ECONOMIC IMPACTS OF BUSINESSES AND PROJECTS ON UNIVERSITY DRIVE IN PINE BLUFF, ARKANSAS

Peter Y. Wui
University of Arkansas at Pine Bluff
wuiy@uapb.edu

Henry Golatt
Economic Research and Development Center
University of Arkansas at Pine Bluff
golatth@uapb.edu

Abstract

This paper evaluates the economic impacts of University Drive and four new projects proposed in the city of Pine Bluff in Jefferson County, Arkansas. The economic impacts are evaluated by collecting comprehensive survey data of the current performance of businesses located on University Drive in Pine Bluff, and preliminary data of those four projects including (a) redesign and widening of University Drive; (b) new single and rehabilitated family housing development; (c) retail and commercial development strip mall; and (d) raising UAPB's student enrollment by 25% to 4000 FTE students. The IMPLAN economic impact model is used for the analysis with IMPLAN database of Arkansas of year 2007 developed by the Minnesota IMPLAN Group. Data were collected through visitation of businesses, churches, the university and households during October 2009, and through expected project funds of new projects. A total of 54 houses and businesses were visited and 43 houses and business are on operation. University Drive can generate about $152.7 Million of output for Jefferson County with four new projects considered in this analysis and create 2088 new jobs. UAPB is centered for the economic impacts on the University Drive. That will be a reason why University Drive has been focused as a potential development for economic future of Pine Bluff. This paper reconfirms the importance of University Drive as a main center of the future economic development of Pine Bluff.

Introduction

University Drive has been considered as one of many potential economic development sources for Pine Bluff, Arkansas (Ghosh 2008; Golatt et al. 2004; Monestime et al. 2004). The International Economic Development Council (IEDC) stressed an extreme importance on the development of a physical development vision and a housing strategy for the city for the sustainable development of the community especially focusing on the University Drive neighborhood (Ghosh 2008). This paper is planned as a part of the new vision for the city. Golatt et al. (2004) found that sidewalks and lack of employment opportunities were major concerns of University Drive residential neighborhood on the survey of the economic and social needs. Monestime et al. (2004) found that financing, lack of business activity were the challenges of business owners and poverty, sidewalks, streets, were the problems of the neighborhood. They also found that lack of experience and inadequate training were responsible for the high unemployment rate in the neighborhood and tax abatements and other financial incentives to

existing and new businesses would be an effective way for the further economic development in the neighborhood. Based on the previous research of the University Drive and its neighborhood, several new projects are proposed to solve residential problems including sidewalks and unemployment and to provide more economic and financial inputs for businesses along the University Drive neighborhood. However no research has been conducted to analyze the economic impacts of those projects.

The immediate goal of this paper is to estimate annual economic impacts of those projects on the economy of Jefferson County, Arkansas based on comprehensive survey data of the current performance of businesses located on University Drive in Pine Bluff. This study is to evaluate the economic impacts of the projects in terms of changes in regional revenue, employment, income and taxes. The IMPLAN (Impact Analysis for Planning) economic impact model is used to measure both direct and secondary impacts of the businesses on the University Drive.

Ultimately, the paper addresses three areas of need that relate to community development of Pine Bluff: 1) Surveying the business stores along University Dr. in order to collect data of current business performance; 2) Analyzing the data and figuring out the economic impacts for Neighborhood (Census Tract 5.02) Pine Bluff, Jefferson county, Arkansas; and 3) Analyzing the impacts of various projects planned for development within University Park area (i.e. (a) redesign and widening of University Drive (AHTD Project 020070), (b) new single and rehabilitated family housing development, (c) retail and commercial development strip mall, and (d) raising UAPB's student enrollment by 25% to 4000 FTE students).

Economic Model

The regional economic impact of University Drive businesses is measured by using IMPLAN (Impact Analysis for Planning) software and database within a Social Accounting Matrix (SAM) framework. IMPLAN is the most widely used software for I/O (Input-output) analysis. The USDA Forest Service originally developed IMPLAN in 1979 in an effort to improve land and resource management planning. It is a sophisticated software package that makes regional input-output models and forecasts regional economic impact based on those models. It is widely used by government agencies to make regional economic forecasts (Miller and Blair, 1985). SAM analysis gives a condensed picture of economic activity, measured in terms of expenditures, income, and revenue, within a given geographic region.

Input-output models incorporate several important assumptions (Miller and Blair 1985; Minnesota IMPLAN Group 2004) that place limitations on their interpretation. The I/O model assumes a linear production function, which means constant returns to scale and constant production functions for each firm within an industry. Furthermore, the model assumes that the percentage of those inputs that are purchased locally is constant from one firm to the next. Output is also assumed to be homogenous. It assumes that there are no constraints on the supply of any commodity. It assumes that increases or decreases in employment cause in- or out-migration from the state modeled, so that "full employment" is maintained.

The I/O model uses three effects to measure economic impact: direct effect, indirect effect and induced effect. Direct effect refers to production change associated with a change in demand for

the good itself. It is the initial impact to the economy, which is exogenous to the model. Indirect effect refers to the secondary impact caused by changing input needs of directly affected industries. Induced effect is caused by changes in household spending due to the additional employment generated by direct and indirect effects.

All estimates are based on IMPLAN-based SAM models and the corresponding U.S. Census and Bureau of Economic Analysis data used by the program and the survey data from business shops located on the University Drive, Pine Bluff. The basic results from the IMPLAN analysis are the dollar value of 1) direct economic impact, 2) labor income, 3) indirect economic impact, 4) induced economic impact, and 5) total economic impact on the University Park neighbors, Pine Bluff, Jefferson County, Arkansas from the business shops located in the University Drive and the implementation of projects (a)-(d).

Data

Data used for this study were collected through visitation of businesses, churches, the university and households using a survey questionnaire developed by the authors and ERDC. The targeted area is limited on the University Drive mainly concerned as University Park Neighborhood which covers about 3 miles from the intersection of Highway 65 to the north city limit of the Drive. The targeted area is named as University Park Neighborhood which is illustrated on the Figure A. The survey was done during October 2009. A total of 54 houses and businesses were visited and 43 houses and business are in operation. The IMPLAN database of year 2007 developed by the Minnesota IMPLAN Group was used. Survey data of the businesses located on the University Drive includes the number and salary of employee, total sales of the year 2008, sales taxes, and total tax amount. In addition to the survey data, the IMPLAN data for Jefferson County were used as complementary data to figure out the area information.

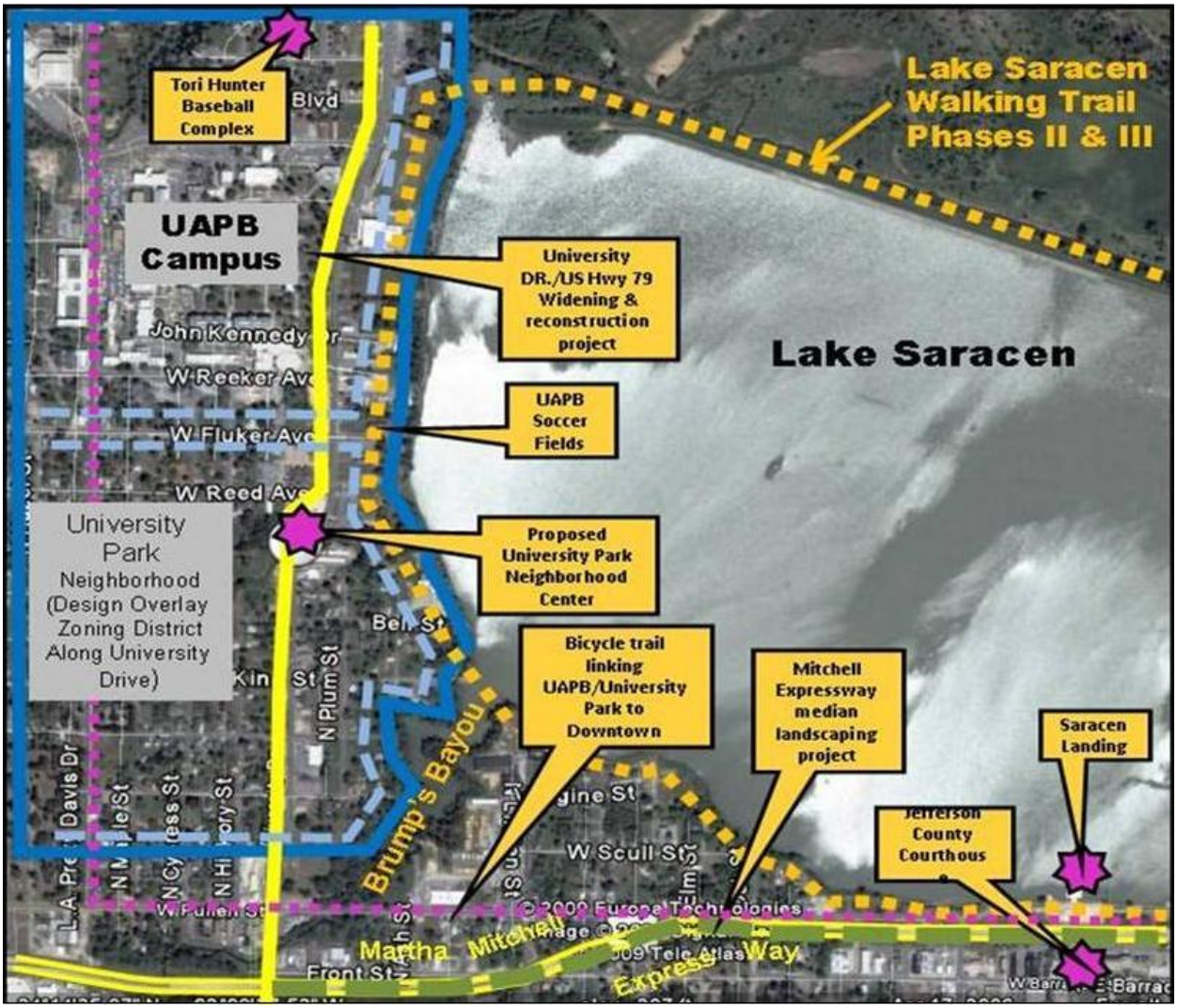

Figure A. The targeted area of the project: University Park neighborhood. Source: Golatt et. al. 2004. Permission received to reprint.

Project funds of any new projects are also used to analyze the economic impacts of those projects. As for the redesign and widening of University Drive, a construction plans for state highway for Arkansas State Highway and Transportation Department (AHTD) Project 020070 of AHTD (2009) was used. AHTD will start to widen and repave a 1.5mile stretch of University Drive from U.S. 65B to Olive Road to include a 12-feet wide turning lane. The new lane will be 11 feet wide, one foot wider than current lane including replaced traffic signals and five foot sidewalks. It is planned to solve the highway floods in a heavy rain. The total project fund of the new lane is $7.3 million (Table 1). The budget of new single and rehabilitated family housing development of $11.9 million was collected from Home Construction Division of Arkansas Development Finance Authority (2009) (Table 2). The expected budget of Retail and Commercial Development Strip Mall of $5.1 million was collected from a presentation done by the City of Pine Bluff to U.S. Department of Housing and Urban Development (2009). For a project of raising UAPB's student enrollment by 25% to 4000 FTE students, a strategic plan for 2006-2010

was used (UAPB 2009). The budget difference between budget of 4000 FTE students and budget of the year 2008 is calculated at Table 3 as $10.9 million.

Table 1
Redesign and Widening of University Drive (AHTD project 020070)

Items	Roadway	Bridge	Total
Preliminary Costs Estimated	$6,700,000	$600,000	$7,300,000

Table 2
New Single and Rehabilitated Family Housing Development

Items	**Estimated Costs**
Structures Only	$ 554,000
Land only	$ 240,900
Infrastructure	$ 1,550,000
Demo	$ 66,000
Pre-development	$ 250,000
80 Homes	$ 8,800,000
Relocation	$ 360,000
Title Work	$ 44,000
Environmental	$ 32,100
Total	$11,888,000

Table 3
Raising UAPB's Student Enrollment by 25% to 4000 FTE Students

Year	Student Head Count	FTE	Revenue
2003	3251	2924	$ 61,619,318
2004	3303	3203	$ 66,316,003
2005	3231	2962	$ 68,077,569
2006	3128	2809	$ 66,675,558
2007	3200	2878	$ 71,289,054
2008*	3525	3070	$ 82,464,106 (b)
Average of 2003-08		2974	$ 69,406,935
Budget per FTE student			$ 23,335
Future at 4000 FTE student		4000	$ 93,341,165 (a)
Difference (a-b)			$ 10,877,059

*As for student head count and FTE, only Fall 2008 is counted.

In the University Drive model, final-demand data and value-added data (such as employee compensation, proprietary income, property income and indirect business taxes) are collected specifically for business on the University Drive. Indirect business taxes consist primarily of

excise and sales taxes paid by individuals to businesses. These taxes occur during the normal operation of these businesses but do not include taxes on profit and income (Minnesota IMPLAN Group 2004).

Results

The economic impacts of four projects and business on the University Drive are explained in terms of output, employment, and total value added. Total value added is composed by labor income, other property type income and indirect business tax. Labor income is divided by employee compensation and proprietary income.

Redesign and Widening of University Drive

The impact value of widening the University Drive is shown on the below Table 4. As an initial impact, Direct output value, $7.3 million, is the same amount expected to be invested starting 2010 over the following 5 years on the University Drive widening project. The indirect output value as the secondary impact value due to the widening University Drive project is measured as $1.37 million by calculating the output production of the supply chain industry connected with highway, street, bridge, and tunnel construction industry. The last induced output value generated by spending the employee's income obtained from the direct and indirect jobs is $1.4 million.

Total output value generated from the widening University Drive project is $10.06 million over 5 years. The new 90 jobs will be created over 5 years due to the new project. From 46% to 58% of the output impact values are distributed as total value added and 42%, 38% and 32%'s output value will be used as labor income in direct, indirect and induced impact industry, respectively. When employee compensation is divided by number of employee, on average $40,881 annual income per employee will be paid to all 90 employees. Indirect business tax of $189 thousands is expected to be collected through this project over 5 years.

In terms of percentage impact of the widening of University Drive, most of direct impacts from output to proprietor's income except other property income and business tax account for about 70-75% of total impacts. Indirect impact covers about 10-20%, and induced impacts cover around 10-15% of the total impacts. However the impacts of other property income and indirect business taxes are more weighted on induced impacts which cover about 45-50% of the total impacts.

Table 4
Impact Values of Redesign and Widening of University Drive

Impacts on	Direct*	Indirect*	Induced*	Total*
Output	$7,300,000	$1,365,431	$1,398,358	$10,063,789
Employment	61	13	16	90
Total Value Added	$3,328,909	$722,474	$811,150	$4,862,534
Labor Income	$3,086,763	$525,663	$444,946	$4,057,371

Employee Compensation	$2,824,351	$445,948	$408,995	$3,679,294
Proprietor's Income	$262,411	$79,715	$35,951	$378,077
Other Property Type Income	$201,023	$141,189	$273,725	$615,937
Indirect Business Tax	$41,123	$55,623	$92,480	$189,226

*All the $ values is estimated based on 2007 dollar value.

New Single and Rehabilitated Family Housing Development

Eighty new homes around University Drive are expected to cost around $11.9 million as the same direct output values. The total output values including indirect and induced output values is $16.3 million. Based on this output, total 113 new jobs are expected to be created over the whole housing development project. A family housing project shows more indirect impacts up to 15-30% except indirect business taxes due to a character of more subordinated parts industry.

Table 5
Impact Values of New Single and Rehabilitated Family Housing Development

Impacts on	Direct	Indirect	Induced	Total
Output	$ 11,888,000	$ 2,854,138	$ 1,592,463	$ 16,334,601
Employment	61.8	33.9	17.7	113.4
Total Value Added	$ 4,511,253	$ 1,589,109	923,743	$ 7,024,105
Labor Income	$ 3,062,769	$ 1,052,767	$ 506,717	$ 4,622,253
Employee Compensation	$ 2,792,038	$ 937,504	$ 465,776	$ 4,195,318
Proprietor's Income	$ 270,731	$ 115,263	$ 40,941	$ 426,935
Other Property Type Income	$ 1,406,975	$ 325,598	$ 311,712	$ 2,044,285
Indirect Business Tax	$ 41,509	$ 210,744	$ 105,314	$ 357,567

Retail and Commercial Development Strip Mall

A new retail town center costing $5.1 million will generate the total $6.9 million in Jefferson County with 60 new jobs created. A commercial mall contributes about 70-80% impacts to direct impacts. The percentage impact pattern looks like the impact pattern of University Drive widening project.

Table 6
Impact Values of Retail and Commercial Development Strip Mall

Impacts on	Direct	Indirect	Induced	Total
Output	$ 5,100,000	$ 884,914	$ 921,539	$ 6,906,453
Employment	41.3	8.0	10.3	59.6
Total Value Added	$ 2,261,923	$ 457,767	$ 534,560	$ 3,254,250
Labor Income	$ 2,054,294	$ 326,820	$ 293,229	$ 2,674,343
Employee Compensation	$ 1,874,679	$ 281,981	$ 269,536	$ 2,426,196
Proprietor's Income	$ 179,615	$ 44,839	$ 23,693	$ 248,147
Other Property Type Income	$ 175,578	$ 98,363	$ 180,386	$ 454,327
Indirect Business Tax	$ 32,051	$ 32,584	$ 60,945	$ 125,580

Raising UAPB's Student Enrollment by 25% to 4000 FTE Students

When UAPB could raise the full time equivalent (FTE) students up to 4000 students, Jefferson County could generate $14 million, a new additional output with 219 new jobs. Out of the value of output impacts, $9.3 Million will be distributed as a labor income and $ 227 thousands will be paid as an indirect business tax. A University enrollment increase mostly contributes on the direct impacts up to 80-90% on the impacts of output, employment, labor and employee compensation. But for the impacts of proprietor's income and indirect business taxes, the induced impacts account for 70-90% of the total impacts.

Table 7
Impact Values of Raising UAPB's Student Enrollment

Impacts on	Direct	Indirect	Induced	Total
Output	$ 10,877,058	$ 114,546	$ 3,052,410	14,044,014.0
Employment	183.7	1.1	34.1	218.9
Total Value Added	$ 9,357,125	$ 60,266	$ 1,769,047	$ 11,186,438
Labor Income	$ 8,295,432	$ 39,888	$ 973,926	$ 9,309,246
Employee Compensation	$ 8,268,356	$ 34,983	$ 895,451	$ 9,198,790
Proprietor's Income	$ 27,076	$ 4,905	$ 78,475	$ 110,456
Other Property Type Income	$ 1,040,413	$ 16,200	$ 594,072	$ 1,650,685
Indirect Business Tax	$ 21,280	$ 4,178	$ 201,049	$ 226,507

The Value of University Drive Including UAPB

The University Drive including University of Arkansas at Pine Bluff (UAPB) is producing $81.3 Million directly. When the indirect and induced impacts are considered together, a total $105.4 Million output is generated from only University Drive in terms of the year 2007 dollar values. With the current annual 1,343 direct jobs in the University Drive, a total of 1607 persons' jobs are supported by the University Drive. Most of these output and jobs are due to UAPB. Without UAPB, the University Drive will generate only $13.3 Million output value and 172 jobs. So the

difference between Table 8 and Table 9 will be UAPB's only impact as $92 million output and 1434 jobs. The percentage impacts of University Drive are very similar to the University enrollment increase impacts, since the University of Arkansas at Pine Bluff explains the most significant absolute value of the University Drive economic values.

Table 8
Impact Values of University Drive Including UAPB

Impacts on	Direct	Indirect	Induced	Total
Output	$ 81,347,961	$ 2,472,719	$ 21,536,147	$ 105,356,827
Employment	1,342.9	23.3	240.3	1,606.5
Total Value Added	$ 66,579,351	$ 1,308,428	$ 12,481,740	$ 80,369,519
Labor Income	$ 57,809,822	$ 829,413	$ 6,870,672	$ 65,509,907
Employee Compensation	$ 57,316,458	$ 743,826	$ 6,317,044	$ 64,377,328
Proprietor's Income	$ 493,364	$ 85,587	$ 553,628	$ 1,132,579
Other Property Type Income	$ 7,986,714	$ 382,863	$ 4,192,263	$ 12,561,840
Indirect Business Tax	$ 782,815	$ 96,152	$ 1,418,805	$ 2,297,772

Table 9
Impact Values of University Drive Excluding UAPB

Impacts on	Direct	Indirect	Induced	Total
Output	$ 10,058,904	$ 1,724,048	$ 1,532,368	$ 13,315,320
Employment	139.1	15.9	17.1	172.1
Total Value Added	$ 5,257,938	$ 914,544	$ 888,400	$ 7,060,882
Labor Income	$ 3,445,250	$ 568,718	$ 488,103	$ 4,502,071
Employee Compensation	$ 3,128,886	$ 515,185	$ 448,759	$ 4,092,830
Proprietor's Income	$ 316,364	$ 53,533	$ 39,344	$ 409,241
Other Property Type Income	$ 1,169,034	$ 276,963	$ 299,052	$ 1,745,049
Indirect Business Tax	$ 643,654	$ 68,863	$ 101,245	$ 813,762

Total Tax Impact out of New Projects and University Dr.

The total tax revenue expected from the new projects is shown in Table 10. The tax revenue amount of $955 thousands from University Drive widening project is the only collected tax from the construction project. It does not count tax amount generated from the post-construction maintenance business. Especially the strip mall project is generating only $637 thousands. But post-mall construction, the tax revenue will be really more than the amount. The University Drive is contributing $14.8 Million to the Jefferson County as tax payment annually. By including the whole 3 projects, 25% more enrollment of UAPB, and University Drive, the total tax revenue is expected at around $19.8 Million.

Table 10
Total Tax Revenue Generated From New Several Projects

New Projects	Employee Compensation	Proprietary Income	Household Expenditure	Enterprises	Indirect Business Tax	Total
University Drive Widening	$ 416,526	$ 27,267	$ 243,537	$ 78,492	$ 189,226	$ 955,048
80 Single Home	$ 474,945	$ 30,791	$ 277,247	$ 260,513	$ 357,567	$ 1,401,063
Strip Mall Center	$ 274,665	$ 17,896	$ 160,468	$ 57,897	$ 125,580	$ 636,506
UAPB 4000 FTE Students	$1,028,618	$ 7,966	$ 513,420	$ 210,355	$ 226,507	$ 1,986,866
Value of University Dr. w/ UAPB	$7,198,735	$ 81,682	$ 3,631,584	$ 1,600,815	$2,297,772	$14,810,588
Value of University Dr. w/o UAPB	$ 457,664	$ 29,515	$ 266,929	$ 222,380	$ 813,762	$ 1,790,250
Total including UAPB	$9,393,489	$165,602	$ 4,826,256	$ 2,208,072	$3,196,652	$19,790,071

Total Output Impacts from New Projects

When the output impacts are compared across the projects except the University Drive impacts, an 80 single home project produces the total $16 million, while a strip mall center produces $7 million impact. When the percentage impacts are compared across the projects including the value of University Drive, University including University Drive value with UAPB enrollment increase has a high direct impact up to 78% with up to 20% induced impacts, but it has few indirect impacts. But University Drive widening and a strip mall projects show 75%, 10%, 15% of direct , indirect and induced impacts, respectively. Only a new home project shows a high indirect impact of about 20% due to a nature of a house construction industry.

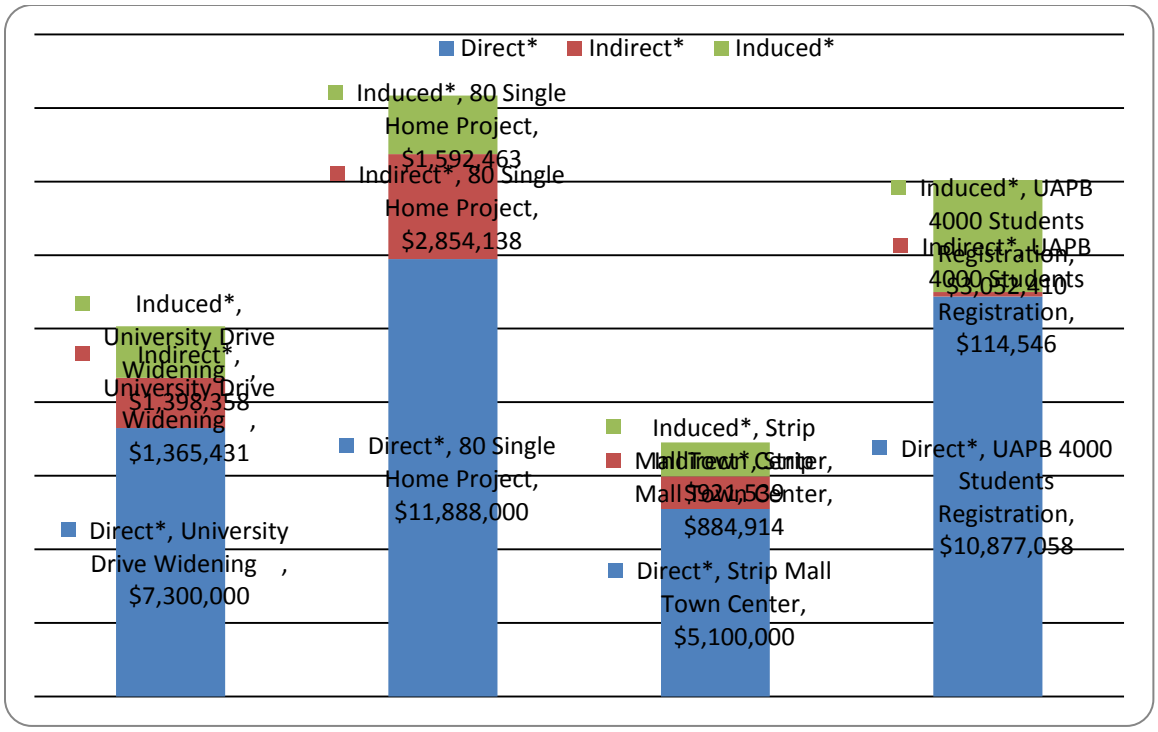

Figure B. Total output impacts generated from proposed new projects: US $ value of the year 2007, Total Employment Impacts from New Projects.

The comparison of employment impacts across the projects shows the highest impacts from UAPB enrollment increase up to 219 employees and the lowest impact from a strip mall project up to 60 employees.

In terms of comparison of employment percentage impacts, most of impacts are very similar to the output impacts except that an indirect impact of a new home project becomes more clarified by increasing up to 30%.

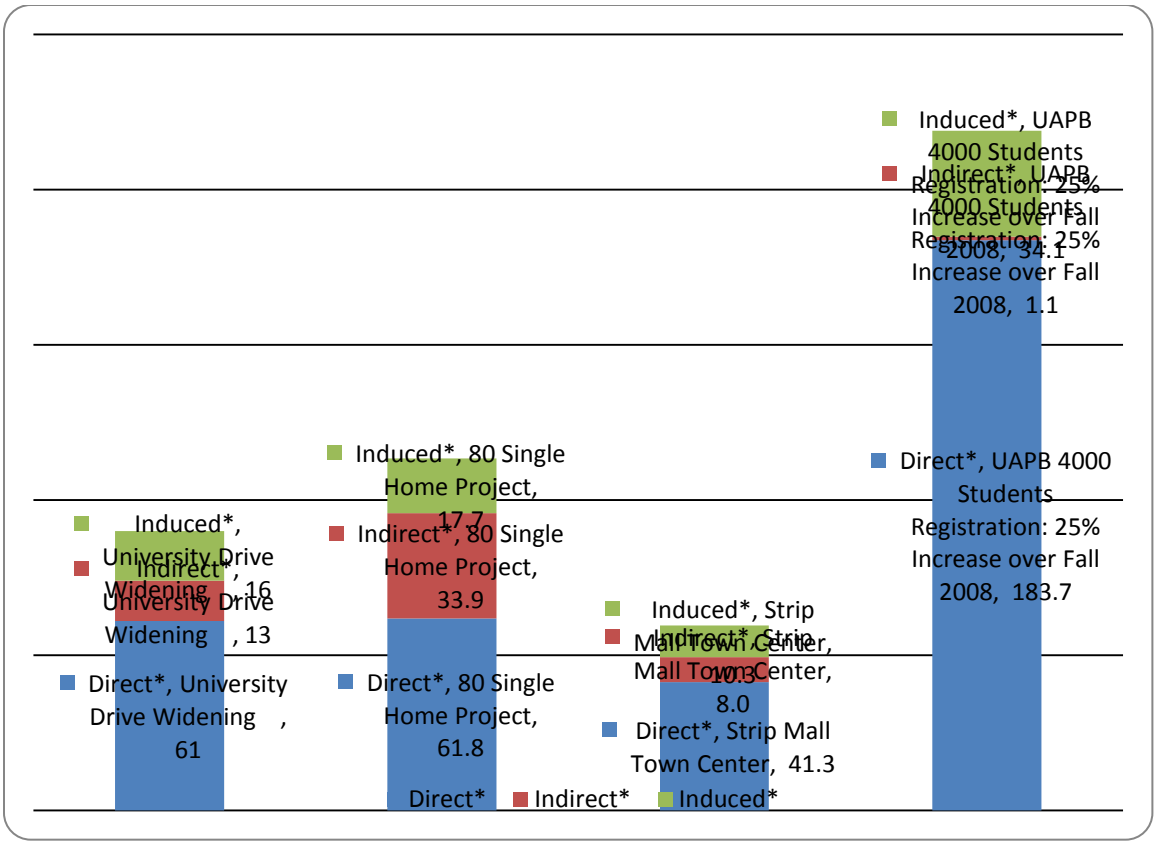

Figure C. Total Employment Impacts generated from proposed new projects.

Conclusion

The paper evaluated the economic impacts of University Drive and four projects expected on coming soon by collecting comprehensive survey data of current performance of businesses located on University Drive in Pine Bluff and preliminary data of those four projects including (a) redesign and widening of University Drive (AHTD Project 020070), (b) New single and rehabilitated family housing development, (c) Retail and Commercial Development Strip Mall, (d) raising UAPB's student enrollment by 25% to 4000 FTE students).

The IMPLAN economic impact model was used for the analysis with IMPLAN database of year 2007 developed by the Minnesota IMPLAN Group. Data was collected through visitation of businesses, churches, University and households during October 2009. Total 54 houses and businesses were visited and 43 houses and business are on operation.

University Drive in the Pine Bluff can generate about $152.7 million output for Jefferson County with four new projects considered in this analysis and create 2088 new jobs as illustrated at Table 11. UAPB is centered for the economic impacts on the University Drive, Pine Bluff. That will be a reason why University Drive has been focused on as a potential development for the economic future of Pine Bluff. The project reconfirms the importance of University Drive as a main center of the future economic development of Pine Bluff.

Table 11
Total Economic Impacts Generated From University Drive and Four Projects on University Drive

Impacts on	Direct	Indirect	Induced	Total
Output	$ 116,513,019	$ 7,691,748	$ 28,500,917	$ 152,705,684
Employment	1,691	79	318	2,088.4
Total Value Added	$ 86,038,561	$ 4,138,044	$ 16,520,240	$ 106,696,845
Labor Income	$ 74,309,080	$ 2,774,551	$ 9,089,490	$ 86,173,121
Employee Compensation	$ 73,075,882	$ 2,444,242	$ 8,356,802	$ 83,876,926
Proprietor's Income	$ 1,233,197	$ 330,309	$ 732,688	$ 2,296,194
Other Property Type Income	$ 10,810,703	$ 964,213	$ 5,552,158	$ 17,327,074
Indirect Business Tax	$ 918,778	$ 399,281	$ 1,878,593	$ 3,196,652

References

Arkansas Development Finance Authority. 2009. *University Park Acquisition and Development Plan*. Home Construction Division. Jefferson County. State of Arkansas.

Arkansas State Highway and Transportation Department. 2009. *A Construction Plans for State Highway for AHTD Project 020070*. Jefferson County. State of Arkansas.

City of Pine Bluff. 2009. *Economic Development and Housing Strategy*. A presentation to U.S. Department of Housing and Urban Development. Pine Bluff. Arkansas.

Ghosh. Swati A. 2008. *Technical Assistance Report :University Park Weed and Seed Site*. *Pine Bluff*. Arkansas. International Economic Development Council (IEDC).

Golatt. H., Pulliam. J., Monestime. D. and H. Gaynor. 2004. *University Park Neighborhood Research Project: Residential Needs Assessment*. Economic Research and Development Center. University of Arkansas at Pine Bluff.

Miller. R. E. and P. Blair. 1985. *Input-Output Analysis: Foundations and Extensions*. Prentice Hall. Inc.

Minnesota IMPLAN Group. 2004. *IMPLAN Professional*. 3rd Ed.

Monestime. D., Golatt. H. and Pulliam. J. 2004. *University Park Neighborhood Research Project: Neighborhood-Business Assessment*. Economic Research and Development Center. University of Arkansas at Pine Bluff.

University of Arkansas at Pine Bluff. 2009. *A Strategic Plan 2006-2010*. Pine Bluff. Arkansas.