

Boeing Expansion Project: The Economic Impact of an Expansion of the Boeing Facility in El Paso, Texas



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Introduction

The Institute for Policy and Economic Development (IPED) at the University of Texas at El Paso (UTEP) has undertaken an economic impact study on behalf of the City of El Paso Department of Economic Development. The purpose of this study is to quantify the economic and fiscal impacts of an expansion of local Boeing Corporation activities on the County of El Paso, as well as the state of Texas. The report estimates potential changes in output, labor income and employment for both the county and the state. Additionally, changes in gross regional product, personal income, retail sales and tax revenues as a result of increased local Boeing employment and capital investment expenditures over a four year period are reported.

The Boeing facility in El Paso originally opened in 1983 as a feeder plant in support of the Air Force's B-1B program and is currently a key manufacturing site for electronics and avionics. Production programs have included guidance replacement for the Minuteman III Missile, Patriot Missile guidance system, avionics for the F-15 and F-18, and power distribution systems for the International Space Station, among others.¹ The El Paso Boeing operation currently employs over 350 people, paying an average annual wage rate of about \$52,000, excluding benefits. This is significantly higher than the \$33,000 mean annual wage rate for all occupations in El Paso County,² highlighting the importance of a continued Boeing Corporation presence to economic growth and development within the region.

As one of four Boeing Integrated Defense Systems Strategic (IDS) Electronics Fabrication Centers, the El Paso site has indicated its need to become more competitive within the electronics market, and intends to do so through an expansion of its current facilities. This expansion will include the addition of 118 jobs as well as a total capital investment of \$7.4 million beginning in 2010 and extending through 2013. The present study details both the economic and fiscal impacts on the local region and the state of Texas. Findings are presented below in several sections. First, results of the impact analysis are summarized, followed by a brief description of the methodology employed. Next, data regarding current and future operations along with planned capital investment for the El Paso facility are presented. Finally, results are discussed and potential economic impacts of the expansion project are detailed for both El Paso County and the State of Texas, followed by an account of the project's fiscal impacts.

¹ McElroy, M., Gibson, E. K., Schauer, D. A., & Soden, D. L. (2007). A Key Component in Texas Manufacturing: The Economic Impact of the Boeing Company. *IPED Technical Report 2007-03*. The Institute for Policy and Economic Development at the University of Texas at El Paso.

² Bureau of Labor Statistics. (2008, May). *May 2008 Metropolitan and Nonmetropolitan Area Occupational Employment and Wage Estimates*. Retrieved April 17, 2010, from Occupational Employment Statistics: [http://www.bls.gov/oes/2008/may/oes_21340.htm#\(2\)](http://www.bls.gov/oes/2008/may/oes_21340.htm#(2))

Summary of Results

❖ Impact of Local Boeing Operations on El Paso County (\$Mil)

	Current	Full Expansion	Total
Economic Impacts			
Output	\$ 150.5	\$ 46.8	\$ 197.3
Labor Income	\$ 40.9	\$ 9.8	\$ 50.7
Employment	732	220	952
Fiscal Impacts			
Gross Regional Product	\$ 54.5	\$ 13.7	\$ 68.2
Total Personal Income	\$ 50.0	\$ 12.0	\$ 59.8
Gross Retail Sales	\$ 10.0	\$ 2.5	\$ 12.5
Total Tax Revenues	\$ 4.1	\$ 1.2	\$ 5.3
State Government	\$ 2.0	\$ 0.6	\$ 2.6
Local Government	\$ 2.1	\$ 0.6	\$ 2.7

❖ Impact of Local Boeing Operations on the State of Texas (\$Mil)

	Current	Full Expansion	Total
Economic Impacts			
Output	\$ 166.1	\$ 51.8	\$ 217.9
Labor Income	\$ 44.9	\$ 11.1	\$ 56.0
Employment	789	238	1,027
Fiscal Impacts			
Gross Regional Product	\$ 61.4	\$ 15.9	\$ 77.3
Total Personal Income	\$ 55.7	\$ 13.7	\$ 69.4
Gross Retail Sales	\$ 11.1	\$ 2.8	\$ 14.0
Total Tax Revenues	\$ 4.8	\$ 1.4	\$ 6.2
State Government	\$ 2.3	\$ 0.7	\$ 3.0
Local Government	\$ 2.5	\$ 0.7	\$ 3.2

❖ **Impact of Local Boeing Construction (\$K)**

	El Paso County	State of Texas
Economic Impacts		
Output	\$ 2,689	\$ 2,963
Labor Income	\$ 909	\$ 974
Employment ³	19	20
Fiscal Impacts		
Gross Regional Product	\$ 1,233	\$ 1,351
Total Personal Income	\$ 1,112	\$ 1,207
Gross Retail Sales	\$ 221	\$ 240
Total Tax Revenues	\$ 64	\$ 74
State Government	\$ 31	\$ 36
Local Government	\$ 33	\$ 38

³ Aggregate employment values in the construction table represent person-years or one person employed in one full-time equivalent job for one year. In this case, local Boeing construction is expected to generate an average of 9.5 jobs per year for the two-year construction period within El Paso County. This number increases to 10 jobs per year during the same two-year period for the state.

Methodology

To estimate the economic impact of local Boeing activities on El Paso County and the state of Texas, a modeling technique known as Input-Output (I-O) analysis is applied. I-O analysis illustrates how a region's industries and institutions are linked by the intermediate inputs they provide one another to produce the final output in a given economy. For example, airplanes are considered a final output as they are intended for consumption rather than for use in the production of another good. In order to produce this final good, however, the airplane industry requires materials, products and services from other supplier industries. Similarly, these supplier industries require materials, products and services to produce intermediate inputs for airplane production. Essentially, an I-O model captures all rounds of inter-industry/institutional relationships that make up the production processes of industries in an economy.

In addition, an I-O model can be used to estimate the regional effect of some change or shock to that region's economy. Events that may affect the local economy can include anything from changes in demand due to the establishment of a new firm within the region to changes resulting from the occurrence of some natural disaster, such as an earthquake. I-O analysis measures these effects or shocks using **multipliers**.

Multipliers estimate the total change in an economy resulting from a one unit change in production, employment, income, or some other component of value added. For example, an employment multiplier of 2.1 suggests that for every one job created by a given industry, an additional 1.1 jobs will be generated within the region. It is important to note, however, that different industries or sectors will vary in multiplier size. For example, industries exhibiting higher levels of interdependence with other sectors in an economy will typically be characterized by larger multipliers. Thus, industries relying less heavily on imports will generally have larger multipliers relative to those requiring commodities and services produced outside the region.⁴ Consequently, larger regions will often have larger multipliers than smaller regions.

There are currently several I-O commercial software packages available, each of which provides its own unique regionalized multipliers. The model chosen for this study is the **IMPLAN** or **IM** impact analysis for **PLAN**ning system.⁵ Similar to traditional regional economic modeling techniques, IMPLAN employs a top-down approach, using national data as a control total for state data, and state data, in turn is used as a control total for county data. In addition to being flexible and relatively easy to modify, IMPLAN explicitly breaks out impacts into three types of effects measured by its multipliers, making this an

⁴ Miernyk, W. H. (1965). *Elements of Input-Output Analysis*. New York: Random House.

⁵ IMPLAN Professional®, Version 3.0. (1993). *Minnesota IMPLAN Group, Inc.*

attractive I-O software package.⁶ The three types of effects measured by the IMPLAN multipliers used in this report include the **direct**, the **indirect**, and the **induced** effects.

The **direct** effect refers to the initial change in demand resulting from new or current expenditures or employment. This effect is the impact that is actually applied to the predictive model for analysis. I-O multipliers are then used to generate changes in other regional economic sectors given the expenditure or employment value of interest. Examples of a direct effect include increases in construction expenditures, decreases in manufacturing employment, and level of tourist spending.

Indirect effects represent all changes in regional industry activity, such as increases or decreases in production and employment that result from the direct effect. For example, increases in airplane production will result in increased sales of aluminum, rubber, steel, and other necessary airplane parts from supplier industries within the region. This increased supplier industry activity is captured by the indirect economic impact.

Finally, the **induced** effect measures the impact of household spending within a region due to changes in labor income, or compensation received by business proprietors and workers for both the directly and indirectly impacted regional industries. Continuing with the airplane example, increases in airplane and supplier industry output generate increases in labor income to support this additional industry activity. Households then spend a portion of this income on various goods and services produced within the economy, further increasing regional sales, employment, and income for other regional economic sectors. The sum of these three effects represents the total impact of the new or current expenditure or employment value of interest.

IMPLAN provides information and impact results for several regional economic variables. These include output, employment, value added and various value added components, such as labor income. The three variables relevant to this analysis are **output, labor income, and employment** impacts on El Paso County and Texas. Each of these is defined below:

1. **Output** – represents the total value of industry production or the value of all goods and services produced within the region's economy.⁷ Output is an overall measure of economic activity and is the sum of income paid to all factors of production as well as all inter-industry purchases.
2. **Labor Income** – represents the sum of compensation paid to workers as well as business proprietors. This value includes employer paid benefits and payroll taxes, in addition to wages

⁶Rickman, D. S., & Schwer, K. (Fall 1993). A Systematic Comparison of the REMI and IMPLAN Models: The Case of Southern Nevada. *The Review of Regional Studies*, 148-149.

⁷ Minnesota IMPLAN Group, Inc. *Glossary*. Retrieved April 17, 2010, from IMPLAN.com Economic Impact Modeling Solutions: http://implan.com/v3/index.php?option=com_glossary&Itemid=164

and salaries.⁸ Note that when interpreting the results of this study, labor income and output should not be summed, as labor income is a component of output. For the El Paso Boeing operations, labor income currently accounts for about 26 percent of the facility's output.

3. **Employment** – represents the average annual jobs within a sector and consists of both full-time and part-time positions.⁹ This approach is consistent with the international standard for counting the number of jobs in an economic system.

In addition, given that this study analyzes the impact of the Boeing expansion project on both the El Paso County and Texas regions, the Multi-Regional Input-Output (MRIO) procedure is applied.¹⁰ The MRIO analysis technique allows for changes within one regional economy to be tracked and quantified as they are dispersed throughout other regions. In this case, the expansion of local Boeing activities will not only result in increased output, employment, labor income, etc. for El Paso County, but will also affect the rest of Texas. For example, sales for Boeing suppliers located within the state, but outside of the county will rise to meet the change in demand due to El Paso expansion, triggering increases in output, employment, labor income, etc. for the state. Additionally, new labor income generated within the county as a result of the expansion is likely to be spent on goods and services in other parts of Texas, further expanding the state economy.

Finally, various fiscal impacts are calculated from the IMPLAN model results; they along with their calculation method are discussed in further detail below:

1. **Gross Regional Product** – represents total economic activity within a region. Gross regional product may be measured in one of two ways: 1) as the total value of all final goods and services produced and sold to institutions within a region or 2) as the total income paid to all factors of production. IMPLAN uses the latter method and terms this variable **Total Value Added**. More specifically, total value added is the sum of all industry payments to workers, business proprietors, other property type income (i.e. dividends, rents, interest, corporate profits, etc.) and indirect business taxes (i.e. sales and excise taxes).¹¹

⁸ Minnesota IMPLAN Group, Inc. *Glossary*. Retrieved April 17, 2010, from IMPLAN.com Economic Impact Modeling Solutions: http://implan.com/v3/index.php?option=com_glossary&Itemid=164.

⁹ Ibid.

¹⁰ Results presented in this study will be slightly higher than those reported in the preliminary summary sheet due to this report's use of the MRIO analysis method. Figures for the summary sheet were conservative as they accounted for Boeing generated dollars remaining within the county; they did not, however, account for dollars leaving the county, but remaining in Texas.

¹¹ Minnesota IMPLAN Group, Inc. *Glossary*. Retrieved April 17, 2010, from IMPLAN.com Economic Impact Modeling Solutions: http://implan.com/v3/index.php?option=com_glossary&Itemid=164

2. **Total Personal Income** – represents the income received by a region's residents from all sources. This value includes compensation for labor such as wages, salaries, and benefits, as well as government and business transfer payments, but does not include contributions to government social insurance, such as Social Security payments.¹² While IMPLAN does not explicitly calculate changes in total personal income, a proxy can be used to estimate the increase/decrease in personal income within the region, which is explained below:

A total personal income to total labor income ratio for each of the two regions is first calculated. This ratio is then applied to the total labor income impact to estimate the change in personal income as a result of, in this case, El Paso Boeing facility expansion. The ratio, itself, represents how much each dollar of labor income generates in additional transfer payments.¹³ For El Paso, this ratio is 1.22, suggesting that for every one dollar of labor income earned by El Pasoans, an additional \$0.22 in transfer payments is received. This ratio increases slightly to 1.24 for the state of Texas.

3. **Gross Retail Sales** – represents total sales for all retail sectors in the regional economy. In order to calculate changes in gross retail sales for each region, IMPLAN default margin percentages (i.e. ratio of gross profit to sales revenue) are applied to the total output impact (i.e. gross retail margins) reported for each retail sector.
4. **Total Tax Revenues** – represents the income received by the state/local government. IMPLAN does not disaggregate state and local tax revenues; however, a ratio is applied to tax impact results to separate taxes paid to the two government entities using calculations from U.S. Census Bureau data.¹⁴ Results indicate that about 52 percent of total tax revenues collected in Texas, both by local entities as well as the state remain with local governments (48 percent of total revenues are collected by the state).

The subsequent section reviews data provided by Boeing, detailing its four-year expansion plan. This data is used to adjust the IMPLAN sectors corresponding to Boeing activities.

¹² Bureau of Economic Analysis, U.S. Department of Commerce. (2007, February 23). *Glossary*. Retrieved April 17, 2010, from Bureau of Economic Analysis: <http://bea.gov/glossary/glossary.cfm>

¹³ This estimation method assumes the transfer to income ratio to be constant for all new labor.

¹⁴ U.S. Census Bureau. (2007). *2007 State and Local Government*. Retrieved April 17, 2010, from State and Local Government Finance Tables by Level of Government: <http://www.census.gov/govs/estimate/>

Data and Timelines

To become more competitive in the electronics market, Boeing has drafted a timeline for expansion of the El Paso facility beginning in 2010 and ending in 2013. The timeline provided includes information on annual increases in employment and related wage rates, in addition to a capital investment schedule detailing construction, capital labor, and equipment and machinery expenditures.

Currently, Boeing directly employs 367 individuals and pays an annual average wage of about \$52,000, not including employer paid benefits. Data provided indicates Boeing expects to increase existing employment by the addition of 118 new jobs distributed over a four-year period. The average annual wage per new employee is estimated to be roughly \$34,000, excluding benefits. See Table 1 for a detailed description of employment expansion and annual average wage rate during each of the four years.

Table 1. Operations Expansion Timeline

	Current	Cumulative Expansion				Total
	2010	2010	2011	2012	2013	Current +Expansion
Employment	367	32	62	92	118	485
Average Annual Wage	\$51,674	\$35,427	\$35,080	\$34,386	\$34,191	\$47,421

To support increased production through the addition of jobs, Boeing has also provided a timeline for capital investment. This investment includes new construction and related labor for the expansion of the existing facility, as well as machinery and equipment purchases. Table 2 details capital investments on an annual basis and indicates the percent of those expenditures that will be spent locally. Investment for building and required labor will be 100 percent local. However, none of the machinery and equipment purchases will be made within El Paso County or any other region of the state. Given that machinery and equipment purchases are made outside of the county and state economies, these purchases are viewed as leakages, and are not considered in the capital investment analysis. As a result, findings regarding capital investment reflect building and associated labor costs only.

Table 2. Capital Investment Timeline

	Annual Investment (\$K)				Percent Local	
	2010	2011	2012	2013	County	Rest of State
Building	\$600	\$600	\$0	\$0	100%	0%
Labor / Working Capital	\$300	\$350	\$0	\$0	100%	0%
Machinery and Equipment	\$2,870	\$1,650	\$580	\$450	0%	0%
Total	\$3,770	\$2,600	\$580	\$450		

Findings

Operations and Planned Expansion

All tables presented in this section follow a similar format. Each table corresponds to a particular type of impact, and includes a column detailing the estimated annual value of Boeing operations in El Paso at the current level of employment (i.e. 367 employees). Additionally, the tables include a column corresponding to each expansion year (2010, 2011, 2012 and 2013). The values found in these columns relate to the cumulative projected increase in employment for that year, and represent the estimated incremental operations impact above and beyond the current employment level. For example, the 2010 expansion column represents impacts generated by 32 additional Boeing employees, 2011 values correspond to new 62 employees, 2012 represents the impact of 92 employees, and finally, 2013 corresponds to impacts generated by 118 additional Boeing employees. The last column in each table represents the impact of Boeing operations at full employment; alternatively stated the last column is the sum of current and expansion impacts. Also, note that all dollar amounts are reported in 2010 dollars.

Economic Impacts

It is estimated that current El Paso facility operations directly generate \$103.5 million of output annually (Table 3). This, in turn sets off several rounds of spending by local supplier industries, amounting to \$27.7 million in indirect output within the county. Finally, household spending as a result of current Boeing activities and subsequent supplier industry spending is estimated to increase local output by \$19.3 million annually. In total, present El Paso Boeing operations add \$150.5 million to the county's total output per year (Table 3).

By the end of 2013, El Paso Boeing facility employment is projected to increase by 118 jobs. These jobs are estimated to produce roughly \$33.3 million in direct output, which translates to \$46.8 million in total output generated within the county annually (Table 3). As such, 2013 Boeing operations at full scale employment (485 employees) are expected to increase total county output by about \$197.3 million per year. Thus, for every one dollar of output created by local Boeing operations, an additional \$0.44 of indirect and induced output is generated by other local industries.

Table 3. Boeing Operations Impact on Output in El Paso County (\$Mil)

	Current	Cumulative Expansion				Total
	2010	2010	2011	2012	2013	Current + Expansion
Direct Effect	\$103.464	\$9.021	\$17.479	\$25.936	\$33.266	\$136.730
Indirect Effect	\$27.714	\$2.417	\$4.682	\$6.947	\$8.911	\$36.625
Induced Effect	\$19.330	\$1.290	\$2.483	\$3.636	\$4.646	\$23.976
Total Effect	\$150.508	\$12.728	\$24.644	\$36.520	\$46.823	\$197.332

To account for Boeing generated dollars leaving the county, but remaining within the state, Texas was also included in the model. Results indicate that the current direct Boeing output of \$103.5 million generates an estimated \$166.1 million per year in total output within the state (Table 4). Thus, it can be concluded that present Boeing operations in El Paso produce \$15.6 million annually in indirect and induced spending throughout other Texas counties.

It is estimated that the \$33.3 million in direct output produced by the Boeing expansion will result in a total state output increase of \$51.8 million annually by the end of 2013 (Table 4). Correspondingly, employees added during the four-year expansion period increase indirect and induced spending throughout other Texas counties by more than \$4.9 million per year. In sum, once expansion is complete, local Boeing operations total effects on the state is projected to be \$217.9 million. Thus, for every one dollar of output created by El Paso Boeing operations, an additional \$0.59 in indirect and induced output will be produced by industries located in Texas.

Table 4. Boeing Operations Impact on Output in the State of Texas (\$Mil)

	Current	Cumulative Expansion				Total
	2010	2010	2011	2012	2013	Current + Expansion
Direct Effect	\$103.464	\$9.021	\$17.479	\$25.936	\$33.266	\$136.730
Indirect Effect	\$39.488	\$3.443	\$6.671	\$9.899	\$12.696	\$52.184
Induced Effect	\$23.173	\$1.603	\$3.088	\$4.530	\$5.792	\$28.965
Total Effect	\$166.124	\$14.067	\$27.238	\$40.366	\$51.755	\$217.879

Roughly \$26.6 million of direct output currently generated by Boeing operations represents compensation paid to its employees (Table 5). This translates to an annual average wage rate of just over \$72,000 per worker, including employer paid benefits such as health insurance.¹⁵ Additionally, of the total county output produced by current operations, supplier and household spending, \$40.9 million is paid to laborers and self-employed individuals residing within the El Paso region (Table 5).

The additional 118 employees are projected to earn an annual average wage of about \$48,000, including benefits. As a consequence of the four-year expansion, total labor income effects in the county amount to \$9.8 million above and beyond the currently generated income of \$40.9 million (Table 5). Thus, total El Paso County labor income is expected to increase to \$50.7 million annually once expansion is complete (Table 5). In terms of multiplier effects, a one dollar increase in El Paso Boeing labor income produces a \$0.58 increase in indirect and induced income within the region.

¹⁵ Boeing employer paid benefits were assumed to be 40 percent of direct pay.

Table 5. Boeing Operations Impact on Labor Income in El Paso County (\$Mil)

	Current	Cumulative Expansion				Total
	2010	2010	2011	2012	2013	Current + Expansion
Direct Effect	\$26.555	\$1.587	\$3.045	\$4.430	\$5.649	\$32.204
Indirect Effect	\$8.585	\$0.749	\$1.450	\$2.152	\$2.760	\$11.346
Induced Effect	\$5.794	\$0.387	\$0.744	\$1.090	\$1.392	\$7.186
Total Effect	\$40.934	\$2.723	\$5.240	\$7.671	\$9.802	\$50.736

Results for Texas indicate that \$166.1 million is generated in total output by current El Paso operations, and spending by supplier industries and households located in Texas (refer to Table 4); approximately 27 percent of this output (or \$44.9 million) is paid to labor income (Table 6). This implies that operations in El Paso presently produce about \$4.0 million in indirect and induced labor income annually for the rest of Texas.

Also, of the \$51.8 million in output generated by the additional 118 employees (refer to Table 4), and the corresponding change in Texas supplier industry and household spending, 21 percent (or \$11.1 million) is expected to be paid to labor income by the end of 2013 (Table 6). Ultimately, the total effects of Boeing operations in El Paso once expansion is complete are estimated to increase Texas labor income by about \$56.0 million. Overall, a one dollar increase in Boeing employee compensation following full expansion produce an additional \$0.74 of indirect and induced labor income being generated within the state.

Table 6. Boeing Operations Impact on Labor Income in the State of Texas (\$Mil)

	Current	Cumulative Expansion				Total
	2010	2010	2011	2012	2013	Current + Expansion
Direct Effect	\$26.555	\$1.587	\$3.045	\$4.430	\$5.649	\$32.204
Indirect Effect	\$11.426	\$0.996	\$1.930	\$2.864	\$3.674	\$15.099
Induced Effect	\$6.931	\$0.480	\$0.924	\$1.356	\$1.734	\$8.665
Total Effect	\$44.911	\$3.063	\$5.900	\$8.650	\$11.057	\$55.968

Presently, there are an estimated total 732 jobs within the county associated with El Paso Boeing expenditures (Table 7). The incremental increase in Boeing spending as a result of the 118 new jobs is expected to produce 102 additional positions in the local region's economy through indirect and induced expenditures. In sum, Boeing operations at full employment (with 485 employees) are expected to support a total of 952 jobs within El Paso County (Table 7). This implies a relatively high employment

multiplier of nearly 2.0, so for every one job created by Boeing locally, an additional job is generated through indirect and induced spending.

Table 7. Boeing Operations Impact on Employment in El Paso County

	Current	Cumulative Expansion				Total
	2010	2010	2011	2012	2013	Current + Expansion
Direct Effect	367	32	62	92	118	485
Indirect Effect	180	16	30	45	58	238
Induced Effect	185	12	24	35	44	229
Total Effect	732	60	116	172	220	952

In Texas, approximately 789 jobs are presently supported by El Paso Boeing operations (Table 8); fifty-seven of these are located in a Texas county other than El Paso. Once expansion is complete, total Texas jobs associated with local Boeing expenditures is expected to increase to 1,027. Over half of these jobs (or 542) are the result of indirect and induced spending, thus implying a strong employment multiplier of 2.1 for the state of Texas.

Table 8. Boeing Operations Impact on Employment in the State of Texas

	Current	Cumulative Expansion				Total
	2010	2010	2011	2012	2013	Current + Expansion
Direct Effect	367	32	62	92	118	485
Indirect Effect	213	19	36	53	68	281
Induced Effect	209	14	28	41	52	261
Total Effect	789	65	126	186	238	1,027

Fiscal Impacts

Table 9 below presents findings for various fiscal impacts. In terms of value added, local Boeing operations and related industry and household expenditures are presently estimated to contribute over \$54.5 million to the gross county product. The addition of 118 employees is expected to increase this dollar value by \$13.7 million, for a total annual contribution of \$68.2 million. When looking at total county personal income, present operations associated with direct, indirect and induced expenditures are responsible for generating just above \$50.0 million in personal income per year. This value increases to slightly over \$62.0 million by the end of 2013 when full expansion has been implemented. Estimates indicate that current Boeing related expenditures account for \$10.0 million of the county's gross retail

sales. Boeing expansion is expected to increase this number by nearly \$2.5 million for an annual total of \$12.5 million in retail sales by 2013.

Finally, Boeing operations also produce tax revenues for both the local and state governments. It is estimated that all expenditures related to present Boeing operations generate approximately \$4.1 million in taxes, paid by affected industries and residents located in El Paso County (Table 9). Of this \$4.1 million, it is estimated that 48 percent or \$2.0 million is allocated to the state government, while the remaining 52 percent or \$2.1 million is allotted to the local government. After the planned expansion is implemented, total tax revenues are expected to increase to \$5.3 million by 2013; of this, about \$2.6 million is paid to the state and \$2.7 million is paid locally (Table 9).

Table 9. Boeing Operations Fiscal Impacts on El Paso County (\$Mil)

	Current	Cumulative Expansion				Total
	2010	2010	2011	2012	2013	Current + Expansion
Gross County Product	\$54.519	\$3.791	\$7.305	\$10.722	\$13.710	\$68.228
County Personal Income	\$50.032	\$3.328	\$6.405	\$9.377	\$11.981	\$62.013
County Retail Sales	\$10.008	\$0.685	\$1.319	\$1.934	\$2.472	\$12.480
Total Tax Revenue	\$4.127	\$0.326	\$0.631	\$0.932	\$1.194	\$5.322
State Revenue	\$2.002	\$0.158	\$0.306	\$0.452	\$0.579	\$2.581
Local Revenue	\$2.126	\$0.168	\$0.325	\$0.480	\$0.615	\$2.741

In terms of Texas impacts, current Boeing operations and related expenditures contribute approximately \$61.4 million per year to the gross state product (Table 10). This value is expected to increase by \$15.9 million with the addition of 118 Boeing employees for a total of \$77.3 million annually. Furthermore, present local operations and associated expenditures by industries and households located in Texas contribute \$55.7 million to total state personal income. This dollar value is projected to increase to \$69.4 million per year with full expansion implemented. Additionally, \$11.1 million of state gross retail sales are estimated to be associated to the existing El Paso facility operations and related spending. The addition of 118 employees boosts retail sales within the state by more than 25 percent, with a sales value approaching \$14.0 million (Table 10).

To conclude, Table 10 illustrates taxes collected from the El Paso Boeing facility, as well as supplier industries and affected households located within the state. These are currently estimated to be \$4.8 million; \$2.3 million is allocated to the state and the remaining \$2.5 million is allocated to Texas county governments (Table 10). Thus, Texas counties, other than El Paso, are presently collecting nearly \$0.4 million annually as a result of El Paso Boeing operations and related expenditures. Implementation of the

projected expansion is estimated to result in a \$1.4 million increase in total tax revenues, amounting to \$6.2 million. Just under half of this total, or \$3.0 million, is expected to be allotted to the state government, while \$3.2 million is collected by Texas county governments. Accordingly, slightly over \$0.4 million is collected by Texas counties other than El Paso.

Table 10. Boeing Operations Fiscal Impacts on the State of Texas (\$Mil)

	Current	Cumulative Expansion				Total
	2010	2010	2011	2012	2013	Current + Expansion
Gross State Product	\$61.442	\$4.383	\$8.453	\$12.423	\$15.891	\$77.333
State Personal Income	\$55.659	\$3.797	\$7.312	\$10.720	\$13.703	\$69.362
State Retail Sales	\$11.136	\$0.781	\$1.506	\$2.211	\$2.828	\$13.963
Total Tax Revenue	\$4.791	\$0.383	\$0.741	\$1.095	\$1.404	\$6.194
State Revenue	\$2.323	\$0.186	\$0.359	\$0.531	\$0.681	\$3.004
Local Revenue	\$2.467	\$0.197	\$0.382	\$0.564	\$0.723	\$3.190

Capital Investment Activities

Tables in the subsequent section describe economic and fiscal impacts of planned capital investment activities necessary to support El Paso Boeing facility expansion. Results reflect only the effects of new construction and related labor. Because machinery and equipment investments are out-of-state expenditures, these purchases do not have an impact on the county or state economy. It is important to note, however, that capital equipment is subject to property taxes. Given that nearly \$5.6 million will be invested in equipment and machinery over the span of several years, a significant contribution to the tax base has been excluded from the scope of this report.

Construction occurs in two phases; the tables below report 2010 annual impacts, as well as 2011 annual impacts for the El Paso County and the state. In addition, a total column is included for each region representing the aggregate impact of these two years. Unlike findings reported in the previous section, changes in economic activity related to the two-year construction project represent temporary impacts for the county and state regions. As previously mentioned, all dollar values are reported in 2010 dollars.

Economic Impacts

In 2010, Boeing intends to spend a total of \$900 thousand on construction for the expansion of its El Paso facility (this figure includes building costs, as well as associated labor costs). The increase in spending

within the construction sector, in turn, generates an additional \$422 thousand in local industry spending for a total increase in 2010 county output of approximately \$1.3 million (Table 11). Similarly, in 2011, Boeing is expected to spend \$950 thousand on construction expenditures (this figure amounts to \$916 thousand when deflated to 2010 dollars). As a result, 2011 county output is projected to increase by nearly \$1.4 million. In sum, the planned construction on the local Boeing facility is estimated to increase El Paso County output by \$2.7 million over the two-year period. For the state of Texas, local Boeing construction in 2010 and 2011 is expected to increase state output by approximately \$1.5 million per year (Table 11). Hence, Texas State output is expected to increase by \$3.0 million during the length of Boeing construction.

Table 11. Boeing Construction Impact on Output in El Paso County and the State

	El Paso County			State of Texas		
	Annual Impact		Total	Annual Impact		Total
	2010	2011	2010 + 2011	2010	2011	2010 + 2011
Direct Effect	\$900.0	\$916.2	\$1,816.2	\$900.0	\$916.2	\$1,816.2
Indirect Effect	\$209.5	\$213.3	\$422.7	\$311.7	\$317.3	\$629.0
Induced Effect	\$212.3	\$237.4	\$449.7	\$245.6	\$272.5	\$518.1
Total Effect	\$1,321.8	\$1,366.8	\$2,688.6	\$1,457.3	\$1,506.0	\$2,963.3

Approximately 34 percent or \$909 thousand of the total increase in county output associated with El Paso Boeing construction is expected to be allocated to labor income (Table 12). Similarly, of the \$3.0 million in total output generated within the state, 33 percent, or \$974 thousand, is anticipated to be paid to workers and self-employed individuals residing in Texas.

Table 12. Boeing Construction Impact on Labor Income in El Paso County and the State of Texas (\$K)

	El Paso County			State of Texas		
	Annual Impact		Total	Annual Impact		Total
	2010	2011	2010 + 2011	2010	2011	2010 + 2011
Direct Effect	\$300.0	\$342.0	\$642.0	\$300.0	\$342.0	\$642.0
Indirect Effect	\$65.8	\$67.0	\$132.8	\$87.9	\$89.4	\$177.3
Induced Effect	\$63.5	\$71.0	\$134.5	\$73.3	\$81.3	\$154.6
Total Effect	\$429.3	\$480.1	\$909.4	\$461.1	\$512.8	\$973.9

Finally, the construction project is expected to generate a total average of 9.5 jobs within El Paso County for each of the two years (or 19 person-years).¹⁶ This value is expected to increase to 10 jobs per year when the state is considered in its entirety (Table 13).

Table 13. Boeing Construction Impact on Employment in El Paso County and the State of Texas

	El Paso County			State of Texas		
	Annual Impact		Total*	Annual Impact		Total*
	2010	2011	2010 + 2011	2010	2011	2010 + 2011
Direct Effect	6	6	12	6	6	12
Indirect Effect	1	2	3	2	2	4
Induced Effect	2	2	4	2	3	5
Total Effect	9	10	19	10	10	20

*Aggregate employment values are measured in person-years.

Fiscal Impacts

Table 14 below presents the fiscal impacts of the two-year local Boeing construction project for the county and the state. The county's gross regional product is expected to grow by a total of \$1.2 million during the construction period; while the state's gross regional product is expected to grow by nearly \$1.4 million. Total personal income for El Paso County and for Texas is expected to increase by \$1.1 million and \$1.2 million respectively. Additionally, findings indicate that gross retail sales over the two-year construction period will grow by \$221 thousand within the county, and by approximately \$240 thousand within the state.

Finally, in terms of total tax revenues, the construction project is expected to generate an additional \$64,000 in taxes paid by county industries and households; approximately 52 percent will be collected by the county and the remaining 48 percent by the state. When considering Texas in its entirety, it is estimated that nearly \$74,000 in total taxes will be created due to the two-year construction project; off that, close to \$36,000 will be allocated to the state (Table 14).

¹⁶ Refer to footnote three for a definition and interpretation of person-years.

Table 14. Boeing Construction Fiscal Impacts on El Paso County and the State of Texas (\$K)

	El Paso County			Texas State		
	Annual Impact		Total	Annual Impact		Total
	2010	2011	2010 + 2011	2010	2011	2010 + 2011
Gross Regional Product	\$586.4	\$646.2	\$1,232.6	\$644.8	\$706.3	\$1,351.1
Total Personal Income	\$524.8	\$586.8	\$1,111.5	\$571.5	\$635.5	\$1,206.9
Gross Retail Sales	\$104.5	\$116.7	\$221.2	\$113.6	\$126.1	\$239.8
Total Tax Revenue	\$30.6	\$33.0	\$63.6	\$35.5	\$38.0	\$73.5
State Revenue	\$14.9	\$16.0	\$30.8	\$17.2	\$18.4	\$35.7
Local Revenue	\$15.8	\$17.0	\$32.8	\$18.3	\$19.6	\$37.9

Conclusion

In summary, the economic and fiscal benefits generated by the planned expansion of the local Boeing facility are substantial to both the El Paso County and the state. Once expansion is complete, operations are expected to support approximately 952 jobs within various sectors of El Paso's economy and 1,027 jobs throughout Texas. This translates to an annual increase in wages of about \$50.7 million within the county and \$56.0 million within the state. Furthermore, construction in support of the expanded operations serves to augment these estimates. Finally, it is important to note that implementation of this expansion is associated with additional benefits not quantified by this study, such as a more competitive industrial sector, as well as contributions to the overall community quality of life.