The Economic Benefits of Potential Cost Savings Associated with Emergency Services Districts

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Introduction

Emergency Services Districts (ESDs) are local political subdivisions of the State of Texas that may provide fire, rescue, emergency medical services, and other emergency services in the area where they are established. ESDs are designed to ensure adequate and stable funding for local emergency services for all residents in the district. In Texas, there are currently 334 ESDs in 94 counties with new districts formed every year.

ESDs are primarily funded by ad valorem taxes and per the State Constitution cannot exceed more than $0.10 per $100 of property valuation. ESDs may also levy a sales and use tax for additional funding. ESDs are governed by a board of five commissioners typically appointed by the County Commissioners Court in which they reside. In some areas the ESD Commissioners are elected by residents of the district.

ESDs are designed to ensure adequate and stable funding for local emergency services for all residents in the district.

The establishment of an ESD may also result in better Insurance Services Office (ISO) ratings for the ESD service area which many insurance companies use as part of their criteria in setting insurance premiums. A better ISO rating could lead to lower insurance premiums for businesses and homeowners in the district.

The Perryman Group (TPG) was recently asked to estimate the economic benefits of the cost savings associated with ESDs compared to other options such as outsourcing to a municipality. A brief overview of methods used is presented on the following page, with additional detail in Appendix A.

Measuring Economic Impacts

Any economic stimulus, whether positive or negative, generates multiplier effects throughout the economy. In this case, The Perryman Group estimated the savings provided by ESDs compared to other options such as outsourcing to a municipality and then quantified the economic benefits of these savings.

The Perryman Group's input-output assessment system (the US Multi-Regional Impact Assessment System, which is described in further detail in Appendix A to this report) was developed by the firm about 40 years ago and has been consistently maintained and updated since that time. The model has been used in hundreds of analyses for clients ranging from major corporations to government agencies and has been peer reviewed on multiple occasions. The impact system uses a variety of data (from surveys, industry information, and other sources) to describe the various goods and services (known as resources or inputs) required to produce another good/service. This process allows for estimation of total economic impacts (including multiplier effects).

Total economic effects are quantified for key measures of business activity:

- **Total expenditures** (or total spending) measures the dollars changing hands as a result of the economic stimulus.
- **Gross product** (or output) is production of goods and services that will come about in each area as a result of the activity. This measure is parallel to the gross domestic product numbers commonly reported by various media outlets and is a subset of total expenditures.
- **Personal income** is dollars that end up in the hands of people in the area; the vast majority of this aggregate derives from the earnings of employees, but payments such as interest and rents are also included.
- **Job gains** are expressed as "jobs" for ongoing effects or "job-years" for transitory effects such as construction or for cumulative measures. A job-year is one person working for one year, though it could be multiple persons working partial years.

Monetary values were quantified on a constant (2020) basis to eliminate the effects of inflation. Additional detail regarding the methods used is provided in Appendix A.

Economic Benefits of ESDs

The Perryman Group compared the cost of emergency services within ESDs to those common in Texas municipalities. An illustration of potential cost savings associated with insurance pricing was also developed. (See Appendix A for additional information.)

Economic Benefits

The Perryman Group estimated the cost savings associated with emergency services provided through ESDs compared to other options such as municipalities. The economic benefits of these cost savings under Low Case assumptions (with savings compared to lower-cost municipalities offering comparable levels of service) include **$300.0 million** in annual gross product and some **2,947** jobs in the relevant areas. Under a High Case scenario (with costs saving reflecting the average from a sample of appropriate municipalities), savings associated with ESDs generate estimated benefits of **$528.2 million** in annual gross product and **5,188** jobs.

The Estimated Impact of the Cost Savings Achieved by Using Emergency Services Districts (ESDs) Relative to Municipalities for Fire Protection and Associated Services on Business Activity in the Relevant Areas

	Total Expenditures (Millions of 2020 Dollars)	Gross Product (Millions of 2020 Dollars)	Personal Income (Millions of 2020 Dollars)	Employment (Jobs)
Low Case	$656.808	$300.037	$181.194	2,947
High Case	$1,156.264	$528.194	$318.980	5,188

Note: Based on The Perryman Group's estimates of savings associated with ESDs compared to other options such as outsourcing to a municipality and the related economic benefits of those savings. The Low Case assumes savings compared to low-cost municipality costs, while the High Case presumes costs equal to the median municipal costs. The relevant areas are those where ESDs are in place. Additional explanation of methods and assumptions may be found elsewhere in this report and Appendix A, with results by industry in Appendix B.
Source: US Multi-Regional Impact Assessment System, The Perryman Group

Illustration of Potential Insurance Savings

In order to estimate the potential benefits of reduced insurance costs, TPG developed an illustrative scenario based on contemporary practices relating insurance to enhancements in fire protection of other kinds. The assumption of a 3% rate reduction was found to be reasonable for purposes of illustration, and The Perryman Group estimates that such savings would generate economic benefits including **$26.6 million** in annual gross product and **261** jobs in the relevant area.

A Representative Illustration of the Potential Impact of Insurance Cost Savings Achieved by the Added Safety Provided by Emergency Services Districts (ESDs) Relative to Municipalities on Business Activity in the Relevant Areas

	Total Expenditures (Millions of 2020 Dollars)	Gross Product (Millions of 2020 Dollars)	Personal Income (Millions of 2020 Dollars)	Employment (Jobs)
	$58.270	$26.618	$16.075	261

Note: Based on a hypothetical 3% reduction in insurance costs and The Perryman Group's estimates of the related economic benefits of those savings. Additional explanation of methods and assumptions may be found elsewhere in this report and Appendix A, with results by industry in Appendix B.
Source: US Multi-Regional Impact Assessment System, The Perryman Group

Conclusion

Emergency Services Districts provide a stable source of funds for fire protection and other protective services. Even at the highest allowable tax rates, ESDs provide notable cost savings compared to other options such as contracting with a municipality. These savings generate significant economic benefits of up to **$528.2 million** in annual gross product and **5,188** jobs as outlined in this report. The improved levels of protection can also lead to insurance savings.

Emergency Services Districts provide a stable source of funds for fire protection and other protective services, cost savings, and economic benefits.

Without the resources provided by ESDs, many areas would be faced with inadequate protective services. In some areas, it is difficult to retain sufficient numbers of volunteers (in fact, there has been a long-term reduction in volunteers). In addition, insurance requirements are further challenging smaller providers. These trends increase the need for more formal funding structures such as those provided by ESDs.

Appendix A: Methods Used

The US Multi-Regional Impact Assessment System (USMRIAS) measures multiplier effects of economic stimuli. The basic modeling technique employed in this study is known as dynamic input-output analysis, which essentially uses extensive survey data, industry information, and a variety of corroborative source materials to create a matrix describing the various goods and services (known as resources or inputs) required to produce one unit (a dollar's worth) of output for a given sector. Once the base information is compiled, it can be mathematically simulated to generate evaluations of the magnitude of successive rounds of activity involved in the overall production process.

There are two essential steps in conducting an input-output analysis once the system is operational. The first major endeavor is to accurately define the levels of direct activity to be evaluated. In this instance, The Perryman Group estimated costs savings associated with ESDs by comparing the maximum allowable property tax levies for ESDs to the implied tax rates to fund fire protection in municipalities offering similar services. In particular, a sample of cities was compiled which (1) were similar in size to many of the ESDs, (2) were in relative proximity to ESDs, and (3) had recent detailed budget information available. The cost of emergency services was estimated in each area based on the property tax yield per $0.01 in the tax rate (per $100 valuation) and the reported budget amount allocated to these functions. These estimates understate the actual cost to the extent that various overhead expenses which would be incurred by ESDs are not assigned at the departmental level within the cities. The costs determined through this process generally range from about $0.141 to about $0.222 per $100 valuation. A significant cluster of lower-cost areas exhibited a mean value of $0.14842974 per $100 valuation, while the overall mean of the entire sample was $0.18525715.

As noted, these rates may be compared to the costs associated with ESDs to provide an estimate of the savings being achieved. Specifically, the aggregate potential costs of acquiring services at typical municipal rates are compared with those of ESDs. For purposes of this analysis, a rate of $0.10 per $100 valuation is assumed, which represents the maximum allowable levy for ESDs. This approach will modestly understate benefits, as not all ESDs set rates at the highest permissible level. The sample average rate across all districts is

about $0.082, but the weighted average is likely higher as many of the large ones have levies at or near $0.10.

A Low Case scenario of direct savings was developed based on the savings in relation to common lower-cost municipalities, while the High Case assumes the median cost of all of the areas in the sample. In both cases, the most recently available information and appropriate measures of escalation were uses to generate estimates in current (2020) dollars. Once these direct effects were estimated, total economic impacts where quantified through model simulation as described below.

In order to estimate the potential benefits in the form of reduced insurance costs, TPG developed an illustrative scenario, While there is no direct linkage between ESD ratings and insurance rates, there is substantial industrial actuarial information to establish that the risk associated with fire and other losses plays a role in determining policy costs. Based on contemporary practices determined from an extensive review of industry information, the assumption of a 3% rate reduction was found to be reasonable for purposes of illustration. Overall fire insurance costs were determined using the most recently available data, with adjustments for both regional variations and conversion to 2020 dollars.

Simulations of the input-output system were utilized to measure overall economic effects of savings. The present study was conducted within the context of the US Multi-Regional Impact Assessment System (USMRIAS) which was developed and is maintained by The Perryman Group. This model has been used in hundreds of diverse applications across the country and has an excellent reputation for accuracy and credibility; it has also been peer reviewed on multiple occasions. The system used in the current simulations was developed using detailed data reflecting the unique industrial structure of a study area prepared for this analysis consisting of the areas where ESDs are present. The allocation of the direct savings was based on the property tax incidence across residential properties and more than 500 individual industrial categories.

The USMRIAS is somewhat similar in format to the Input-Output Model of the United States which is maintained by the US Department of Commerce. The model developed by TPG, however, incorporates several important enhancements and refinements. Specifically, the expanded system includes (1) comprehensive 500-sector coverage for any county, multi-county, or urban region; (2) calculation of both total expenditures and value-added by industry

and region; (3) direct estimation of expenditures for multiple basic input choices (expenditures, output, income, or employment); (4) extensive parameter localization; (5) price adjustments for real and nominal assessments by sectors and areas; (6) measurement of the induced impacts associated with payrolls and consumer spending; (7) embedded modules to estimate multi-sectoral direct spending effects; (8) estimation of retail spending activity by consumers; and (9) comprehensive linkage and integration capabilities with a wide variety of econometric, real estate, occupational, and fiscal impact models.

The impact assessment (input-output) process essentially estimates the amounts of all types of goods and services required to produce one unit (a dollar's worth) of a specific type of output. For purposes of illustrating the nature of the system, it is useful to think of inputs and outputs in dollar (rather than physical) terms. As an example, the construction of a new building will require specific dollar amounts of lumber, glass, concrete, hand tools, architectural services, interior design services, paint, plumbing, and numerous other elements. Each of these suppliers must, in turn, purchase additional dollar amounts of inputs. This process continues through multiple rounds of production, thus generating subsequent increments to business activity. The initial process of building the facility is known as the direct effect. The ensuing transactions in the output chain constitute the indirect effect.

Another pattern that arises in response to any direct economic activity comes from the payroll dollars received by employees at each stage of the production cycle. As workers are compensated, they use some of their income for taxes, savings, and purchases from external markets. A substantial portion, however, is spent locally on food, clothing, health care services, utilities, housing, recreation, and other items. Typical purchasing patterns in the relevant areas are obtained from the Center for Community and Economic Research Cost of Living Index, a privately compiled inter-regional measure which has been widely used for several decades, and the Consumer Expenditure Survey of the US Department of Labor. These initial outlays by area residents generate further secondary activity as local providers acquire inputs to meet this consumer demand. These consumer spending impacts are known as the induced effect. The USMRIAS is designed to provide realistic, yet conservative, estimates of these phenomena.

Sources for information used in this process include the Bureau of the Census, the Bureau of Labor Statistics, the Regional Economic Information System of the US Department of Commerce, and other public and private sources. The

pricing data are compiled from the US Department of Labor and the US Department of Commerce. The verification and testing procedures make use of extensive public and private sources.

Impacts were measured in constant 2020 dollars to eliminate the effects of inflation.

The USMRIAS generates estimates of the effect on several measures of business activity. The most comprehensive measure of economic activity used in this study is Total Expenditures. This measure incorporates every dollar that changes hands in any transaction. For example, suppose a farmer sells wheat to a miller for $0.50; the miller then sells flour to a baker for $0.75; the baker, in turn, sells bread to a customer for $1.25. The Total Expenditures recorded in this instance would be $2.50, that is, $0.50 + $0.75 + $1.25. This measure is quite broad but is useful in that (1) it reflects the overall interplay of all industries in the economy, and (2) some key fiscal variables such as sales taxes are linked to aggregate spending.

A second measure of business activity frequently employed in this analysis is that of Gross Product. This indicator represents the regional equivalent of Gross Domestic Product, the most commonly reported statistic regarding national economic performance. In other words, the Gross Product of Texas is the amount of US output that is produced in that state; it is defined as the value of all final goods produced in a given region for a specific period of time. Stated differently, it captures the amount of value-added (gross area product) over intermediate goods and services at each stage of the production process, that is, it eliminates the double counting in the Total Expenditures concept. Using the example above, the Gross Product is $1.25 (the value of the bread) rather than $2.50. Alternatively, it may be viewed as the sum of the value-added by the farmer, $0.50; the miller, $0.25 ($0.75 - $0.50); and the baker, $0.50 ($1.25 - $0.75). The total value-added is, therefore, $1.25, which is equivalent to the final value of the bread. In many industries, the primary component of value-added is the wage and salary payments to employees.

The third gauge of economic activity used in this evaluation is Personal Income. As the name implies, Personal Income is simply the income received by individuals, whether in the form of wages, salaries, interest, dividends, proprietors' profits, or other sources. It may thus be viewed as the segment of overall impacts which flows directly to the citizenry.

The final aggregates used are Jobs and Job-Years, which reflect the full-time equivalent jobs generated by an activity. For an economic stimulus expected to endure (such as the ongoing operations of a facility), the Jobs measure is used. It should be noted that, unlike the dollar values described above, Jobs is a "stock" rather than a "flow." In other words, if an area produces $1 million in output in 2018 and $1 million in 2019, it is appropriate to say that $2 million was achieved in the 2018-19 period. If the same area has 100 people working in 2018 and 100 in 2019, it only has 100 Jobs. When a flow of jobs is measured, such as in a construction project or a cumulative assessment over multiple years, it is appropriate to measure employment in Job-Years (a person working for a year, though it could be multiple people working for partial years). This concept is distinct from Jobs, which anticipates that the relevant positions will be maintained on a continuing basis.

Appendix B: Detailed Results

The Estimated Impact of the Cost Savings Achieved by Using Emergency Services Districts (ESDs) Relative to Municipalities for Fire Protection and Associated Services on Business Activity in the Relevant Areas: Low Case

Results by Industry

Industry	Total Expenditures	Gross Product	Personal Income	Jobs
Agriculture	+$12,595,334	+$3,567,844	+$2,353,052	+34
Mining	+$45,999,550	+$10,456,783	+$5,168,026	+26
Utilities	+$36,519,095	+$8,184,051	+$3,571,302	+14
Construction	+$30,797,990	+$15,415,508	+$12,703,336	+166
Manufacturing	+$153,917,919	+$46,249,501	+$25,868,208	+323
Wholesale Trade	+$28,162,562	+$19,054,012	+$10,986,713	+116
Retail Trade*	+$88,190,497	+$65,934,978	+$38,293,776	+1,102
Transportation & Warehousing	+$29,111,609	+$17,948,572	+$11,870,544	+151
Information	+$13,439,405	+$8,293,776	+$3,540,877	+29
Financial Activities*	+$112,338,307	+$40,677,811	+$14,171,755	+132
Business Services	+$36,181,605	+$23,525,487	+$19,190,765	+218
Health Services	+$27,120,840	+$18,684,118	+$15,797,594	+244
Other Services	+$42,433,261	+$22,044,690	+$17,678,357	+392
Total, All Industries	**+$656,807,975**	**+$300,037,130**	**+$181,194,303**	**+2,947**

Source: US Multi-Regional Impact Assessment System, The Perryman Group
Notes: Monetary values given in 2020 US dollars per year. Components may not sum due to rounding. Retail Trade includes Restaurants, Financial Activities includes Real Estate.

The Estimated Impact of the Cost Savings Achieved by Using Emergency Services Districts (ESDs) Relative to Municipalities for Fire Protection and Associated Services on Business Activity in the Relevant Areas: High Case

Results by Industry

Industry	Total Expenditures	Gross Product	Personal Income	Jobs
Agriculture	+$22,173,199	+$6,280,939	+$4,142,383	+60
Mining	+$80,978,967	+$18,408,429	+$9,097,945	+46
Utilities	+$64,289,294	+$14,407,445	+$6,287,026	+25
Construction	+$54,217,692	+$27,137,915	+$22,363,328	+293
Manufacturing	+$270,961,651	+$81,418,988	+$45,539,157	+568
Wholesale Trade	+$49,578,207	+$33,543,245	+$19,341,334	+205
Retail Trade*	+$155,253,157	+$116,073,883	+$67,413,494	+1,941
Transportation & Warehousing	+$51,248,936	+$31,597,196	+$20,897,255	+265
Information	+$23,659,125	+$14,600,608	+$6,233,464	+52
Financial Activities*	+$197,763,673	+$71,610,420	+$24,948,376	+232
Business Services	+$63,695,166	+$41,414,962	+$33,783,990	+383
Health Services	+$47,744,328	+$32,892,073	+$27,810,551	+429
Other Services	+$74,700,766	+$38,808,123	+$31,121,502	+690
Total, All Industries	**+$1,156,264,161**	**+$528,194,227**	**+$318,979,804**	**+5,188**

Source: US Multi-Regional Impact Assessment System, The Perryman Group
Notes: Monetary values given in 2020 US dollars per year. Components may not sum due to rounding. Retail Trade includes Restaurants, Financial Activities includes Real Estate.

A Representative Illustration of the Potential Impact of the Insurance Cost Savings Achieved by the Added Safety Provided by Emergency Services Districts (ESDs) Relative on Business Activity in the Relevant Areas

Results by Industry

Industry	Total Expenditures	Gross Product	Personal Income	Jobs
Agriculture	+$1,117,425	+$316,530	+$208,757	+3
Mining	+$4,080,958	+$927,698	+$458,494	+2
Utilities	+$3,239,877	+$726,067	+$316,836	+1
Construction	+$2,732,316	+$1,367,623	+$1,127,006	+15
Manufacturing	+$13,655,190	+$4,103,133	+$2,294,959	+29
Wholesale Trade	+$2,498,508	+$1,690,421	+$974,712	+10
Retail Trade*	+$7,824,027	+$5,849,577	+$3,397,322	+98
Transportation & Warehousing	+$2,582,705	+$1,592,350	+$1,053,123	+13
Information	+$1,192,308	+$735,802	+$314,137	+3
Financial Activities*	+$9,966,357	+$3,608,828	+$1,257,281	+12
Business Services	+$3,209,936	+$2,087,119	+$1,702,554	+19
Health Services	+$2,406,089	+$1,657,605	+$1,401,521	+22
Other Services	+$3,764,567	+$1,955,746	+$1,568,377	+35
Total, All Industries	**+$58,270,265**	**+$26,618,500**	**+$16,075,079**	**+261**

Source: US Multi-Regional Impact Assessment System, The Perryman Group
Notes: Monetary values given in 2020 US dollars per year. Components may not sum due to rounding. Retail Trade includes Restaurants, Financial Activities includes Real Estate.