of coefficient estimates and significance. Using OLS allowed for an additional year of data to be used relative to the autoregressive model. One drawback to using OLS rather than the AR(1) model was evidence of serial correlation for

1996-2007, but the magnitude and significance of the coefficient estimates were equivalent across models for this time period. For these reasons, only the results using OLS are reported.

Results and Discussion

The primary result of this research is that increases in government payments result in increased migration of labor from agriculture (Table 4). This result is consistent using both definitions of government payments (column 2 and 3). These definitions produced nearly identical results; although, the government payment ratio appears to be more robust to serial correlation as evidenced by the Breusch-Pagan tests.

We provide four possibilities for the positive and significant relationship between labor migration and farm program payments. The first explanation for this result involves increased decoupled payments. Assuming off-farm wages are greater than farm wages, a profit maximizing farm household may choose to devote greater hours to off-farm work and spend their increased income (total) on hiring an additional farm worker. This profit maximizing behavior may occur to the extent where farmers and/or spouses work full-time off-farm and effectively leave the agriculture labor force. Similarly, El-Osta, Mishra, and Morehart (2008) found that a $10,000 increase in expected government payments increased the probability of the

farm operator's wife working off-farm when she is the only one devoting time off-farm.

The second explanation for the positive relationship between changes in direct government payments and migration from agriculture involve commodity buyout programs. From 2002 to 2008, peanut and tobacco quota buyouts were introduced. According to Snell (2005), the reaction from farmers to these programs was similar in the first year following the legislation. The response was a double-digit percentage decline in the number of peanut and tobacco acres planted. With steep declines in production, farm operators, spouses, and/or hired laborers may have sought employment in the non-agricultural sector.

Third, conservation programs have been a part of agricultural policy since the 1930's. In 1985, the Conservation Reserve Program (CRP) was established to idle marginally productive farmland, particularly in environmentally sensitive areas. According to Gardner (1999), USDA (2010), and Edward and DeHaven (2001), nearly 34 million acres of land had been idled due to CRP through 2006. As a result of the retired acreage, there are fewer hired laborers needed for production and less acreage for the operator to manage, thereby increasing the time available for the farm operator to engage in off-farm labor, *ceteris paribus*.

Fourth, agricultural labor has also been replaced over time by capital and machinery improvements on the farm. Cochrane (1993) describes a

structural change in U.S. agriculture resulting from a long-run trend of declining inputs of human labor, increasing inputs of mechanical power, machinery, and agricultural chemicals. Burfisher and Hopkins (2003) also noted a trend of declining labor intensity and increasing capital intensity in U.S. agriculture as evidence of the ease of input substitution in the long run. If increases in direct government payments are invested in capital improvements then migration of labor from agriculture would increase, *ceteris paribus*.

Considering the possible explanations provided for the relationship between direct government payments and labor migration, the impact of the 1996 Farm Bill's introduction of the free market concept in agriculture was also evaluated. Table 4 shows the estimated coefficients for the model from 1939-1995 and 1996-2007 (column 4 and 5, table 4). Using a Chow test, the null hypothesis of equality between the coefficient estimates for the change in direct government payments for 1939-1995 and full model (column 2 and 3) could not be rejected. Conversely, the coefficient estimate for 1996-2007 was not statistically significant. We can conclude that the 1996 Farm Bill did not significantly alter the impact of government payment on the migration of labor from agriculture.

The change in log real land values and return ratio were both found insignificant across all models. This result was surprising considering the results of Barkley (1990), who found the relationship between migration and

the return ratio positive and highly significant, meaning increases in non-agricultural returns, *ceteris paribus*, entice farm worker to leave the agricultural sector. The results of the current research show that larger changes in returns ratio do not have a significant impact on migration. Real land values were also meant to capture the expectations future conditions in the agricultural sector, assuming efficient land markets hold. Therefore, changes in the log expectations of farmers were not found to have a significant impact on labor migration.

The log change in the labor force ratio ($\Delta lnLF$) is positive and significantly correlated with migration of labor from agriculture in all models, meaning that larger increases in the log labor force ratio result in greater absorption of agricultural labor into the off-farm labor force and hence increased migration from agriculture. Additionally, the non-farm unemployment rate (ΔlnU_{t-1}) is negative and significantly correlated with migration of labor from agriculture. When the non-farm unemployment rate increases, farm workers' prospect for off-farm labor diminishes and the rate of migration from agriculture declines. Additionally, the constant and all dummy variables were found significant for the model using the government payment ratio.

Conclusions

The results of this research indicated that government payments have had a positive influence on farm operators, spouses, and hired workers

leaving the agriculture labor force from 1939 to 2007. Perhaps this is due to the direct consequence of conservation programs, commodity buyouts, decoupling of payments, or the substitution effect of lower cost capital as well. Perhaps changes in economic conditions for both the non-farm and farm sectors have occurred at such a continuous, rapid, and unpredictable pace that policymakers have been unable to modernize policy quickly enough to increase the standard of living in the farm economy.

Regardless, it is encouraging from a policy perspective that the positive relationship between labor migration and government payments has diminished in recent years. This could be a sign of more effective government policy and a sign of increased initiatives designed to promote a more sustainable agricultural labor force. Consider the inclusion of initiatives aimed at young and beginning farmers in the 2008 Farm Bill, such as the Beginning Farmer and Rancher Development Program, Down-Payment Loan Program, and the Beginning and Socially Disadvantaged Farm and Rancher Land Contract Payment (Iowa State University 2009).

These programs are in response to a concerning trend in agriculture, the aging of the farm population which threatens to further weaken the industry over the long-term. According to Gale (1994), entry into farming by the 'next generation' holds a place of central importance in the determination of industry structure and the total number of farmers and farm families. Currently, these young and beginning farmers are receiving a minority share

of direct government payments. Mishra et al (2002) shows government assistance is most often received by large, wealthier farms that are less likely to work off-farm. More effective government policy could be a viable option to slow the drift of younger, more educated workers from the farm labor force and preserve the next generation of farmers' migration from agriculture.

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Figure 1: Direct Governemnt Payments (1939-2008)
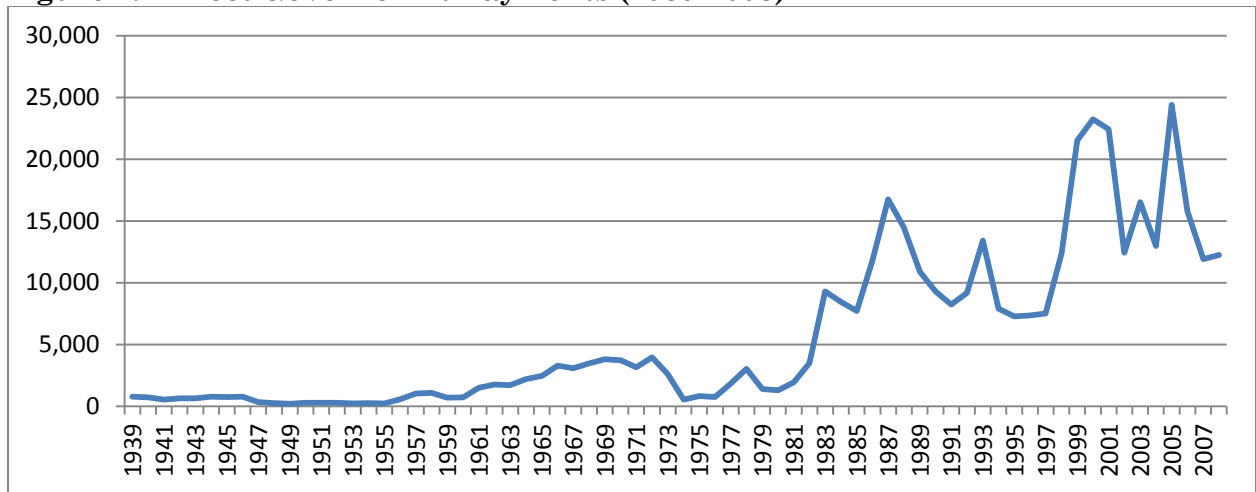
Figure 2: Direct Governemnt Payments (1996-2008)
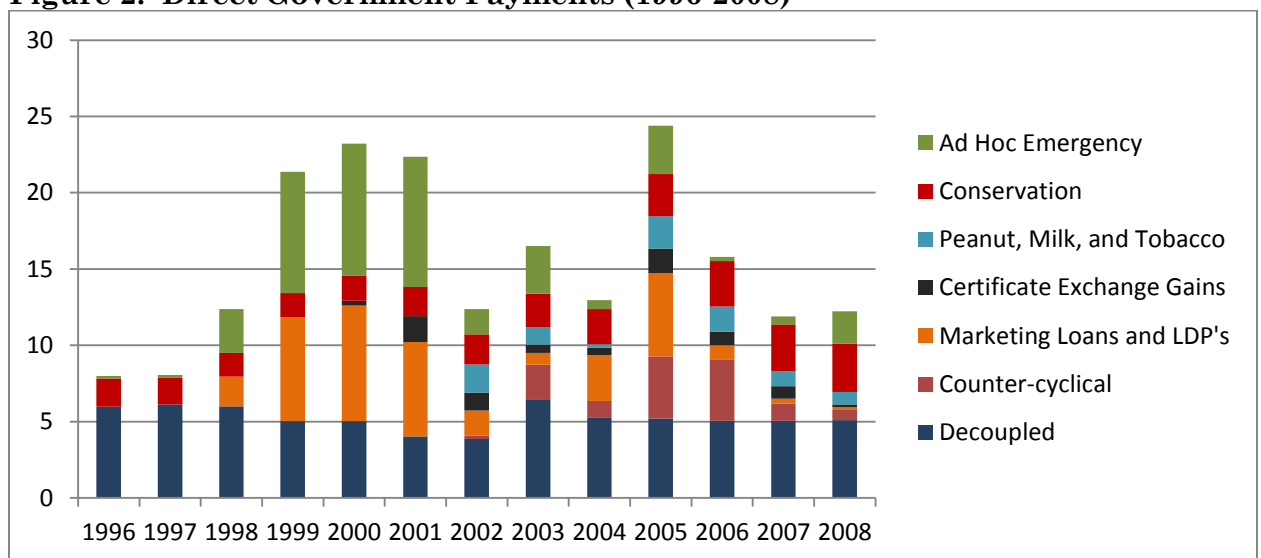
Table 1: Definition of Direct Government Payment before and after 1996

1939 to 1995	1996 to 2007
Feed Grain, Wheat, Rice Cotton, and Wool (Crop Specific) Program Payments	Production Flexibility Contract (PFC)/Fixed Direct Payments
Conservation Program Payments	Counter-cyclical Payments
Miscellaneous Programs[3]	Marketing Loan Gains
	Loan Deficiency Payments (LDP)
	Certificate Exchange Gains
	Peanut Quota Buyouts
	Milk Income Loss Payments
	Tobacco Transition
	Conservation Program
	Ad Hoc Emergency Program
	Miscellaneous Programs[4]

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[3] Miscellaneous programs from 1939-1949 are attributed to the Sugar Act, Price Adj and Parity, and Wartime Production/Subsidy. From 1950-1955, Miscellaneous payments were relatively low and source unknown. From 1956-1970 payments are completely attributable to the Soil Bank Program (ended in 1971) and from 1971-1996 include all other programs. From 1990 - 1996, loan deficiency payments and marketing loan gains were included in Miscellaneous Payments

[4] Miscellaneous programs (post 1996) include Acreage Grazing Payments, Additional Interest Payments, American Indian Livestock Feed Program, American Indian Livestock Feed Program--Apportioned, DCC--Fruit

Table 2: Summary statistics for various components of Direct Government Payment (1996-2007), (millions of $)

Government Program	Mean	Std Dev	Coefficient of Variation
Decoupled Payments	5,244.37	751.42	0.14
Counter-cyclical Payments	1,044.05	1,502.19	1.44
Marketing Loans and LDP's	2,671.37	2,822.27	1.06
Certificate Exchange Gains	595.94	605.17	1.02
Peanut, Milk, and Tobacco Payments	676.06	799.61	1.18
Conservation Programs	2,206.77	592.06	0.27
Ad Hoc Emergency Programs	3,064.11	3,223.47	1.05
Total	15,431.89	5,801.80	0.38

Table 3: Summary statistics for various components of Direct Government Payment (1961-1995), (millions of $)

Government Program	Mean	Std Dev	Coefficient of Variation
Feed Grains	1,863.86	1,907.34	1.02
Wheat	980.53	828.38	0.84
Conservation Programs	479.10	572.97	1.20
Misc Programs	692.85	1,133.87	1.64

Table 4: Parameter estimates of labor migration from agriculture

Variable	Gov Pmts	Gov Ratio	1939-1995	1996-2007
$\Delta lnGov$	0.0086**	0.0106***	0.0105**	0.0015
	(0.0038)	(0.0040)	(0.0043)	(0.0087)
$\Delta lnLF$	0.6875***	0.6771***	0.6973***	0.7733***
	(0.0491)	(0.0489)	(0.0533)	(0.1507)
$\Delta lnLand$	-0.0508	-0.0521	-0.0542	-0.0237
	(0.0333)	(0.0325)	(0.0368)	(0.0684)
$\Delta lnRet$	0.0070	-0.0086	0.0069	-0.0163
	(0.0117)	(0.0136)	(0.0166)	(0.0219)
lnU_{t-1}	-0.0219***	-0.0214***	-0.0210***	-0.0473*
	(0.0040)	(0.0040)	(0.0041)	(0.0233)
$Yr1972$	-0.0226*	-0.0220*	-0.0193	
	(0.0131)	(0.0128)	(0.0136)	
$Yr1978$	-0.0285**	-0.0285**	-0.0264*	
	(0.0132)	(0.0129)	(0.0134)	
$Yr2000$	0.0358*	0.0346*	0	-0.0043
	(0.0181)	(0.0178)	0	(0.0376)
Constant	-0.0710***	-0.0692***	-0.0698***	-0.1464*
	(0.0119)	(0.0118)	(0.0123)	(0.0676)
N	68	68	56	12
R^2	0.913	0.916	0.849	0.996
Breusch–Godfrey (p-value)	0.1083	0.1532	0.3442	0.0022
* p<0.10, ** p<0.05, *** p<0.01				