RURAL DIRECT AND COUNTER-CYCLICAL

PAYMENTS AND THEIR IMPACT IN A

RURAL-URBAN PERSPECTIVE

(A CASE IN OKLAHOMA)

By

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CHAPTER I

INTRODUCTION AND OBJECTIVES

Most development programs and research previously focused on either "urban" or "rural". However, very few studies investigated the economic interdependence between the two, mainly because tracking and estimating trade flows between sub-national urban and rural areas has been difficult. Rural development economists acknowledge that even if little has been done to study these linkages, manifested as the flows of goods, services, people, and capital, the economic and industrial interdependence between urban centers and their countryside play major roles in rural and urban change (Tacolli, 1998).

Different policies have been adopted by the US government to boost farm household income since the 1990's. The DCP (Direct and Counter-Cyclical Payment Program) is one of the major farm program payments that is part of the Food, Conservation and Energy Act of 2008[1]. The program is designed to support farm incomes, especially during periods of low prices (Dicks and Campiche, 2008). It includes a Direct Payment (DP), a payment based on a predetermined base acreage. Payment is made regardless of any crop production, so that it is decoupled from production and price. The Counter-Cyclical Payment, the other component of DCP, provides an additional payment when commodity prices fall below a predetermined level, also

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[1] The new ACRE payment program is not part of this research because this paper only uses available 2008 data.

regardless of any crop production. DCP is administered by the United States Department of Agriculture (USDA)'s Farm Service Agency. The major objective of these payments is to brace and support farmers and shift risks like price instability to the federal government (Monke, 2006). They raise family income for the economic well being of farm households, stimulate economic growth (Gardner, 2003), and positively impact farm profitability (Hopkins, 2001).

For many Oklahomans, agriculture is the cherished way of life. Out of the approximately 44 million acres of total land area, 79.9 % is used for farming (ERS and US Census Bureau, 2010). In 2008, the number of farms in Oklahoma comprised 4.1% of the total number of farms in the US. Farm employment in 2008 accounted for 4.3% of the total employment by place of work in the state (ERS, 2010). The direct contribution of this sector was approximately $4.3 billion, while the indirect and induced contribution to the non-agricultural sector was more than $4.1 billion in Gross State Product (Shideler et al., 2010).

Especially rural areas in the state depend heavily on the farming sector. Almost 15% of the total rural employment is currently engaged in the farming industry (BEA, 2011). The percentage of people working in rural areas directly employed by the farming sector was more than 42% of the total farm employment in the state in 2008 (BEA, 2011). There are around 38,000 rural farms in Oklahoma (Ag Census, 2009). Despite this, rural residents whose livelihoods are highly dependent on the farming sector are lagging behind in terms of per capita income, earning only around $30,500, as compared to their urban counterparts, who earn $39,000 per annum (Oklahoma Fact Sheet, 2010). To boost farm household income, $124 million was disbursed as DCP payments in 2008

to farmers in the state, out of which 60% of the payments were made to rural farmers (EWG, 2011). Payment per every rural farm is around $2,000.

A better understanding of urban-rural interdependence can help legislators and policy makers understand how direct and counter-cyclical payments made to farmers in rural areas contribute to the economic well being of rural farmers and the resulting feedback effects on their urban counterparts. If rural decoupled subsidies were terminated, for example, agriculture related sectors in rural areas would be directly affected through increased price instability and lower household income. The urban industries that are interlinked with these sectors would then be negatively impacted by having to find new sources of inputs for their production. Increased farm income can also induce farmers to invest in off farm industries, consume goods and services produced in urban areas and encourage saving. Thus, farm payments must be analyzed in terms of household spending, saving, income and expenditure linkages, within the rural economy and as well as between urban and rural economies (Killkenny, 1993).

Despite the importance of understanding rural-urban linkages in a specific farm policy perspective, most research has been conducted to solely study either rural or urban America, failing to address how vital it is to see the industrial connections between the two and how a federal farm program affects rural as well as urban areas. Given the large rural constituency in Oklahoma, understanding how the rural and urban components of the state's economy interact is critical to predicting how economic policies will affect the state's population and how those impacts will be distributed throughout the state. Rural economic developers can also use the estimated industrial linkages to determine potential markets for rural goods and services in urban regions (Holland and Weber, 1996).

Research Objectives

The overall purpose of this research is to estimate the distribution of impacts resulting from the rural DCP program payments across rural and urban Oklahoma. The specific objectives of the research are:

-to identify and measure the industrial linkages between urban and rural regions of Oklahoma;

-to determine the size and distribution of DCP payments for rural Oklahoma counties and

-to evaluate the distribution of impacts from DCP payments to rural farmers across rural and urban counties.

CHAPTER II

LITRATURE REVIEW

This research uses a rural-urban linkage perspective to analyze the impact of a federal farm program in rural counties. Rural-urban linkages generally refer to the flow of public and private capital, people and goods between urban and rural areas (UN-HABITAT, 2003). The linkages include backward and forward linkages between manufacturing, service and agriculture industries. Backward linkages of an industry refer to the inputs purchased for production in that industry; the purchase of a tractor is a backward linkage for a farmer. While the farmer may purchase the tractor locally from a dealership, the tractor was probably manufactured in an urban region. Forward linkages of an industry refer to the use of one industry's output as an input for one or more other industries to create additional value-added. For example, the processing of agricultural commodities in manufacturing industries is a forward linkage for a farmer (Tacolli, 2004). Another important economic linkage between rural and urban economies is the movement of labor between rural and urban regions. This is made easy by the presence of adequate transportation infrastructure like railroads and highways that connect rural and urban regions. Thus, interdependence between regions includes the movement of goods and services as well as the flow of labor and income earned.

The evolution of rural-urban linkage theories originated in 1826, when Von Thunen undertook an early, classical analysis of the spatial allocation of economic

activity in terms of regions spanning from small towns and villages that export primarily agricultural commodities to urban cores and cities that supply higher order goods and services like health facilities, wholesale, retail and financial services. These regions not only trade goods and services between themselves but also with regions in the domestic and international markets (Hughes and Holland, 1994).

Another related theory is growth pole analysis which states that dynamic economic growth in urban centers impact economic activities that are located in the surrounding peripheries. Growth pole is defined as "a set of industries capable of generating dynamic growth in the economy and are strongly interrelated via input-output linkages to a leading industry'' (Richardson, 1979). The growth of core urban areas affects the economy in the rural periphery because of the backward linkages between higher order manufacturing industries in the core area that purchase inputs from basic sectors like agriculture in the peripheries.

These theories suggest that the strength of the economic interdependence between rural and urban areas affects the economies of both regions. Consequently, to understand the impact of an economic policy in a rural area, the interaction of the regions should be studied in a rural-urban spectrum. An example of such a policy is the direct and counter-cyclical payments made to rural farmers in Oklahoma.

Previous research on the impact of farm program payments on rural economies has focused on different aspects of rural economies, so that they have generated various, and sometimes contradictory, results. Goetz and Debertin (1996) determined how farm program payments affected the rural population. They concluded that federal farm commodity programs are one of the major reasons for rural population losses in the

1980's. But the research fails to address policy recommendations that might actually benefit rural areas by preventing population decline. Gardner (2000) determined that farm policies provided only a small increase to most farm household incomes, such that they were ineffective in raising farm income and reducing rural poverty. Drabenstott (2005) also concluded that, "farm payments appear to create dependency on even more payments, not new engines of growth."

Hopkins (2001), on the other hand, determined that federal government farm payments actually increase farm and household income and boost profitability. Farm program payments also sustain the local economy by injecting money and stimulating the purchase of local goods and services (ERS, 2005). Outlaw et al. (2005) estimated the impacts of different farm program payments on 32 districts in Texas using IMPLAN, an input-output model. They estimated that more than 14,000 jobs were created from $800 million in farm program payments in 2004. More than $250 million was generated in labor income and $978 million in business activity. These studies, which are representative of the literature, focus on the impacts of federal farm programs on rural regions, and they ignore the linkages described above that rural places have to urban ones.

Thus, it is important to have additional insights on how rural farm program payments would affect rural as well as urban regions. Unlike the Texas study and other research just mentioned, which only determined the impacts within the designated region, the research objectives for this study necessitate the use of a multi-regional input-output model (MRIO), which can trace the flows of goods and services across regions. Until recently, the difficulty of deriving trade flows between regions has hindered the

construction of multi-regional input-output models because of "the lack of good estimates of the flows of goods and services between regions" (Lindall, Olson, and Alward, 2005). While Isard (1951), Moses (1955), and Leontief and Strout (1963) pioneered the use of multi-regional input-output models (MRIOs), it was Dr. Karen R. Polenski who fully implemented an MRIO model using Japanese and US regional datasets. She used the model to estimate and quantify interregional trade flows and outputs for different sectors (Richardson, 1972). According to Polenske (1969), multi-regional IO models can also be used to establish regional accounts, regional economic development policies, calculate spillover effects of a government program on different regions, and estimate interregional imports and exports.

Few research projects have focused on regional economic interdependence. The most prominent ones were conducted by Holland and Weber (1996) and Holland et al. (2009), who estimated interregional imports and exports between Portland metro and periphery areas using IMPLAN regional trade reports and a supply-demand pool method[2]. In 1982 for example, the value of sales from the core to the periphery was estimated around $2.4 million while the value of sales in the opposite direction was $1.03 million. In 2006, the core to periphery value of sales was estimated to be $7.4 million while the periphery to core value of sales was $1.8 million. Using trade flow estimates and cross-regional multipliers, they showed that these regions are economically tied with each other and the growth of one region affects the economic growth of the other region.

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[2] The Supply-Demand Pool Approach uses excess demand and excess supply to estimate imports and exports. For more information, see Holland, D., and Prinique, F., 2000.

CHAPTER III

CONCEPTUAL FRAMEWORK, HYPOTHESIS

AND METHODOLOGY

The exchange of goods, services and the cross commuting of labor and income between rural and urban Oklahoma is part of the rural-urban linkage based on central place theory and growth pole analysis. The hypothesis here is that the flow of labor from rural to urban areas is greater than the urban-rural flow, so that more income flows from urban to rural regions of the state.

Economic and industrial linkages are explained in terms of two measures. The first is the type of goods and services exchanged between these areas. Historically, urban centers demanded raw agricultural products from rural areas for their manufacturing and industrial sectors. The study hypothesizes that the major exporting industries in rural Oklahoma are agriculture and ag related sectors like forestry and fishing while urban Oklahoma provides higher-order services to meet household and industry demands from rural as well as urban Oklahoma. This includes manufacturing and service industries.

The second measure to explain interregional trade is the volume of commodities traded between rural and urban Oklahoma. The value of rural Oklahoma exports is hypothesized to be less than that of the urban areas. Based upon growth pole theory, it is

assumed that the urban industries are the ones adding value to the raw commodities, and some of these higher valued goods are being sold back to the rural regions.

Rural and urban regions not only produce and consume goods and services locally, but they also export to countries that demand their products. Thanks to globalization and free market economies, it is much easier now than it was thirty years ago to participate in international markets. Easy access to international markets and information technologies like the internet are stimulating regional economic growth by allowing businesses to reach more markets with their products, requiring them to increase production and possibly employment to meet the increased demand for their product. Thus, it is anticipated that urban Oklahoma is not rural Oklahoma's primary trading partner; that is to say, exports and imports to and from the world from urban Oklahoma will exceed those to and from rural Oklahoma to meet the diversified demand of urban households and industries.

Understanding relationships between urban and rural Oklahoma can be a helpful tool to see the economic effects of a particular policy's impact on different regions. The rural DCP farm program payment is hypothesized to generate increased household income and employment to farm households in rural Oklahoma; this is the program's primary objective. The impact of rural DCP is hypothesized to be greater in rural than urban areas, mainly because most rural Oklahoma farmers' propensity for immediate consumption of rural goods and services increases as the income transfer payments encourage farmers to spend by making consumption more affordable. The purchase of urban made commodities is affected by rural farm households' decision to buy them. As

a result, these payments may produce interregional economic impact on urban economies.

Methodology and Procedure

In order to study the interdependence between "rural" and "urban" areas in Oklahoma, it is important to define these terms first. The Office of Management and Budget defines areas using county geographies: metropolitan counties are those counties that contain at least one city within them that has more than 50,000 persons (often called the urban core), or they belong to a metropolitan statistical area because more than 25% of county workers commute to an urban core county. Non-metropolitan counties can be classified as either micropolitan or non-core. Micropolitan counties are counties that contain an urban cluster (one or more Census designated places) with population between 10,000 and 50,000 persons; micropolitan statistical areas can contain counties surrounding the micropolitan county that possess similar commuter patterns as described for metropolitan statistical areas. Non-core counties represent all counties not designated as metropolitan or micropolitan. If the research was to consider metropolitan counties as urban and non metropolitan counties as rural, then it would be forced to analyze the flow of goods and services between 17 urban and 60 rural counties in Oklahoma. To divide counties into rural and urban categories like this would likely reduce the interaction of the rural and urban parts of the state because Oklahoma supports numerous regional centers that are classified as micropolitan counties. The interaction between the micropolitan and non-core counties would be reflected as intraregional trade. Therefore, non-core counties only, as designated by the Office of Management and Budget, are considered as rural.

The terms, non-core and rural, will be used interchangeably throughout this paper. Below is Figure 1 that shows rural and urban counties of Oklahoma.

Figure 1: Rural and Urban Counties

Input-output (IO) models are basic tools to study the industrial interdependence and extent of trade flows between urban and rural Oklahoma. First developed by Wassily Leontief in the late 1920's, this framework has been used by regional economists to analyze inter-industry structure and predict economic change. They are built on the idea that a region's production is composed of inextricably linked firms that interact with one another (Deller and Marcouiller, 2004). They are also used to estimate economic impacts of a sector to a certain economy and evaluate the ripple effect to the local economy in terms of employment, value added and income.

There are three basic assumptions of IO models. The first is that an economy represented in an IO Table is initially in an equilibrium state. Total production of each sector equals the consumption of that sector's product in a market clearing condition (inclusive of value-added and final demand sectors). The implication of this assumption is that any new final demand necessitates additional production of all goods required to

satisfy the final demand, including inputs for producing the demand goods and services. The second critical assumption is that production uses fixed-proportions of inputs; as a result, an increase in output results in a proportionate increase in input demand of the same magnitude. Economists usually refer to this as constant returns to scale, and it implies linearity. This assumption ensures that a mathematical solution exists, and it is typically interpreted as a first-order approximation of each industry's production function. The third assumption is that prices of inputs are fixed; the change in final demand is marginal to the region, such that the demand for inputs does not cause changes in their prices and thus incentives to modify production technologies.

IO models can be used to analyze economic impacts. Economic impacts are estimates of changes in the level of economic activity in a defined geographic area, given a change in local final demand for a good or service. These changes in economic activity are often measured in terms of total industry output, labor income (wages, salaries, rents and profits), total value added (similar to Gross Domestic Product), and employment. For example, using IO models the impact of a new agricultural processing plant to its surrounding region can be assessed. The direct impact is the increased economic activity that directly results from a change, like the change in employment to operate the new plant and the value of output from the plant. Indirect and induced effects are changes in economic activity due to increased business spending on inputs and increased household spending, respectively. Total impact is the summation of the direct, indirect and induced effects.

The most widely used input-output model is the single region model. It is used to estimate impacts on the study region alone and aggregate trade flows into one other

region: - the rest of the world. For example, assume that there are two different regions that are engaged in trade. If change in the final demand in region A stimulates the purchases of essential inputs from region B, it is impossible to use single region input-output models because this framework treats this interdependence as a leakage that is inseparable from linkages region A has with all other areas.

Because single region models only trace the impact of a change within the study region, this research utilizes a multi- regional input-output model that estimates the effect of a certain change on multiple regions. In other words, MRIO allows linking several separate study areas together to analyze the impact of changes in one study area on the other study areas. Thus, MRIO derives interregional imports and exports between the linked study areas.

MIG, Inc. released IMPLAN Version 3 software in 2009 that supports the creation of MRIOs using constrained gravity model. The gravity model assumes trade between different areas is proportional to the "size" of an economy and inversely related to the cost of transporting goods and services between these regions (Lindall, Olson, and Alward, 2005). This model uses three sources of datasets. These are IMPLAN's commodity demand and supply estimates, the Oak Ridge National Labs (ORNL) county to county distance by mode of transportation, and the Commodity Flows Survey (CFS) ton-miles data by commodity that is used to calibrate the trade flows model. This gravity model in the version 3 software is constructed to estimate trade flows (value of imports and exports) between different economies for 3,142 counties and 430 commodities in the US for 2008.

The way MRIO works in IMPLAN is as follows. Assume that there are three study areas: A, B, and C. When there is a shock in Study Area A, direct, indirect and induced impacts occur in Study Area A. The indirect and induced impacts then leak to Study Areas B, C and the rest of the world. IMPLAN analyzes impacts in Study Areas B and C based upon the Study Area A leakages that are appropriate to each region. The impacts in Study Areas B and C may then flows into Study Area A, each other, and the rest of the world. Thus, another round of indirect impacts is created in each of the regions; this process iterates again and again until all impacts have leaked from the study regions (IMPLAN, 2010). The multi-regional impact of a certain policy scenario in a specific region can thus be estimated using this process on IMPLAN.

An important linkage between rural and urban Oklahoma that IMPLAN doesn't explicitly capture is commuters between regions. Using the US Census' Journey to Work dataset, the flow of labor within the rural and urban regions can be calculated between the rural and urban regions, between rural and elsewhere, and urban and elsewhere. Earnings flow estimation is estimated data from "Personal Income and Employment Summary" Table CA04 from the BEA. The first step is to calculate net earnings by place of work, which is calculated by subtracting contribution of government insurance from earnings by place of work for all counties. Total urban (or rural) earnings by place of work is calculated by summing the net earnings across the appropriate set of counties. The next step is to allocate net earnings by region of residence by computing the percentage of workers who commute outside of their region of residence using the Journey to Work data. The percentages of workers who commute out of their region of residence is used to allocate the net earnings by place of work into the four categories: live and work in rural

Oklahoma, live in rural Oklahoma but work in urban Oklahoma, live and work in urban

Oklahoma, and live in urban Oklahoma and work in rural Oklahoma.[3]

The first step to investigate and estimate inter-industry linkages between rural and

urban Oklahoma in this study is to build two inter-industry models within regions, one

for the 41 rural counties in Oklahoma and another model for 36 urban counties. Then,

these models are connected using the IMPLAN trade flows. When the model for urban

Oklahoma is linked with the base rural Oklahoma model, IMPLAN estimates the volume

of trade by commodity stimulated by a change in final demand in the rural region. To

analyze the impact of a change in final demand in the urban region to trade flows

between the regions, the rural model must be linked to the base urban model.

To study the policy implications of the DCP program on rural and urban areas of

the state, a scenario is to increase household income in the rural input-output model by

the total amount of the DCP payment that was made for the rural parts of Oklahoma in

2008 and determine how it affects economic activity in both regions. Both DP and CCP

payments are assumed to impact household income, because both programs are

decoupled from production[4]. To determine the changes to household income, direct and

counter-cyclical payments aggregated to the county level for 2008 were provided by the

Oklahoma FSA office from administrative data. In general direct and counter-cyclical

payments are calculated in the following way (FSA Fact Sheet, 2008):

- Direct payments = base acres * direct payment yield * direct payment rate * 83.3%

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[3] For additional details on this methodology, see Holland and Weber (2009).
[4] It is possible that the CCP component of the payments could impact production by effectively subsidizing the cost of the next year's planting costs. However, when one compares the base acres with planted acres for crops receiving CCP in 2008 and discovers that planted acres are much less than base acres, it is reasonable to conclude that farmers are no longer planting crops for which they declared base acreage. The CCP payments then are assumed to affect household income.

- CCP payments[5] = base acres * CCP yield * CCP payment rate * 85%

      IMPLAN incorporates the spending patterns of up to nine different household categories based upon income, so it is important to identify which household category is receiving the DCP payments. The Environmental Working Group (2011) reported that 75% of these payments go to the largest ten percent of farms based on base acreages. These farmers on average generate $50,000-$500,000 annually (ERS, 2011). The model is constructed in IMPLAN such that the DCP income is distributed with 25% of total payments occurring in a household income category of $50,000 and less, and 75% of total payments occurring in a $50,000 and greater category. The availability of traceable and specific data of the DCP program in Oklahoma for the year 2008 is the major reason behind the choice of this policy above other government farm programs for this research.

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[5] CCP payments are only issued if the effective price for a commodity is below the target price for the commodity. The CCP rate is the amount that the target price exceeds the effective price.
Effective price = DP rate + max (national average market price, national loan rate for commodity)
CCP payment rate = Target Price – Effective Price

CHAPTER IV

RESULTS AND DISCUSION

The discussion of the results section begins by presenting the linkages between rural and urban Oklahoma in terms of labor and trade flows explained using dollar values of imports and exports. The impact of rural DCP payments on rural and urban counties is discussed afterwards.

4.1 Labor and Earnings Flows between Rural and Urban Oklahoma, 2008

Some workers who live in the rural areas of the state commute to urban areas for work and vice versa. Driving to work from one region to another for work is part of the day to day lives of some Oklahomans[6]. The results are depicted in Table 1 and Table 2.

For example, by reading across the rows, it can be seen that out of the 208,000 Oklahomans that live in rural counties, 157,000 work in rural areas, 39,000 work in urban areas and the remaining 12,000 work outside the state. Also, of the 1.3 million urban residents, around 18,000 people work in rural areas, 1.3 million work in urban areas and 26,000 work elsewhere. The same pattern holds for the earnings flows; out of the $12.8 billion rural labor earnings, $6.1 billion originates from rural areas, $2.3 billion from urban areas and the remaining $4.5 billion from outside the state of Oklahoma. Of the

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[6] As a state, Oklahoma ranked 44th in long commutes (number 1 being the longest commute) in 2010, according to a recent article in Tulsa World. Around 24% of the total Oklahoma population drives at least more than thirty minutes for their jobs (Overall, 2011).

$75.5 billion urban earnings, $706 million originates in rural areas; $74.6 billion originates in urban areas and $172,000 originates outside Oklahoma

Reading down the columns, out of the 182,000 workers in rural Oklahoma, 157,000 live in rural areas, 18,000 commute from urban areas and 6,900 commute from elsewhere to rural Oklahoma. Reading down column two, out of 1.3 million urban workers, 39,000 live in rural areas, 1.2 million commute from urban areas and 9,000 commute from elsewhere to urban Oklahoma.

From these tables, one can conclude that most workers in Oklahoma tend to live and work in the same region in which they reside. Around 87% and 96% of workers work and live in rural and urban counties respectively. Because of this, most labor earnings originates and stays at the same region. Relatively speaking, fewer people live outside the state and commute to either rural or urban regions to work as compared to the rural-rural or urban-urban county labor flows in the state.

The primary concern here is the linkage between rural and urban communities in terms of labor. To quantify this relationship, consider that almost 20% of rural workers work in urban locations, and these workers earn 17% of all rural earnings. In contrast, just over 1% of urban workers commute to rural jobs. One can see that the flow of labor from rural residences to urban jobs is far greater than labor flows in the opposite direction. This is further validated by comparing the difference in magnitude of commuters; more than 20,000 additional people left rural communities for urban jobs. These facts cause to accept the first hypothesis that the flow of workers living in rural areas and commuting to urban areas is greater than that of the urban-rural flows resulting with more income flows from urban to rural regions. The availability of more jobs in

urban areas coupled with cheap living expenses in rural areas may be one of the major

reasons for this trend.

Table 1: Labor Flows between Rural and Urban Oklahoma

	Place of Work			
Place of Residence	Rural	Urban	Elsewhere	Total Labor by Place of Residence
Rural	157,276	38,701	12,109	208,086
Urban	18,202	1,273,173	26,023	1,317,398
Elsewhere	6,954	8,998		
Total Labor by Place of Work	182,432	1,320,872		

Table 2: Earnings Flows between Rural and Urban Oklahoma (Thousands of 2008 Dollars)

	Place of Work			
Place of Residence	Rural	Urban	Elsewhere	Total Labor Earnings by Place of Residence
Rural	$6,100,346.13	$2,268,624.80	$4,481,354.36	$12,850,325.28
Urban	$706,010.45	$74,632,485.91	$172,192.13	$75,510,688.49
Elsewhere	$269,728.42	$527,456.29		
Total Earnings by Place of Work	$7,076,085.00	$77,428,567.00		

4.2 Interregional Trade

Trade estimates between rural and urban Oklahoma in 2008 are calculated using

the double constrained gravity model on IMPLAN version 3 software as described in the

methodology part of this paper. Trade flows between the two regions, the rest of the US

and the world are reported in this section.

Estimated trade flows in Table 3 represent the value of rural imports from the

urban region and urban imports from the rural region; the rural (urban) import numbers in

Table 3 also represent urban (rural) exports to the rural (urban) region. The total value of

goods and services traded between rural and urban Oklahoma is estimated around $7.42

billion, out of which 55% are imports into rural counties from their urban counterparts and the remaining 45% is imports by urban areas from rural counties. This proves the importance of trade between these regions to meet their household and industry demands for goods and services. Rural Oklahoma imports more and exports less. Urban areas on the other hand export more and import less. In monetary terms, the value of goods and services flowing from urban to rural areas is more by $796.9 million than rural-urban flow. The hypothesis that the value of rural Oklahoma's exports is less than that of the urban areas is thus a valid one. However, this is still a small share of total trade when compared to trade with the rest of the US and the world (see Tables 5 and 6). Exports to urban Oklahoma from rural Oklahoma represent only 13.9% of total rural exports; exports to rural Oklahoma from urban Oklahoma represent only 4.2% of total urban exports. A similar pattern appears for imports; rural Oklahoma receives 22.5% of total imports from urban Oklahoma, whereas urban Oklahoma receives only 3.6% of total imports from rural Oklahoma.

Rural Oklahoma is a net exporter to rural Oklahoma in four areas: agriculture, forestry, fishing and hunting, management of companies and enterprises, arts, entertainment, and recreation, and public administration. The largest value of exports is estimated in the mining, quarifying, and oil and gas extraction sector ($606 million). Agriculture, forestry, fishing and hunting represent almost 13% ($423 million) of the total value of rural exports to the urban region. As expected, the lion's share of the total value of rural exports to urban counties is primarily in the ag sector. Only $14 million worth of services is traded between rural and urban Oklahoma in the management of

companies and enterprises because companies in this sector have few headquarters in both regions

Urban Oklahoma on the other hand is net exporter to rural Oklahoma in 16 sectors. These are industries like construction, wholesale trade, manufacturing, educational services, health care and social assistance. Wholesale trade from urban areas is 3.2% ($135 million) of the total value of urban exports where as it is 0.8% ($26 million) of the total value of rural imports, mainly because urban industries distribute goods after adding value to the raw commodities they buy from rural regions. This can also be explained by the growth pole analysis; that there exists a strong linkage between basic rural sectors like agriculture that supply inputs to the urban manufacturing and service sectors. Thus, the expectation that urban areas tend to export more of higher order products to meet rural household demands for urban manufactured goods and services based on the central place theory is logical. Higher order goods include urban service sectors' products from industries like wholesale, retail trade, real estate, finance, health care, and specialized manufactured commodities.

Some research viewed in a core-periphery framework has shown the same patterns that are seen in Oklahoma. Hughes and Holland (1996) concluded that in 1982, the core Washington State region was a major supplier of higher-order services while the periphery provided the core with basic natural resource commodities. Holland et al. (2009) also came up with the same conclusion for the Portland metro-core and its rural periphery in 2006.

Table 3: Estimated Rural-Urban Trade Flows (Millions of 2008 Dollars)

IMPLAN Sector	Sectors	Rural Import	Urban Import
11	Agriculture, Forestry, Fishing and Hunting	$71	$423
21	Mining, Quarifying, and Oil and Gas Extraction	$631	$606
22	Utilities	$227	$216
23	Construction	$185	$102
31-33	Manufacturing	$659	$575
42	Wholesale	$135	$26
44-45	Retail Trade	$220	$104
48-49	Transpiration and Warehousing	$250	$198
51	Information	$185	$89
52	Finance and Insurance	$138	$101
53	Real-estate and Rental and Leasing	$146	$64
54	Professional, Scientific and Technical Services	$158	$126
55	Management of companies and enterprises	$6	$8
56	Administrative and Support and Waste Management and Remediation Service	$213	$67
61	Educational services	$54	$31
62	Healthcare and Social Assistance	$344	$166
71	Arts, Entertainment, and Recreation	$76	$129
72	Accommodation and Food Services	$219	$48
81	Other Services(Except Public Administration)	$158	$153
92	Public Administration	$34	$80
	Total	$4,110	$3,313

Because manufacturing represents a variety of products and supports almost 160,000 jobs in the state, this sector is examined in more detail (BEA, 2011).

Table 4 shows estimated value of interregional trade flows of manufacturing sectors between the two regions in millions of dollars. Rural imports show urban exports and urban imports show rural exports. Out of the total value of $1.3 billion, 53% is rural imports and the remaining 47% is urban imports. While Table 3 showed that urban Oklahoma is a net exporter of manufactured goods, Table 4 shows that this pattern does not appear in the disaggregated data. Rural Oklahoma is a net exporter of goods in five sectors: wood product manufacturing, paper manufacturing, non metallic mineral product

manufacturing, primary metal manufacturing, and electrical equipment, appliance, and component manufacturing. These industries by nature are capital intensive, and mass produced. To reduce the cost of producing and transporting raw materials, most of them are located in rural Oklahoma, as these places are the major sources of cheap labor and land.

Food manufacturing plays a vital role in both economies, rural Oklahoma importing $159 million worth of commodities while urban economies importing $100 million. This is mainly because agriculture is a significant component of the state's overall economy. A recent study on the economic contribution of agriculture on Oklahoma's economy by Shideler et al. (2010) found out that agricultural production, processing and related services contribute about 9% of Oklahoma's Gross State Product. Even though the scope of the study was not to determine the value of agricultural commodity flows between counties in the state, it recognized and showed that the supply linkages exist between the ag sector and other industries. Because rural Oklahoma ships some of the commodities to urban areas, and urban industries like food manufacturing use these inputs to produce products with added value, industries in both regions of the state are economically tied through supply and demand linkages, making agriculture one of the valuable and significant industries in Oklahoma's economy.

Table 4: Estimated Rural-Urban Trade Flows for Manufacturing Sector (Millions of 2008 Dollars)

IMPLAN Sector	Manufacturing Sectors	Rural Import	Urban Import
311	Food Manufacturing	$159	$100
312	Beverage and Tobacco Product Manufacturing	$74	$74
314	Textile Product Mills	$1	$1
315	Apparel Manufacturing	$4	$4
321	Wood Product Manufacturing	$8	$53
322	Paper Manufacturing	$8	$14
323	Printing and Related Support Activities	$2	$1
324	Petroleum and Coal Products Manufacturing	$44	$42
325	Chemical Manufacturing	$20	$5
326	Plastics and Rubber Products Manufacturing	$44	$14
327	Non Metallic Mineral Product Manufacturing	$20	$27
331	Primary Metal Manufacturing	$52	$61
332	Fabricated Metal Product Manufacturing	$53	$30
333	Machinery Manufacturing	$115	$93
334	Computer and Electronic Product Manufacturing	$5	$5
335	Electrical Equipment, Appliance, and Component Manufacturing	$7	$11
336	Transportation Equipment Manufacturing	$32	$32
337	Furniture and Related Product Manufacturing	$3	$1
339	Miscellaneous Manufacturing	$7	$6
	Total	$659	$575

Rural and urban Oklahoma not only trade with each other but also with the rest of the US (domestic trade) and with the rest of the world (foreign trade)[7]. Cross border trade is playing a vital role in the interaction of regions. Rural Oklahoma value of exports to the rest of the US and the world is valued at $18.6 billion and $1.9 billion while urban Oklahoma's is valued at $91.3 billion and $17.6 billion respectively. On the other hand, rural Oklahoma domestic and foreign trade in terms of imports is $11.9 billion and $2.2 billion while urban countys' value of imports is $57.5 billion and $18.3 billion respectively. The expectation that rural and urban Oklahoma's major trading partners are

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[7] Aggregating Table 5, 7 and 8, the value of trade balance can be estimated; by subtracting the summation of domestic, foreign and interregional value of imports for both regions from the summation of domestic, foreign and interregional exports. For more detail, see Table 17 and 18 in the appendices section.

not the regions within Oklahoma, and that the value of imports and exports of urban

Oklahoma to/from the other states in the US and the rest of the world is greater than that

of the rural areas is true.

Table 5: Aggregate Exports to the Rest of the World and the US (In 2008 Dollars)

Description	Rural Oklahoma (Exports)		Urban Oklahoma (Exports)	
	Domestic Trade	Foreign Trade	Domestic Trade	Foreign Trade
11 Ag, Forestry, Fish & Hunting	$2,419,012,915	$374,869,498	$1,745,252,702	$331,571,281
21 Mining	$5,446,794,771	$135,765,726	$23,817,825,162	$926,849,473
22 Utilities	$488,822,407	$2,027,512	$3,522,457,473	$14,698,291
23 Construction	$165,343,442	$56,709	$658,970,613	$568,908
31-33 Manufacturing	$6,677,123,964	$1,266,885,128	$48,376,862,277	$12,640,066,388
42 Wholesale Trade	$39,431,149	$58,697,578	$200,540,085	$1,043,621,094
48-49 Transportation & Warehousing	$698,244,537	$71,465,810	$2,962,747,505	$1,025,698,874
44-45 Retail trade	$494,989,140	-	$1,666,265,527	-
51-56 Professional Services	$789,671,508	$84,492,454	$5,191,133,798	$1,562,997,304
61-81 Educational, Health, Recreation and Other Services	$973,344,150	$1,090,975	$2,623,170,745	$16,382,159
92 Government & non NAICs	$368,080,080	$2,665,601	$567,980,776	$17,578,842
Total	$18,560,858,062	$1,998,016,992	$91,333,206,662	$17,580,032,614

Table 6: Aggregate Imports from the Rest of the World and the US (In 2008 Dollars)

Description	Rural Oklahoma (Imports)		Urban Oklahoma (Imports)	
	Domestic Trade	Foreign Trade	Domestic Trade	Foreign Trade
11 Ag, Forestry, Fish & Hunting	$1,539,381,077	$148,153,787	$1,121,598,613	$126,630,294
21 Mining	$1,768,901,793	$229,524,138	$5,627,021,634	$1,417,780,242
22 Utilities	$184,921,850	$126,354,628	$901,639,509	$1,441,044,624
23 Construction	$700,456,469	$91,426,084	$4,122,227,245	$865,264,366
31-33 Manufacturing	$4,495,728,759	$1,337,592,097	$25,505,481,949	$11,758,316,579
42 Wholesale Trade	$149,402,069	$9,574,027	$1,151,996,826	$159,880,356
48-49 Transportation & Warehousing	$351,642,162	$56,941,048	$1,559,857,038	$530,852,542
44-45 Retail trade	$316,727,262	$14,388,317	$1,322,564,756	$124,969,017
51-56 Professional Services	$1,201,711,028	$51,192,336	$9,597,003,623	$879,298,944
61-81 Educational, Health, Recreation and Other Services	$892,162,523	$61,976,642	$5,720,813,061	$655,131,782
92 Government & non NAICs	$328,495,950	$73,131,778	$832,811,913	$307,798,611
Total	$11,929,530,943	$2,200,254,881	$57,463,016,169	$18,266,967,357

4.3 Impacts of Rural Direct Counter-Cyclical Payments on Rural and Urban Oklahoma

Rural Oklahoma received a total of $68.5[8] million in direct and counter-cyclical payments in 2008. The CCP payments were only made for cotton and peanuts in 2008[9]. DPs were made to farmers with base acreage in wheat, rice, cotton, peanut, corn, grain sorghum, barley, oats, soybeans, sunflower and canola. DCP payments for Oklahoma in 2008 are depicted in Figure 2 and 3.

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[8] This is estimated payment after social security and Medicare deductions.
[9] When CCP base acreage is compared to planted acreage, base acreage greatly exceeded planted acreage; this suggests that the CCP is best modeled as household income, like the direct payment, since no additional production of cotton or peanuts was stimulated by the payments.

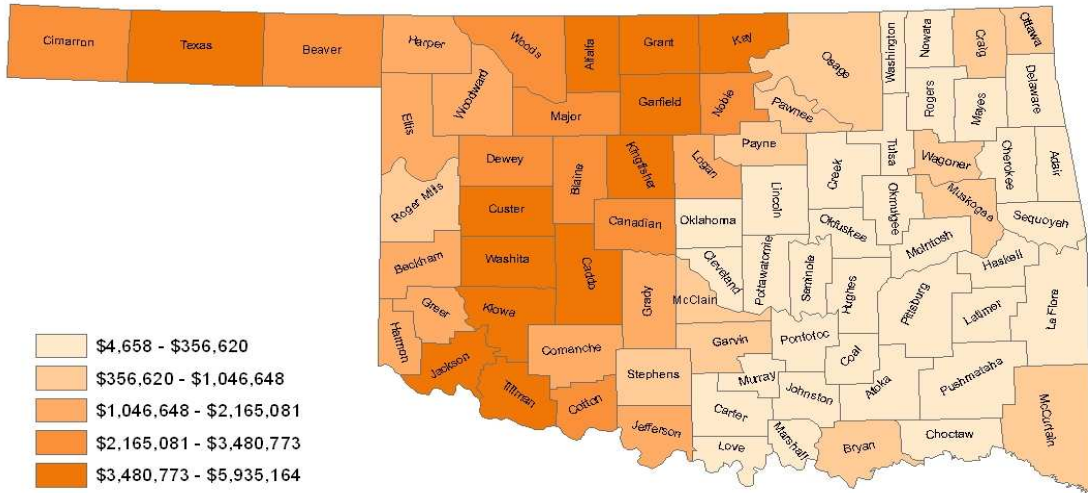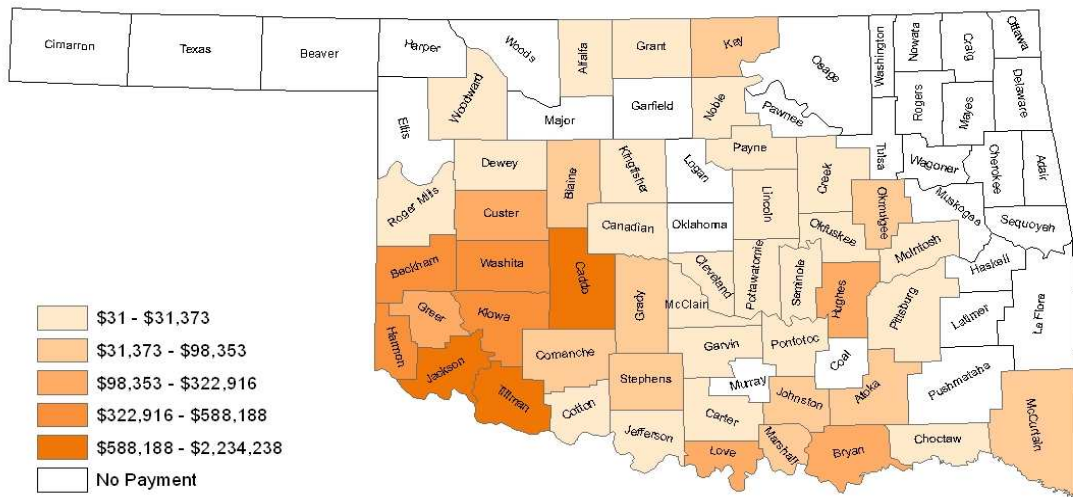**Figure 2: Direct Payments in 2008 (In 2008 Dollars)**

Figure 3: Counter-Cyclical Payments in 2008 (In 2008 Dollars)

The impact of rural DCP payments and their ripple effect in urban Oklahoma is presented in terms of impact summary, employment, labor income, value added, federal, state and local tax.

Table 7 shows the total impact summary. Total impact summary doesn't include direct and indirect effects because income spending by households results in an induced impact. Direct and counter-cyclical payments in rural Oklahoma create job opportunities

in both regions. Employment is a major source of income through wages and salary payments to workers. Almost 294 jobs are estimated to be created in the state as a result, out of which 276 are in rural areas and 18 jobs are in urban Oklahoma.

The top ten industries that created jobs in rural and urban Oklahoma are depicted in Table 8 and 9. In rural counties, these industries include food services and drinking places, nursing and residential care facilities and retail stores. This explains the fact that most rural farm households tend to spend their direct and counter-cyclical payments for household consumption encouraging retailers and small businesses to hire people to meet increased demand. This is consistent with previous studies by the ERS (2003) that found out farms that received decoupled payments consumed more than farms that did not receive these payments in the same income category. The aging population in rural Oklahoma on the other hand is the major reason for the nursing and residential life sector to employ more, as the baby boomer farmers are getting older and are spending some portion of their income on nursing homes (RUPRI, 2006).

The impact of rural DCP on the urban job market however is minimal. Employment services, food services and drinking places, civic, social, professional, and similar organizations, and business support services are the major employers. In general, the interregional employment effect in urban regions is very small because farm households spend their commodity payments in their own neighborhoods and communities for local and immediate consumption.

Table 7: Combined Impact Summary of Rural DCP (In 2008 Dollars)

Impact Type	Employment	Labor Income	Total Value Added
Total Effect(Rural)	276	$6,910,244	$16,172,399
Total Effect(Urban)	18	$668,901	$1,076,386
Total Effect(Rural and Urban)	294	$7,579,145	$17,248,786

Table 8: Impact on Rural Employment (Top Ten Sectors)

Description	Total Employment
Food services and drinking places	34
Nursing and residential care facilities	17
Retail Stores - Food and beverage	15
Private household operations	13
Retail Stores - General merchandise	13
Offices of physicians, dentists, and other health practitioners	11
Retail Stores - Motor vehicle and parts	10
Real estate establishments	8
Wholesale trade businesses	8
Monetary authorities and depository credit intermediation activities	8

Table 9: Impact on Urban Employment (Top Ten Sectors)

Description	Total Employment
Employment services	3
Food services and drinking places	1.5
Civic, social, professional, and similar organizations	0.8
Business support services	0.8
Accounting, tax preparation, bookkeeping, and payroll services	0.7
Non depository credit intermediation and related activities	0.5
Real estate establishments	0.5
Wholesale trade businesses	0.4
Telecommunications	0.4
Maintenance and repair construction of residential structures	0.4

Labor income is the second parameter next to employment that the paper evaluates the impact of rural DCP payments on. It consists of proprietary income and wages; proprietary income includes income earned by self-employed people and wages is payments to employees including benefits. The total contribution of labor income is estimated to be $7.58 million, 91% of which is earned by workers in rural counties and the remaining 9% in urban counties. The industries in rural Oklahoma that are the major sources of labor income are offices of physicians, dentists, and other health practitioners, food services and drinking places, nursing and residential services and retail stores. The outcome of increasing rural income results in health care expenditures, contributing to the

improvement of rural health. Employment services, accounting, tax preparation, book keeping and payroll services and wholesale trade businesses are some of the urban industries that generate labor income. As expected, most of these industries are concentrated in the retail trade and service oriented activities.

Table 10: Impact on Rural Labor Income (Top Ten Sectors in 2008 Dollars)

Description	Total Labor Income
Offices of physicians, dentists, and other health practitioners	$528,229
Food services and drinking places	$461,560
Nursing and residential care facilities	$406,075
Retail Stores - General merchandise	$367,535
Retail Stores - Food and beverage	$367,048
Retail Stores - Motor vehicle and parts	$345,312
Private hospitals	$342,481
Wholesale trade businesses	$338,560
Monetary authorities and depository credit intermediation activities	$317,019
Retail Stores - Building material and garden supply	$194,304

Table 11: Impact on Urban Labor Income (Top Ten Sectors in 2008 Dollars)

Description	Total Labor Income
Employment services	$78,131
Accounting, tax preparation, bookkeeping, and payroll services	$30,311
Wholesale trade businesses	$25,962
Business support services	$25,939
Non depository credit intermediation and related activities	$24,293
Telecommunications	$24,018
Food services and drinking places	$23,171
Civic, social, professional, and similar organizations	$20,579
Insurance carriers	$16,310
Insurance agencies, brokerages, and related activities	$16,231

The third parameter is value-added, which is the measure of the change in a product's value as it is altered from its raw state to a final product that can be consumed (Shideler et al., 2010). It is computed by adding employee compensation, proprietary income, other property income and indirect business taxes. The value added effect of

rural DCP payments in rural and urban Oklahoma is estimated to be around $17.2 million

and $7.6 respectively. Monetary authorities and depository credit intermediation

activities, food services and offices of physicians, dentists and other healthcare

practitioners are the top three industries in value added in rural counties as sectors like

employment services, telecommunications and wholesale trade businesses are to urban

counties.

Table 12: Impact on Rural Value Added (Top Ten Sectors in 2008 Dollars)

Description	Total Value Added
Monetary authorities and depository credit intermediation activities	$831,591
Food services and drinking places	$692,691
Offices of physicians, dentists, and other health practitioners	$612,161
Wholesale trade businesses	$580,951
Retail Stores - Food and beverage	$553,226
Retail Stores - General merchandise	$541,801
Electric power generation, transmission, and distribution	$510,850
Retail Stores - Motor vehicle and parts	$448,278
Nursing and residential care facilities	$421,525

Table 13: Impact on Urban Value Added (Top Ten Sectors in 2008 Dollars)

Description	Total Value Added
Employment services	$84,367
Telecommunications	$64,857
Wholesale trade businesses	$44,475
Monetary authorities and depository credit intermediation activities	$42,593
Electric power generation, transmission, and distribution	$40,442
Non depository credit intermediation and related activities	$37,882
Imputed rental activity for owner-occupied dwellings	$36,885
Accounting, tax preparation, bookkeeping, and payroll services	$36,354
Business support services	$34,947
Food services and drinking places	$34,775

The impact of the DCP shock into rural economies not only affects employment,

income and value added, but also the tax revenue that state/local government and federal

government agencies collect in both regions. Tax impact numbers exhibit the revenue

collected for governments from employee compensation, proprietor income, indirect

business taxes, households and corporations. Rural and urban counties collected

estimated state and local tax revenue of $508,000 and $23,000. Taxes paid by rural and

urban Oklahomans to the federal government is estimated to be $1.7 million and

$132,000.

Table 14: State, Local and Federal Tax Impacts (In 2008 Dollars)

Region	Rural	Urban
Total State and Local Tax[10]	$507,762	$22,560
Total Federal Tax	$1,706,007	$131,906

In general, direct and counter-cyclical payments in rural Oklahoma have

improved the well-being of farm households through increased employment

opportunities, labor income, value-added and tax revenue for state, local and federal

government. Income transfer payments in theory stimulate spending by availing more

money for consumption. For this reason, the effect is greater in rural areas, especially on

the household service sectors and business services, as the payments are made to rural

farmers who tend to spend most of the income on local consumption of either rural

produced commodities or imported goods and services from the rest of the US and the

world. Even if the magnitude of the impact differs, these decoupled payments have

created jobs, increased labor income and value added in both regions. Therefore, the

hypothesis that rural DCP payments produce multi-regional economic impacts is rational.

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[10] Total state and local tax only include individual income tax and sales tax impacts. Income taxes are
calculated by IMPLAN while sales tax impacts are calculated using average county sales tax rate for each
region based upon the output figures for retail trade. Average weighted sales tax rate is calculated from
Oklahoma Tax Commission by Brooks and Whitacre (2011).

CHAPTER V

CONCLUSIONS

This research primarily focused on the economic linkages between rural and
urban Oklahoma in 2008. The results show that these regions are interdependent through
the flow of labor, personal income and commodities. Importantly, the results demonstrate
that rural counties exported ag and ag related industries to urban areas while their
counterparts sold them higher order goods and services. Trade with the rest of the US and
the world dominated interregional trade, suggesting the fact that Oklahoma is more
intertwined with regions outside than it is within its boundaries.

In general, understanding rural-urban economic connectedness would help
regions to share their common interests so that the gains of interdependence can be
exploited regionally and globally (Fluharty and Miller, 2010). Because there is a limited
rural-urban trade linkage, the bulk of the regions' imports are made from regions outside
Oklahoma, adversely affecting the regional linkages between rural and urban places. So,
substituting domestic and foreign imports with supplies from rural and urban areas might
actually strengthen regional economic linkage and increase rural-urban/urban-rural sales.
Based on this, rural development economists can suggest policies aimed at identifying
regional markets for goods and services produced in rural and urban areas of the state.
As Searls (2011) put it, "more can be gained-socially and economically-by intentionally

building a rural-urban partnering framework that supports existing partnerships and spurs many new connections, coordination and collaboration for the benefit of all."

The economic impact of $68.5 million rural direct and counter-cyclical payments in 2008 for farm households in a rural-urban perspective is also analyzed in this paper. Results manifest that the rural payment shock is less felt in the economies of urban Oklahoma. The urban impact of this income transfer payment is only 6%, 9%, and 6% of the total impact on employment, labor income and value added respectively. An implication of these findings is that even if DCP is not designed to support rural economic development; it is still benefiting rural residents in Oklahoma by creating new jobs, additional labor income and tax revenue for state, local and federal government. Payments have also encouraged rural residents to spend more on health care that might lead this research to conclude that these transfer payments might be contributing to the betterment of rural health.[11]

To conclude, this research utilized IMPLAN to estimate the linkages and the multi-regional impact of rural direct cyclical payments. When analyzing the findings of this research, there are a few points worth considering. First, this paper only focused on the interregional impact of payments made to rural farmers. Further research is important to evaluate the effect of payments to urban farm households. Second, it is assumed that the major effect of direct and counter-cyclical payments is to supplement farm income. However, this does not mean that these payments do not have any impact on production. More income may for example encourage farmers to invest in new and existing farms that might increase production in the long run. Wescott and Young (2004), and Serra et

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[11] More in-depth research is important to determine the overall impact of different farm program payments on healthcare.

al. (2005) concluded that decoupled payments in general have very little effect on production. Third, an increase in income due to farm transfer payments may encourage farm households to spend, invest and/or save some or all of their income for future use[12]. Because this research is only conducted for a given year, savings is counted as leakages as they disappear from IMPLAN on the first round of consumption. Hence, the long run impact of savings is not considered in this analysis.

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[12] The decision to save some portion of income is highly correlated with the decision of farm households to invest part or all of their savings that can have economic impact on both rural and urban areas. Investment can be made on farm assets, operator dwelling, liquid assets, retirement assets, stocks and bonds and other nonfarm operations (ERS, 2003).

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Table 15: Total Value of Rural Import, Export and Trade Balance (In 2008 Dollars)

Description	Total Rural Import	Total Rural Export	Trade Balance
Ag, Forestry, Fish & Hunting	$1,758,560,375	$3,217,286,205	$1,458,725,830
Mining	$2,629,539,904	$6,188,566,453	$3,559,026,549
Utilities	$538,429,557	$706,767,959	$168,338,402
Construction	$977,219,859	$267,696,465	($709,523,393)
Manufacturing	$6,492,061,364	$8,518,821,513	$2,026,760,149
Wholesale Trade	$294,461,196	$123,956,287	($170,504,909)
Retail trade	$551,227,293	$599,295,982	$48,068,689
Transportation & Warehousing	$658,534,780	$967,261,030	$308,726,250
Professional Services	$2,099,014,054	$1,329,349,484	($769,664,570)
Educational, Health, Recreation and Other Services	$1,805,377,097	$1,501,644,469	($303,732,628)
Government & non NAICs	$435,230,140	$451,193,424	$15,963,285

Table 16: Total Value of Urban Import, Export and Trade Balance (In 2008 Dollars)

Description	Total Urban Import	Total Urban Export	Trade Balance
Ag, Forestry, Fish & Hunting	$1,671,632,698	$2,147,849,494	$476,216,797
Mining	$7,650,807,832	$25,375,788,608	$17,724,980,776
Utilities	$2,558,602,173	$3,764,308,843	$1,205,706,670
Construction	$5,089,787,925	$844,876,826	($4,244,911,099)
Manufacturing	$37,838,610,948	$61,675,669,173	$23,837,058,224
Wholesale Trade	$1,337,704,742	$1,379,646,279	$41,941,537
Retail trade	$1,551,840,615	$1,886,377,241	$334,536,626
Transportation & Warehousing	$2,288,260,264	$4,238,397,949	$1,950,137,685
Professional Services	$10,931,488,089	$7,600,241,791	($3,331,246,298)
Educational, Health, Recreation and Other Services	$6,903,154,188	$3,490,790,836	($3,412,363,352)
Government & non NAICs	$1,221,058,267	$619,162,030	($601,896,237)

VITA

Eyosiyas L Tegegne

Candidate for the Degree of Agricultural Economics

Master of Science

Thesis: RURAL DIRECT COUNTER-CYCLICAL PAYMENTS AND THEIR

IMPACT IN A RURAL-URBAN PERSPECTIVE (A CASE IN OKLAHOMA)

Major Field: Agricultural Economics

Biographical:

Education:

Completed the requirements for the Master of Science in Agricultural

Economics at Oklahoma State University, Stillwater, Oklahoma on May, 2011.

Completed the requirements for the Bachelor of Arts in Economics at Mekelle

University, Mekelle, Ethiopia on 2006.

Experience:

-Worked at Sidama Coffee Farmer Cooperative Union as an intern.

-Worked in Ethiopian Airlines as a Marketing Officer.

Professional Memberships:

-Member of Ag Economic Graduate Student Association

-Vice President of Ethiopian Students Association in Oklahoma State University

-Member of American Agricultural Economists Association

Name: Eyosiyas Lemma Tegegne   Date of Degree: May, 2011

Institution: Oklahoma State University   Location: Stillwater, Oklahoma

Title of Study: RURAL DIRECT AND COUNTER-CYCLICAL PAYMENTS AND THEIR

IMPACT IN A RURAL-URBAN PERSPECTIVE

(A CASE IN OKLAHOMA)

Pages in Study: 48   Candidate for the Degree of Master of Science

Major Field: Agricultural Economics

Scope and Method of Study:

The objectives of this study are to identify and measure the industrial linkages between

urban and rural regions of Oklahoma and to evaluate the distribution of impacts from

direct and counter-cyclical payments made to rural farmers across rural and urban

counties in 2008. A rural-urban multi-regional input-output model was constructed using

IMPLAN Version 3 software.

Findings and Conclusions:

The total value of goods and services traded between rural and urban Oklahoma is

estimated around $7.42 billion in 2008. Rural Oklahoma supplied urban Oklahoma with

basic ag commodities while urban Oklahoma furnished rural Oklahoma with higher order

goods and services. Both regions are more interconnected with the rest of the US and the

world than they are with each other. Using the same rural-urban framework, the impact of

$68.5 million direct and counter-cyclical payments to rural farmers was determined. The

interregional effect of this shock to the urban economies is only 6%, 9%, and 6% of the

total rural and urban impact on employment, labor income and value added respectively.

ADVISER'S APPROVAL: Dr. Dave Shideler