Costs, Consequences, and Cures!!!

An Assessment of the Impact of
Severe Mental Health and Substance Abuse Disorders on
Business Activity in Texas and the
Anticipated Economic and Fiscal Return on
Investment in Expanded Mental Health Services

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Introduction

Mental health and substance abuse disorders are pressing challenges across the nation. While these problems can clearly take an enormous toll on individuals, they also involve sizable costs for society as a whole. For those without private insurance, problems can be particularly acute. Given funding challenges, dealing with these issues increasingly requires innovative approaches to maximize the return on investment in services. **Even beyond the quality of life and other human costs, mental health disorders can be expensive in terms of treatment.** With inadequate treatment, overall costs, such as comorbidities, loss of wages and productivity, incarceration, homelessness, and mortality, can notably escalate.

Approximately 60 million adults suffer from a diagnosable mental disorder in the US each year.[1] While expenditures for treatment are relatively easy

[1] National Institutes of Health. National Institute of Mental Health. *Statistics*. (2009). Retrieved March 10, 2009, from http://www.nimh.nih.gov/health/topics/statistics/index.shtml; US Census Bureau. American FactFinder. (n.d.). 2007 American community survey 1-year estimates. Retrieved April 21, 2009, from

to quantify, there are numerous spillover effects which can be and typically are far greater that contribute to the overall burden to society.

Funding is a significant issue in states across the country when it comes to mental health. National trends show that health care spending continues to rise, though the share dedicated to mental health and substance abuse spending is decreasing as needs escalate. The situation is leading to significant economic losses on many fronts, particularly in areas such as Texas, which ranks near the bottom of the country in per-capita public spending for treatment.

The Perryman Group (TPG) was asked to evaluate the economic returns on spending for mental health and the benefits of such outlays for the state's economy. As a part of this effort, the overall costs to business activity in Texas associated with severe mental illness and substance abuse were estimated. The current report presents the findings from this investigation.

Highlights of Study Findings

- More than 26% of American adults suffer from a diagnosable mental disorder in any given year (about 60 million people when applied to current US Census population estimates). Many of these individuals do not receive treatment; lack of affordability is the most common reason.

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http://factfinder.census.gov/servlet/DTTable?_bm=y&-geo_id=01000US&-ds_name=ACS_2007_1YR_G00_&-_lang=en&-_caller=geoselect&-state=dt&-format=&-mt_name=ACS_2007_1YR_G2000_B01001.

- State-level estimates indicate almost 11% of Texans age 18 or older suffer from serious psychological distress.

- **Texas ranks at or near the bottom in terms of per-capita mental health spending compared to other states.**

- Increased pressure to provide quality mental health care services given budget constraints has contributed to innovative programs aimed at providing treatment more efficiently. The 80th Texas Legislature took an important step toward addressing the burden of mental health with an appropriation to implement an improved mental health crisis system referred to as "Crisis Redesign."
    - Initial reviews of this initiative are positive.
    - Even so, much more needs to be done to improve the quality of life of these Texans and their families and to reduce the enormous associated social and economic costs.

- **Severe mental health and substance abuse issues involve a notable economic component including**
    - **direct costs such as medication, clinic visits, hospitalization, and emergency room visits and**
    - **spillover effects in the overall economy including lost earning potential, coexisting condition costs, disability payments, homelessness, and incarceration.**

- While research differs based on treatment type, an overarching body of research suggests that **savings generally exceed the**

cost of providing mental health and substance abuse treatment.

- The Perryman Group measured the overall cost of mental disorders and substance abuse as well as the return on spending for mental health care in Texas and the potential net benefits of expanding budget allocations for State programs.

- The **total impact of severe mental health and substance abuse** issues on business activity includes
    - **losses of $269.343 billion in total spending each year (the direct declines alone are estimated to be $127.4 billion annually) and 1,675,582 permanent jobs.**
    - **costs in terms of State tax dollars and spending increases in other areas** from this foregone activity and actual outlays (net of federal matching and reimbursement funds) **totaling $13.099 billion each year.**

- Simply stated, **if all of the costs and associated losses associated with these factors could be eliminated, the Texas economy would be approximately 10% larger than its present size**.

- The components of this total cost include medical spending related to treatment, comorbidity and disability expense, lost income and productivity, incarceration, homelessness, and mortality.
    - **Medical expenses** alone cause annual losses of $35.850 billion in total spending and more than 262,900 jobs. The

negative effect on State tax receipts and outlays totals $2.005 billion.

- Even greater is the impact of **comorbidities and disability expenses** associated with severe mental health and substance abuse issues. Combined, they are responsible for $79.734 billion in annual losses throughout Texas and over 584,750 jobs. In addition, they cause a reduction in annual gross product of $42.769 billion. The associated lost State net fiscal resources total $4.126 billion per year.
- Mental and substance abuse disorders lead to large losses in **income and productivity**. The Perryman Group estimated these effects to include reductions in total expenditures of $111.802 billion per annum. In addition, these problems lead to losses of some 533,209 jobs. State fiscal receipts are adversely affected by $2.051 billion each year.
- People with mental health and substance abuse issues make up a significant portion of the incarcerated population within Texas. This analysis shows **incarceration** and related expenses for such persons cost the state economy $4.487 billion in annual spending and some 32,900 jobs. In addition, State tax receipts are reduced and expenses increased by an estimated annual amount of $1.698 billion.
- **Homelessness** expenses related to severe mental health and substance abuse issues are responsible for annual losses to the economy of $5.301 billion in total expenditures and 38,878 jobs. State government resources are adversely impacted by $1.697 billion per annum.

- **Loss of life** due to mental and substance abuse disorders not only involves enormous human costs, it also negatively affects the state economy. TPG estimated that mortality expenses lead to reductions in total spending each year of $32.169 billion and State revenue losses of $1.521 billion.

- While these costs can never be completely eliminated, enhanced funding would help reduce the social, economic, and fiscal costs of mental and substance abuse disorders. The Perryman Group analyzed the effects of several frequently discussed funding scenarios.
  - **Expanding the current Medicaid program to include substance abuse programs** would lead to net gains in total spending in the state economy of an annual $0.694 billion and 4,073 jobs. The associated gains in tax receipts to the State include $37.566 million each year, or a **return on investment of $2.82 for every $1 of State funds** committed. With regard to the overall economy, aggregate spending benefits by $52.16 for each dollar of State tax funds.
  - Implementing a **comprehensive recommended package of substance abuse services** would involve even greater net effects of $0.894 billion in total spending and 5,247 jobs, as well as $48.393 million in State fiscal receipts (representing an annual return on investment of **$2.26 for each $1 in direct outlays**. The economy as a whole generates $41.64 in enhanced expenditures for each dollar of public resource commitment

- **Continuing the Crisis Redesign initiative** leads to net economic benefits of $0.513 billion in total expenditures, 3,043 jobs, and $36.588 million in incremental State taxes. The **annual rate of return on this investment to State government is estimated at 175%**, while the aggregate spending in the economy as a whole rises by $33.80 per direct dollar devoted to this effort.
- If funding is provided for the **next phase of the Crisis Redesign initiative**, net gains of $1.470 billion in annual total spending and 8,716 permanent jobs could be realized. In addition, State tax receipts could be expected to rise by $76.286 million per year, resulting in a **return of 185% to the government** and an expenditure gain in the economy of $35.71 for every $1 of direct outlays.
- The benefits from implementing a **$20 million hypothetical jail diversion program** would include a positive net annual impact of $1.074 billion in total expenditures and 6,420 permanent jobs. The yearly increment to State tax receipts that could be expected was calculated to be $53.964 million, or a **return of $2.70 per dollar of investment** and $53.71 in overall benefit.

- The Perryman Group looked at several options for **increasing overall funding** for mental health and substance abuse services. The initial scenario involves restoring funding for community-based services **to the 2000 level** on an inflation-adjusted basis. Depending on the measure of inflation (and, hence, assumed level of funding), gains ranged from $1.650 billion in total expenditures

and 9,782 permanent jobs to $3.100 billion in total spending and 18,383 permanent jobs. Both simulations reveal an **annual return on investment to the State of approximately 170%** and an increment of $32.76 in overall spending per dollar of investment.

- **Increasing State funding** for mental health and substance abuse services to a **per-capita level equivalent to the national average** would yield gains of $37.423 billion in total spending and 219,836 jobs. The **return on investment for the State would be 122%**, with about $22.51 in overall activity per dollar of direct spending. Note that these increases could be substantially enhanced by directing more of the funds to community-level programs, thus achieving greater relative efficiency.

- Even in the current challenging budget environment, it is important to note that investments in treatment bring about savings in many areas. **Expanding funding for both traditional and innovative treatment options would pay sizable economic benefits even beyond the immeasurable quality-of-life improvement for those involved and represents an appropriate and highly productive use of State funds.**

The Perryman Group's Perspective

The Perryman Group (TPG) is a Texas-based economic research and analysis firm with more than 25 years of experience in assessing the economic impact of corporate expansions, regulatory changes, real estate developments, public policy initiatives, and myriad other types of events affecting business activity.

TPG has conducted hundreds of impact analyses for the US and Texas economies as well as all Texas metro areas and regions. The firm has maintained an extensive set of economic models for more than two decades, including econometric, impact assessment, demographic, occupational, and real estate absorption models developed to specifically reflect the underlying structure of the Texas economy and its various regions.

Impact studies have been performed for hundreds of clients including many of the largest corporations in the world, governmental entities at all levels, educational institutions, major health care systems, utilities, and economic development organizations. TPG has extensively analyzed the health care sector, including insurance, cost, affordability, and other areas relevant to the current analysis. Studies have also been conducted on the effects of specific public funding initiatives, including Medicaid and the State Children's Health Insurance Program (SCHIP). In particular, the firm has analyzed the NorthSTAR model for providing Mental Health and Substance Abuse services. Furthermore, TPG has frequently assessed the efforts of specific initiatives designed to improve outcomes and productivity, including recent evaluations of potential wellness and obesity initiatives and related topics.

Mental Health Overview

Mental illness does not discriminate by race, gender, age, or socioeconomic status, although access to treatment may vary across different demographic cohorts. Taken in aggregate, mental health care covers an array of different diagnoses from depression to more serious illnesses like schizophrenia. According to the National Institute of Mental Health, **26.2% of American adults suffer from a diagnosable mental disorder in any given year**[2] or about 60 million people when applied to current US Census population estimates.

The National Survey on Drug Use and Health (NSDUH) reports estimates for mental health across the nation. The NSDUH indicates that a smaller proportion of the population suffers from serious psychological distress (SPD).[3] An estimated 24.9 million adults in the US (11.3%) had a serious psychological disorder in 2006, unchanged from the 2005 rate.[4] Of those with SPD in 2006, 44.0% received treatment in the past year, 39.0% received a prescription medication, 27.2% outpatient treatment, and 3.9% inpatient treatment.[5]

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[2] National Institutes of Health. National Institute of Mental Health. *Statistics*. (2009). Retrieved March 10, 2009, from http://www.nimh.nih.gov/health/topics/statistics/index.shtml.

[3] SPD is a general category defined as having a score of 13 or higher on the K6 scale which consists of six questions that gather information on how frequently a respondent experienced symptoms of psychological distress during one month in the past year when they were at their worst emotionally; US Department of Health and Human Services. Substance Abuse and Mental Health Services Administration. Substance use disorder and serious psychological distress, by employment status. (2006). *The NSDUH Report* 38.

[4] US Department of Health and Human Services. Substance Abuse and Mental Health Services Administration. *Results from the 2006 national survey on drug use and health: National findings.* (2007, September). Retrieved April 9, 2009, http://www.oas.samhsa.gov/NSDUH/2K6NSDUH/2K6results.cfm.

[5] US Department of Health and Human Services. Substance Abuse and Mental Health Services Administration. *Results from the 2006 national survey on drug use and health: National findings.* (2007, September). Retrieved April 9, 2009, http://www.oas.samhsa.gov/NSDUH/2K6NSDUH/2K6results.cfm.

The NSDUH also reports on those who have experienced a major depressive episode (MDE) in the past year. In 2006, 7.2% of adults had at least one MDE in the previous year, a rate similar to 2005.[6] In addition, 13.9% of adults are estimated to have had at least one MDE in their lifetime.[7]

Overall, **while tens of millions of adults report one or more mental health problems, far fewer report receiving treatment**. In addition, the data available show that the percentage of those who report receiving treatment has not increased over the past several years.

Percent Receiving Past Year Treatment for Mental Health Problems among Adults Aged 18 or Older, by Type of Treatment: 2002-2006

	2002	*2003*	*2004*	*2005*	*2006*
Any Treatment	13.0	13.2	12.8	13.0	12.9
Inpatient	0.7	0.8	0.9	1.0	0.7
Outpatient	7.4	7.1	7.1	6.8	6.7
Prescription Medication	10.5	10.9	10.5	10.7	10.9

Source: US Department of Health and Human Services. Substance Abuse and Mental Health Services Administration. *Results from the 2006 National Survey on Drug Use and Health: National Findings*. (2007, September). Retrieved April 9, 2009, http://www.oas.samhsa.gov/NSDUH/2K6NSDUH/2K6results.cfm.

The co-occurrence of addictive disorders among those with mental illness further complicates diagnosis and treatment. According to 2006 NSDUH data, 5.6 million adults had co-occurring SPD and a substance use disorder, yet only 8.4% received both treatment for mental health

[6] US Department of Health and Human Services. Substance Abuse and Mental Health Services Administration. *Results from the 2006 national survey on drug use and health: National findings.* (2007, September). Retrieved April 9, 2009, http://www.oas.samhsa.gov/NSDUH/2K6NSDUH/2K6results.cfm.
[7] US Department of Health and Human Services. Substance Abuse and Mental Health Services Administration. *Results from the 2006 national survey on drug use and health: National findings.* (2007, September). Retrieved April 9, 2009, http://www.oas.samhsa.gov/NSDUH/2K6NSDUH/2K6results.cfm.

problems and specialty substance use treatment while 49.2% received no treatment for either problem.[8]

A larger proportion of the unemployed population suffers from a mental illness, but mental illness greatly affects businesses as well. According to the NSDUH (2004-2005), 18.9% of those unemployed, ages 18 to 64, had a substance use disorder within the previous year, 21.0% experienced serious psychological distress (SPD) in the previous year, and 7.3% had co-occurring SPD and substance use disorders.[9] **Within the full-time working population ages 18 to 64, 10.6% were estimated as having a substance use disorder within the previous year, 10.2% suffered from SPD in the previous year, and 2.4% had co-occurring SPD and substance use disorder.**[10] Of those full-time employees with co-occurring SPD and substance use disorder, 60% were not treated for either problem and less than 5% were treated for both.[11]

As life expectancy continues to increase, the nation can expect to see increasing diagnoses of mental illness in the aging population. Also, as the proportion of older Americans increases with the aging of the Baby Boomers, the sheer number of mental disorders of late life is projected to

[8] US Department of Health and Human Services. Substance Abuse and Mental Health Services Administration. *Results from the 2006 national survey on drug use and health: National findings.* (2007, September). Retrieved April 9, 2009, http://www.oas.samhsa.gov/NSDUH/2K6NSDUH/2K6results.cfm.
[9] US Department of Health and Human Services. Substance Abuse and Mental Health Services Administration. Substance use disorder and serious psychological distress, by employment status. (2006). *The NSDUH Report* 38.
[10] US Department of Health and Human Services. Substance Abuse and Mental Health Services Administration. Substance use disorder and serious psychological distress, by employment status. (2006). *The NSDUH Report* 38.
[11] US Department of Health and Human Services. Substance Abuse and Mental Health Services Administration. Substance use disorder and serious psychological distress, by employment status. (2006). *The NSDUH Report* 38.

expand.[12] Furthermore, particular events and circumstances can contribute to rising numbers of problems. For example, the country is expected to face an increase in prevalence of mental disorders in veterans returning from Iraq and Afghanistan in the near future.[13] The recent economic downturn is also expected to increase stress and other causal factors for severe mental illness and drug abuse.

Funding Challenges

Mental health care in the US drastically changed in 1963 with the Community Mental Health Centers Act, which encouraged a shift from institutional care to the administration of mental health care through small-scale community facilities. The mental health care system has, thus, increasingly become a State responsibility.

Public financing is growing in importance for mental health treatment funding. While federal block grants continue to contribute to each state's mental health program, support from Medicaid and other State-based sources make up an increasing portion of total funds. Some 58% of funding for mental health treatment in 2003 (the latest year for which detailed information has been released) was from public sources, and government outlays are expected to continue to remain an important part

[12] National Institutes of Health and Substance Abuse and Mental Health Services Administration. (n.d.). *Healthy people 2010 conference edition, chapter 18: Mental health and mental disorders.* Retrieved March 12, 2009, from http://mentalhealth.samhsa.gov/features/hp2010/issues.asp.
[13] National Institutes of Health and Substance Abuse and Mental Health Services Administration. *Healthy people 2010 midcourse review*. (2007). Retrieved April 9, 2009, from http://www.healthypeople.gov/Data/midcourse/html/focusareas/FA18TOC.htm.

of funding according to recent projections for the period through 2014.[14] .Public payments supported a majority of substance abuse expenditures as well rising from 68% in 1993 to 77% in 2003.[15] This proportion is likely to climb to 83% by 2014, at which time private spending for substance abuse is only expected to comprise 7% of spending, well below the 30% seen in 1986.[16]

Moreover, federal government spending actually decreased as a percentage of the total while state and local government spending increased. In particular, the share of spending by Medicaid for substance abuse rose from 16% in 1993 to 18% in 2003 for substance abuse and 21% to 26% for mental health spending.[17] Given budgetary constraints, many states have cut their mental health budgets, resulting in a loss of Medicaid matching funds. These long-established patterns are expected to remain generally constant through 2014, with public spending accounting for the same proportion of support for mental health (58%) while increasing modestly for substance abuse.[18]

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[14] US Department of Health and Human Services. Substance Abuse and Mental Health Services Administration. *National expenditures for mental health services and substance abuse treatment 1993-2003*. (2007). Retrieved March 18, 2009, from http://www.samhsa.gov/spendingestimates/toc.aspx; Levit, K. R., et al. *Projections of national expenditures for mental health services and substance abuse treatment, 2004-2014*. SAMHSA Publication No. SMA 08-4326. Rockville, MD: Substance Abuse and Mental Health Services Administration, 2008.

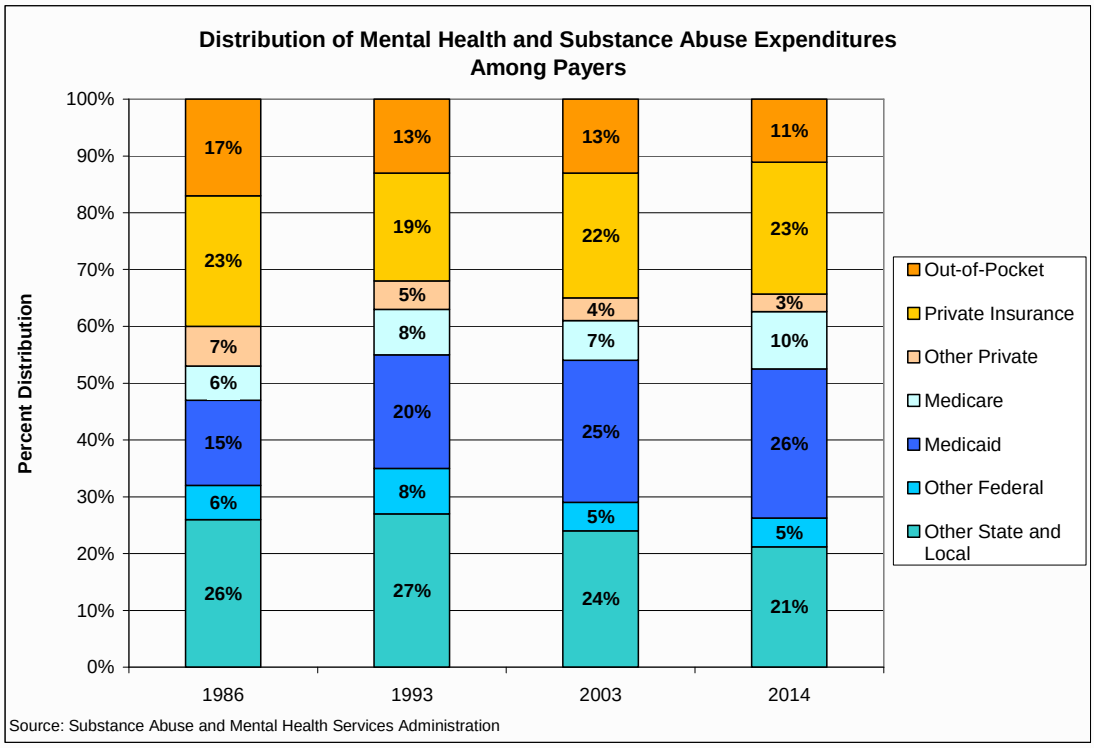
[15] US Department of Health and Human Services. Substance Abuse and Mental Health Services Administration. *National expenditures for mental health services and substance abuse treatment 1993-2003*. (2007). Retrieved March 18, 2009, from http://www.samhsa.gov/spendingestimates/toc.aspx.

[16] Levit, K. R., et al. *Projections of national expenditures for mental health services and substance abuse treatment, 2004-2014*. SAMHSA Publication No. SMA 08-4326. Rockville, MD: Substance Abuse and Mental Health Services Administration, 2008.

[17] US Department of Health and Human Services. Substance Abuse and Mental Health Services Administration. *National expenditures for mental health services and substance abuse treatment 1993-2003*. (2007). Retrieved March 18, 2009, from http://www.samhsa.gov/spendingestimates/toc.aspx.

[18] Levit, K. R., et al. *Projections of national expenditures for mental health services and substance abuse treatment, 2004-2014*. SAMHSA Publication No. SMA 08-4326. Rockville, MD: Substance Abuse and Mental Health Services Administration, 2008.

In addition, technology and other advances are enhancing the quality and sophistication of care, but advanced treatments are often more expensive, further straining budgets still further. Prescription drugs, for example, comprise much of the increase in mental health spending, growing by 18.8% annually between 1993 and 2003 and responsible for 42.0% of the total mental health spending increase during that time.[19] The chart below demonstrates the distribution of funding for mental health and substance abuse combined.

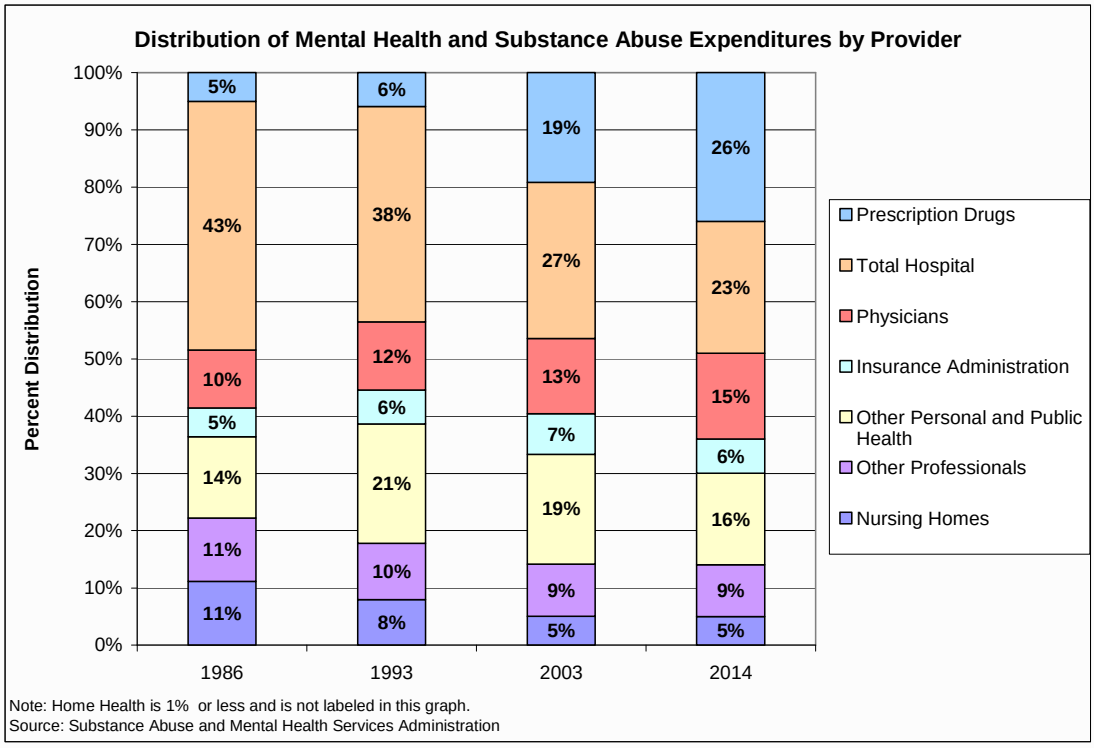


Source: Substance Abuse and Mental Health Services Administration

[19] US Department of Health and Human Services. Substance Abuse and Mental Health Services Administration. *National expenditures for mental health services and substance abuse treatment 1993-2003*. (2007). Retrieved March 18, 2009, from http://www.samhsa.gov/spendingestimates/toc.aspx.

For mental health alone, out-of-pocket spending increased by 7.2% annually from 1993 to 2003.[20] This pace represents faster growth than the 4.6% increase in out-of-pocket spending for all health care and is well above overall inflation.[21] Again, prescription drugs are part of the reason for this expansion, accounting for 23% of spending for mental health and only 11% for all health care.[22] As more generic medications come onto the market, growth in out-of-pocket mental health spending is expected to slow.[23] However, prescription drug spending will still make up an important part of cost for mental health (30% compared to 15% for all health care spending).[24]

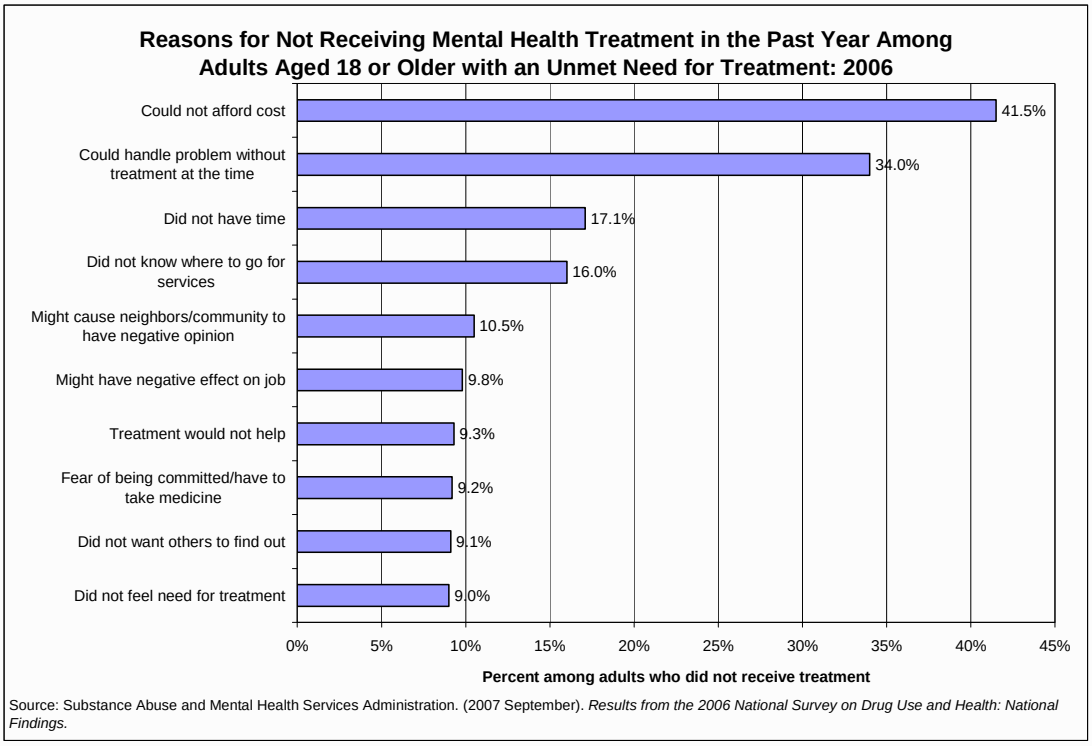
[20] US Department of Health and Human Services. Substance Abuse and Mental Health Services Administration. *National expenditures for mental health services and substance abuse treatment 1993-2003*. (2007). Retrieved March 18, 2009, from http://www.samhsa.gov/spendingestimates/toc.aspx.
[21] US Department of Health and Human Services. Substance Abuse and Mental Health Services Administration. *National expenditures for mental health services and substance abuse treatment 1993-2003*. (2007). Retrieved March 18, 2009, from http://www.samhsa.gov/spendingestimates/toc.aspx.
[22] US Department of Health and Human Services. Substance Abuse and Mental Health Services Administration. *National expenditures for mental health services and substance abuse treatment 1993-2003*. (2007). Retrieved March 18, 2009, from http://www.samhsa.gov/spendingestimates/toc.aspx.
[23] Levit, K. R., et al. *Projections of national expenditures for mental health services and substance abuse treatment, 2004-2014*. SAMHSA Publication No. SMA 08-4326. Rockville, MD: Substance Abuse and Mental Health Services Administration, 2008.
[24] Levit, K. R., et al. *Projections of national expenditures for mental health services and substance abuse treatment, 2004-2014*. SAMHSA Publication No. SMA 08-4326. Rockville, MD: Substance Abuse and Mental Health Services Administration, 2008.



Note: Home Health is 1% or less and is not labeled in this graph.
Source: Substance Abuse and Mental Health Services Administration

High and increasing costs present financial challenges for many individuals who need care. Among adults who did not receive mental health treatment in 2006, 41.5% listed cost as a factor.[25]

[25] US Department of Health and Human Services. Substance Abuse and Mental Health Services Administration. *Results from the 2006 national survey on drug use and health: National findings.* (2007, September). Retrieved April 9, 2009, http://www.oas.samhsa.gov/NSDUH/2K6NSDUH/2K6results.cfm.



Source: Substance Abuse and Mental Health Services Administration. (2007 September). *Results from the 2006 National Survey on Drug Use and Health: National Findings.*

Of those electing not to receive treatment, lack of affordability was the most common reason.

Mental Health in Texas

Millions of Texans suffer from mental health and substance abuse problems. The latest state-level estimates from the Substance Abuse and Mental Health Services Administration (SAMHSA) indicate that in 2006, 10.96% of Texans age 18 or older suffered from serious psychological distress, just slightly below the national average.[26] This rate is highest

[26] US Department of Health and Human Services. Substance Abuse and Mental Health Services Administration. *2006 state estimates of depression & serious psychological distress, Texas*. (2008, December). Retrieved March 13, 2009, from http://www.oas.samhsa.gov/2k6State/TexasMH.htm.

among adults ages 18-25 (16.19%), as it is for the nation as a whole (17.7%).[27]

Texas ranks at or near the bottom in terms of mental health spending compared to other states. In FY 2002, Texas spent $38.46 per client on mental health services, placing it 49th in the nation.[28] Moreover, only 26% of eligible children and 38% of eligible adults were served in Texas that year.[29] Reports noted that children were actually relinquished to the State because parents had no other way to access mental health services; in 2002, there were 244 children relinquished as a "last resort" for mental health care.[30] For 2005, State mental health agency per-capita mental health services expenditures were $36.47, compared to $99.55 for the nation as a whole.[31]

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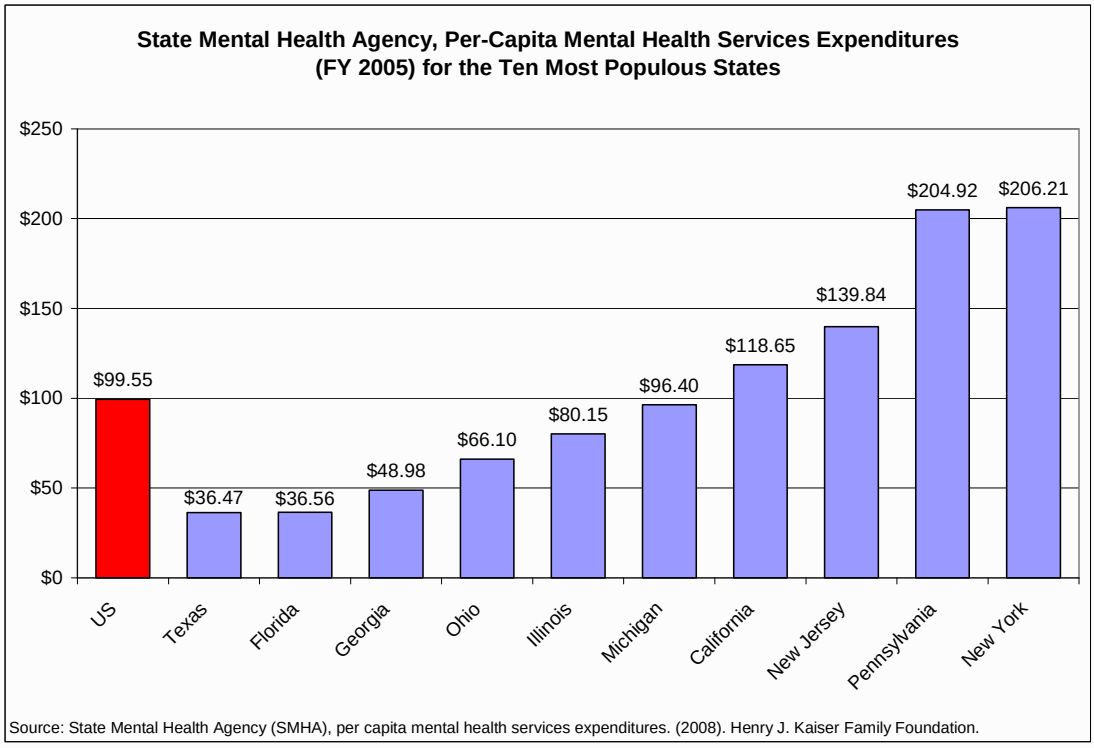
[27] US Department of Health and Human Services. Substance Abuse and Mental Health Services Administration. *Results from the 2006 national survey on drug use and health: National findings*. (2007, September). Retrieved April 9, 2009, http://www.oas.samhsa.gov/NSDUH/2K6NSDUH/2K6results.cfm; US Department of Health and Human Services. Substance Abuse and Mental Health Services Administration. *2006 state estimates of depression & serious psychological distress, Texas*. (2008, December). Retrieved March 13, 2009, from http://www.oas.samhsa.gov/2k6State/TexasMH.htm.

[28] Mental Health Association in Texas. (2005). Should Texas reform its mental health system? *The Mental Health Advocate*.

[29] Mental Health Association in Texas. *Mental illnesses are common and are commonly untreated*. (28 February 2003).

[30] Mental Health Association in Texas. *Mental illnesses are common and are commonly untreated*. (28 February 2003).

[31] *State Mental Health Agency (SMHA), per capita mental health services expenditures*. (2008). Henry J. Kaiser Family Foundation. Retrieved March 18, 2009, from http://www.statehealthfacts.org/comparemaptable.jsp?cat=5&ind=278.



Increased pressure to provide quality mental health care services given budget constraints has contributed to innovative programs aimed at providing treatment more efficiently. For example, in the 1990s Texas' Medicaid program initiated managed care covering both physical and mental health. This change resulted in Medicaid waiver programs which were launched under the name of STAR (State of Texas Access Reform). In many areas of the state, the STAR programs cover both physical health care and mental health and substance abuse services.

Texas has since seen some successes in this area such as NorthSTAR, a service delivery model started in 1999 and serving a seven-county area surrounding Dallas. Funding for the program comes from a variety of sources for Medicaid and non-Medicaid populations. Services are delivered under a single system through a separate provider,

ValueOptions, a behavioral health organization working with the local behavioral health authority.

In a prior analysis (2006), The Perryman Group examined the then-current economic impact of NorthSTAR on the local area and the potential effect of expanding the model statewide. The analysis indicated that NorthSTAR increased business activity in the local service area, with gains including almost $226 million in total spending each year and more than 1,200 jobs.

More recently, the Legislative Budget Board staff found significant savings in Texas Medicaid spending though NorthSTAR in relation to substance abuse treatment during fiscal year 2006. The preliminary analysis conducted compared health care spending between the following two groups:

- adult Texas Medicaid clients with an identified substance abuse disorder who received physical health care services through fee-for-service or primary care case management and **did not** receive substance abuse treatment through the federal Substance Abuse Prevention and Treatment block grant program or NorthSTAR and
- adult Texas Medicaid clients with an identified substance abuse disorder who received physical health care services through fee-for-service or primary care case management and **did** receive substance abuse treatment through NorthSTAR.

The analysis showed that Texas Medicaid spending for SSI and SSI-related Medicaid adults was $3,505 less per client for those who received

treatment through NorthSTAR, after accounting for the cost of substance abuse treatment, and $2,996 less per client for TANF and TANF-related Medicaid adults. Overall, net spending reductions are greater under the NorthSTAR model.[32]

The 80th Legislature took an important step toward addressing the burden of mental health for communities given the historical lack of State funding. The Legislature appropriated $82 million to implement an improved mental health crisis system referred to as "Crisis Redesign."[33] This program essentially provided for Local Mental Health Authorities to enhance crisis services that are community based and rapidly deployable with the focus on diversion from other care settings such as local emergency rooms, hospitals, and law enforcement agencies.

This initiative includes, among other things, hotlines, mobile outreach, crisis outpatient services for adults and children, and crisis residential services for adults and children.[34] A portion of the funding was designated as Community Investment Incentive funding for communities willing to contribute at least 25% in matching resources. Jail diversion or alternatives to State hospitalization are examples of the types of efforts for which Community Investment Incentive funds can be used.

Initial reviews of this initiative are positive. In fact, a study by the Public Policy Research Institute at Texas A&M University concluded that the

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[32] Texas Legislative Budget Board Staff. *Texas state government effectiveness and efficiency: Selected issues and recommendations*. Submitted to the 81st Texas Legislature. (2009, January).
[33] *Texas mental health system. Support is critical $88.3 million needed to divert people from jails and emergency rooms: Department of State Health Services Exceptional Item*. (2009, January). College Station: Public Policy Research Institute, Texas A&M University.
[34] Texas Department of State Health Services. *Crisis Services Redesign: Implementation overview*. (2008, September).

types of changes being implemented under Crisis Redesign were reaching stated goals such as availability of hotlines statewide, increased alternatives to emergency rooms for psychiatric and medical screenings in some communities, and enhanced community-based treatment as an alternative to state hospitals in some communities.[35] At the majority of Local Mental Health Authorities (LMHAs) (63%), staff members assist in transporting clients to emergency medical screenings, relieving the transportation burden on law enforcement.[36] Law enforcement involved in crisis situations have also reported shorter waits in emergency rooms, where they commonly provide security.[37]

Even so, the report notes that an average of 70% of medical evaluations and 36% of psychiatric screenings are still conducted in emergency rooms, indicating on ongoing burden placed on this structure, even as LMHAs are working on developing alternatives.[38] The report recommended increased funding, which is part of the Texas Department of State Health Services (DSHS) exceptional item request in the 81st Legislature.[39]

The $88.3 million for Fiscal Year 2010-2011 would be used to expand the Crisis Services Redesign initiative. The money would be divided equally

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[35] *Year one evaluation findings for the Crisis Services Redesign initiative;* (2009, January). College Station: Public Policy Research Institute, Texas A&M University.
[36] *Year one evaluation findings for the Crisis Services Redesign initiative;* (2009, January). College Station: Public Policy Research Institute, Texas A&M University.
[37] *Year one evaluation findings for the Crisis Services Redesign initiative;* (2009, January). College Station: Public Policy Research Institute, Texas A&M University.
[38] *Year one evaluation findings for the Crisis Services Redesign initiative;* (2009, January). College Station: Public Policy Research Institute, Texas A&M University.
[39] *Year one evaluation findings for the Crisis Services Redesign initiative;* (2009, January). College Station: Public Policy Research Institute, Texas A&M University; *Texas mental health system. Support is critical $88.3 million needed to divert people from jails and emergency rooms: Department of State Health Services Exceptional Item*. (2009, January). College Station: Public Policy Research Institute, Texas A&M University.

between additional Psychiatric Emergency Centers, Crisis Transitional Services for intensive post-crisis 90-day services, and Intensive Ongoing Services.[40] This expansion would continue to address immediate crises as well as ameliorate additional crisis treatment through ongoing services.[41]

Other items on the DSHS exceptional items list include $26 million to maintain current crisis services, $50 million to maintain current mental health services at the FY 2000 funding level (including an adjustment for inflation), $66 million to expand Substance Abuse Services, $2.7 million to provide stipends for psychiatric residency training programs, $24 million to fund FY2009 State Hospital operating budget shortfall and maintain 2,477 beds.[42]

In the results section of this report, The Perryman Group analyzed the economic benefits of expanding treatment in accordance with some of these proposals.

[40] *81st Texas Legislative Session: Mental health priorities*. (n.d.). Mental Health and Mental Retardation.
[41] *Texas mental health system. Support is critical $88.3 million needed to divert people from jails and emergency rooms: Department of State Health Services Exceptional Item*. (2009, January). College Station: Public Policy Research Institute, Texas A&M University.
[42] *81st Texas Legislative Session: Mental health priorities*. (n.d.). Mental Health and Mental Retardation.

Social and Economic Costs

As noted, mental disorders and often co-occurring substance abuse disorders have a serious impact on the nation. Even beyond the terrible human cost of such problems for the person living with the disorder, these issues also affect the numerous other people in contact ranging from friends, family, and caregivers to employers, law enforcement, and social services personnel.

Cost of Treatment

Severe mental health and substance abuse issues involve a notable economic component. In 2003, the cost of treatment for mental health and substance abuse disorders reached $121 billion.[43] Mental health spending alone totaled $100 billion.[44] Furthermore, mental illnesses are often linked to other physical ailments such as hypertension, heart disease, and stroke, thus increasing health care outlays for the mentally ill population.[45]

Health care expenses across the nation are continuously increasing. In 2003, these costs comprised 15.8% of the nation's gross domestic

[43] US Department of Health and Human Services. Substance Abuse and Mental Health Services Administration. *National expenditures for mental health services and substance abuse treatment 1993-2003*. (2007). Retrieved March 18, 2009, from http://www.samhsa.gov/spendingestimates/toc.aspx.
[44] US Department of Health and Human Services. Substance Abuse and Mental Health Services Administration. *National expenditures for mental health services and substance abuse treatment 1993-2003*. (2007). Retrieved March 18, 2009, from http://www.samhsa.gov/spendingestimates/toc.aspx.
[45] National Institutes of Health and Substance Abuse and Mental Health Services Administration. *Healthy people 2010 midcourse review*. (2007). Retrieved April 9, 2009, from http://www.healthypeople.gov/Data/midcourse/html/focusareas/FA18TOC.htm.

product; by 2014, costs are expected to reach 18.5% of overall output.[46] A recent report indicates that spending for mental health and substance abuse disorders reached an estimated $145.3 billion in 2006 (7.3% of health spending for that year) and is expected to increase to $238.7 billion by 2014.[47] Mental health is expected to continue to make up the majority of the total mental health and substance abuse spending (85%).[48] Even with this notable growth in outlays, mental health and substance abuse is falling as a share of all health spending from an estimated 9.7% of the nation's spending on health care in 1986 to 6.9% by 2014 if anticipated patterns continue.[49]

Mental Health and Substance Abuse (MHSA) Spending

	Historical		*Estimated/Projected*	
	1986	**2003**	**2006**	**2014**
All Health (Billions of Dollars)	$439.2	$1,614.2	$1,997.8	$3,451.3
MHSA	$42.4	$121.1	$145.3	$238.7
Mental health	$33.1	$100.3	$121.7	$203.3
Substance abuse	$9.3	$20.7	$23.6	$35.4
Share of all health spending (%)				
MHSA	9.7%	7.5%	7.3%	6.9%
Mental health	7.5%	6.2%	6.1%	5.9%
Substance abuse	2.1%	1.3%	1.2%	1.0%

Levit, K., et al. (2008). Future funding for mental health and substance abuse: Increasing burdens for the public sector. *Health Affairs*, 27(6), w513-w522.

While direct costs such as medication, clinic visits, hospitalization, and emergency room visits are relatively easy to quantify, health care spending is just one aspect of the cost of mental disorders to society. In

[46] US Department of Health and Human Services. Centers for Medicare and Medicaid Services. *National health expenditure projections 2008-2018: Forecast summary*. (2009, January). Retrieved March 18, 2009, from http://www.cms.hhs.gov/nationalhealthexpenddata/03_nationalhealthaccountsprojected.asp.
[47] Levit, K., et al. (2008). Future funding for mental health and substance abuse: Increasing burdens for the public sector. *Health Affairs*, 27(6), w513-w522.
[48] Levit, K. R., et al. *Projections of national expenditures for mental health services and substance abuse treatment, 2004-2014*. SAMHSA Publication No. SMA 08-4326. Rockville, MD: Substance Abuse and Mental Health Services Administration, 2008.
[49] Levit, K., et al. (2008). Future funding for mental health and substance abuse: Increasing burdens for the public sector. *Health Affairs*, 27(6), w513-w522.

fact, mental illness brings a number of spillover effects in the overall economy including lost earning potential, coexisting condition costs, disability payments, homelessness, and incarceration.

Reduced Productivity Costs

Mental disorders are the leading cause of disability, absenteeism, and lost productivity.[50] Even with relatively mild issues such as anxiety and depression, there is substantial evidence in the literature that there are costs associated with performance and productivity, absenteeism, presenteeism (lost productivity while at work), and disability.[51]

A recent study published by the National Institutes of Health's National Institute of Mental Health (NIMH) reported that the cost of major mental disorders in lost earnings alone totaled at least $193 billion annually.[52] The report indicated that those with serious mental disorders earned significantly less each year ($22,545) compared to those without serious disorders ($38,852).[53] Generalization of the sample evidence provided the national estimate, 75% of which was attributed to reduced income of people with serious mental illness while 25% was attributed to the likelihood that those with serious mental disorders would have no

[50] US Department of Health and Human Services. *Progress review: Mental health and mental disorders*. (2007, November). Retrieved March 12, 2009, from http://www.healthypeople.gov/data/2010prog/focus18/.
[51] Langlieb, A.M. & Kahn, J.P. (2005). How much does quality mental health care profit employers? *JOEM Journal of Occupational and Environmental Medicine*, 47(11), 1099-1109.
[52] National Institutes of Health. National Institute of Mental Health. Mental disorders cost society billions in unearned income. (2008 May 7). *ScienceDaily*. Retrieved March, 11, 2009, from http://www.sciencedaily.com/releases/2008/05/080507083940.htm.
[53] National Institutes of Health. National Institute of Mental Health. Mental disorders cost society billions in unearned income. (2008 May 7). *ScienceDaily*. Retrieved March, 11, 2009, from http://www.sciencedaily.com/releases/2008/05/080507083940.htm.

earnings.[54] The report also suggests that this amount is likely conservative as the study did not include people in hospitals or prisons and included very few participants with autism, schizophrenia, and other chronic illnesses known to greatly reduce work ability.[55]

Incarceration Costs

Research cited by the National Mental Health Association indicates that many of those who suffer with a mental illness find themselves in our prisons, jails, and juvenile justice system stating that 50% to 75% of children in juvenile justice facilities in this nation have at least one mental disorder.[56] During the 1990s, about 40 state psychiatric hospitals closed across the country; at the same time, an additional 400 prisons opened according to the US Department of Justice.[57] It is estimated that some 16% of the jail and prison population in this nation are represented by persons with untreated mental illnesses.[58] Incarceration is costly. While varying by state, the national average cost was $23,876 dollars to imprison someone for a year (in 2005).[59] The cost in Texas is approximately $47.50 per day at present.[60]

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[54] National Institutes of Health. National Institute of Mental Health. Mental disorders cost society billions in unearned income. (2008 May 7). *ScienceDaily*. Retrieved March, 11, 2009, from http://www.sciencedaily.com/releases/2008/05/080507083940.htm.
[55] National Institutes of Health. National Institute of Mental Health. Mental disorders cost society billions in unearned income. (2008 May 7). *ScienceDaily*. Retrieved March, 11, 2009, from http://www.sciencedaily.com/releases/2008/05/080507083940.htm.
[56] *Mental Health: Pay for Services or Pay a Greater Price.* (n.d.). National Mental Health Association.
[57] *Hospital closures: The Medicaid IMD exclusion.* (n.d.). Treatment Advocacy Center. Retrieved April 8, 2009 http://www.psychlaws.org/hospitalclosure/index.htm.
[58] Mental Health Association in Texas. (2005). Should Texas reform its mental health system? *The Mental Health Advocate*.
[59] Liptak, A. 1 in 100 US adults behind bars, new study says. (28 February 2008). *The New York Times.*
[60] State of Texas. Legislative Budget Board. Criminal justice uniform cost report: Fiscal years 2006-2008. (2009, January).

Expenses for Co-occurring Conditions

In many cases, mental disorders contribute to other health problems. Statistics show that illicit drug use is higher among adults with SPD (27.2%) compared to those without (12.3%) as is cigarette use (44.2% vs. 24.5%).[61] Having a major depressive episode (MDE) is also associated with drug use; with 27.7% of those using illicit drugs in the past year also reporting a MDE on the 2006 NSDUH survey compared to 12.9% drug use among those without an MDE.[62] The comparison for cigarettes was 29.7% vs. 16.0%, respectively.[63] Both drug use and smoking involve higher-than-average health care costs.

Roughly one-third of the homeless population suffers from serious mental illness.[64] In addition, in 2003 only 26% of those with mental health problems in the homeless population received mental health services.[65]

The ultimate cost of mental illness is the loss of life; suicide is one cost of undiagnosed or untreated mental illness. A large majority (over 90%) of people who commit suicide have a diagnosable mental disorder.[66] Coupled with suicide, mental illness disorders are associated with shorter

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[61] US Department of Health and Human Services. Substance Abuse and Mental Health Services Administration. *Results from the 2006 national survey on drug use and health: National findings.* (2007, September). Retrieved April 9, 2009, http://www.oas.samhsa.gov/NSDUH/2K6NSDUH/2K6results.cfm.
[62] US Department of Health and Human Services. Substance Abuse and Mental Health Services Administration. *Results from the 2006 national survey on drug use and health: National findings.* (2007, September). Retrieved April 9, 2009, http://www.oas.samhsa.gov/NSDUH/2K6NSDUH/2K6results.cfm.
[63] US Department of Health and Human Services. Substance Abuse and Mental Health Services Administration. *Results from the 2006 national survey on drug use and health: National findings.* (2007, September). Retrieved April 9, 2009, http://www.oas.samhsa.gov/NSDUH/2K6NSDUH/2K6results.cfm.
[64] *Mental Health: Pay for Services or Pay a Greater Price.* (n.d.). National Mental Health Association.
[65] National Institutes of Health and Substance Abuse and Mental Health Services Administration. *Healthy people 2010 midcourse review*. (2007). Retrieved April 9, 2009, from http://www.healthypeople.gov/Data/midcourse/html/focusareas/FA18TOC.htm.
[66] *Mental Health: Pay for Services or Pay a Greater Price.* (n.d.). National Mental Health Association.

overall life spans and represent over 15% of the burden of disease in established market economies such as the US.[67]

Insel (2008) estimates the total cost of serious mental illness at $317.6 billion in 2002. Yet even this cost is missing health care for comorbid conditions, loss productivity due to premature death or institutionalization, incarceration, or homelessness.[68] A number of these factors are incorporated into a measure of the overall effects on the Texas economy which is provided subsequently in this report.

Components of the Economic Burden of Serious Mental Illness, Excluding Incarceration, Homelessness, Comorbid Conditions, and Early Mortality (in Billions)

Type of Cost	1992	2002
Health care expenditures	$62.9	$100.1
Loss of earnings	$76.7	$193.2
Disability benefits (SSI and SSDI)	$16.4	$24.3
Total	**$156.0**	**$317.6**

Source: Insel, T.R. (2008). Assessing the economic costs of serious mental illness. Editorial. *American Journal of Psychiatry*, 165:6, 663-665.

[67] National Institute of Mental Health. *Statistics*. (2009, February). Retrieved March 10, 2009, from http://www.nimh.nih.gov/health/topics/statistics/index.shtml.
[68] Insel, T.R. (2008). Assessing the economic costs of serious mental illness. Editorial. *American Journal of Psychiatry*, 165:6, 663-665.

Benefits of Treatment

Clearly, mental disorders and substance abuse involve substantial human costs as well as notable adverse economic effects. Health care stakeholders, including policymakers, are increasingly interested in the social and economic benefits of treatments. As health care in the US continues to undergo fundamental structural changes, providers, administrators, researchers, and policymakers must remain flexible and innovative to meet the needs of the growing population. While research differs based on treatment type, an overarching body of research suggests that savings generally exceed the cost of providing mental health and substance abuse treatment.

The American Psychological Association details past research on the cost offset of treatment of the mentally ill, indicating offsets are realized in medical care utilization alone for both severe and less severe mental illnesses.[69] Those with mental illnesses often overutilize other medical services; thus, treatment through mental health services would reduce health care costs as patients consume less health services overall.

For patients with substance use problems, Parthasarathy, et al. (2000) found that for adults in an outpatient chemical dependency recovery program, treatment reduced the likelihood of hospitalization, both in days spent in a hospital as well as emergency room visits. The overall findings

[69] *Medical cost offset*. (2009). American Psychological Association. Retrieved March 10, 2009, http://www.apa.org/practice/offset3.html.

indicate that inpatient, emergency room, and total medical costs were reduced by 35%, 39%, and 26%, respectively.[70]

Another study (French, Salome, & Carney, 2002) looking at residential addiction treatment in the State of Washington indicated that the economic benefits of the treatment significantly exceeded costs.[71] In fact, they found an average economic benefit of $21,329; a large portion of this benefit was accounted for by a reduction in criminal activity ($17,705), along with income received from employment ($2,384) and inpatient addiction treatment at follow-up ($608). The average net benefit of treatment in the study was $16,418 and the benefit-cost ratio was 4.34.[72]

Greenberg, et al. (2003) demonstrated that an increased treatment rate for depression alone produces economic savings in other areas.[73] The authors indicate that from 1990 to 2000, the treatment rate for depression rose over 50% while the economic burden (including direct treatment costs, lost earnings due to depression-related suicides, and indirect workplace costs) only increased by 7% from $77.4 billion (inflation-adjusted dollars) in 1990 to $83.1 billion in 2000.[74] Of the 2000 cost, 31%

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[70] Parthasarathy, S., Weisner, C., Hu, T., Moore, C. (2001). Association of outpatient alcohol and drug treatment with health care utilization and cost: Revisiting the offset hypothesis. *Journal of Studies on Alcohol*, 62, 89-97.
[71] French, M.T., Salome, H.J., Carney, M. (2002). Using the DATCAP and ASI to estimate the costs and benefits of residential addiction treatment in the State of Washington. *Social Science & Medicine,* 55, 2267-2282.
[72] French, M.T., Salome, H.J., Carney, M. (2002). Using the DATCAP and ASI to estimate the costs and benefits of residential addiction treatment in the State of Washington. *Social Science & Medicine,* 55, 2267-2282.
[73] Greenberg, P.E., et al. (2003). The economic burden of depression in the United States: How did it change between 1990 and 2000? *Journal of Clinical Psychiatry*, 64(12), 1465-1475.
[74] Greenberg, P.E., et al. (2003). The economic burden of depression in the United States: How did it change between 1990 and 2000? *Journal of Clinical Psychiatry,* 64(12), 1465-1475.

represented direct medical costs, with 7% for suicide-related mortality costs and 62% for workplace costs.[75]

From an economic and quality-of-life perspective, as treatment is successful in reducing episodes and the severity of depression, there is a substantial benefit to society. One positive outcome is increased employment. The employment rate among depressed individuals rose from 59.2% to 63.3% from 1990 to 2000, and unemployment decreased from 7.4% to 4.7%, respectively. These improvements outpaced the upturn in the overall economy during that time period.[76]

Thus, looking only at depression and not analyzing quality of care, Greenberg, et al. (2003) indicated that the economic burden remained relatively stable across the 10-year period even as the proportion of those treated increased drastically.[77] The authors attribute much of the medical cost stability to successful outreach and shifts toward less costly forms of treatment. In addition, suicide-related mortality costs decreased and many more depressed people were employed in 2000 compared to 1990. In fact, the study found that an increased treatment rate resulted in a 7% decrease in workplace costs over the previous decade.[78]

A study of a large corporation in the 1990s found that the reduction in mental health care, as part of a reworking of total health care costs, had negative consequences for employees with mental health problems.

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[75] Greenberg, P.E., et al. (2003). The economic burden of depression in the United States: How did it change between 1990 and 2000? *Journal of Clinical Psychiatry*, 64(12), 1465-1475.
[76] Greenberg, P.E., et al. (2003). The economic burden of depression in the United States: How did it change between 1990 and 2000? *Journal of Clinical Psychiatry*, 64(12), 1465-1475.
[77] Greenberg, P.E., et al. (2003). The economic burden of depression in the United States: How did it change between 1990 and 2000? *Journal of Clinical Psychiatry*, 64(12), 1465-1475.
[78] Greenberg, P.E., et al. (2003). The economic burden of depression in the United States: How did it change between 1990 and 2000? *Journal of Clinical Psychiatry*, 64(12), 1465-1475.

Those employees essentially used less mental health care (services use and costs decreased by more than one-third) but used more non-mental health care (up 37%), thus increasing total health care cost.[79] In addition, those employees had greater absenteeism. Therefore, savings from decreasing mental health services were offset by increases in other health services and increased absenteeism.[80]

The Texas Legislative Budget Board recently submitted a document compiling numerous studies and their own findings on funding and increased access to substance abuse treatment for adult Medicaid clients. **With untreated individuals having double the medical costs of those without a substance abuse disorder, evaluation of research clearly showed that treatment is associated with a reduction in future health care spending for individuals.**

Jail diversion programs throughout the state have shown successful economic savings in law enforcement costs over time. A 2002 study which analyzed the Dallas County DIVERT program over a 40-month period found that (on average) for every dollar spent upgrading substance abuse treatment, $9.43 of avoidable costs was saved by society.[81] For the same year the US National Institute on Drug Abuse estimated that for every dollar spent on addiction treatment programs, there was a $4 to $7 reduction in the cost of drug-related crimes.[82]

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[79] Rosenheck, R.A., Druss, B., Stolar, M., Leslie, D., and Sledge, W. (1999). Effect of declining mental health service use on employees of a large corporation. *Journal of Health Affairs* 18(5):193-203.
[80] Rosenheck, R.A., et al. (1999). Effect of declining mental health service use on employees of a large corporation. *Journal of Health Affairs*, 18(5), 193-203.
[81] Fomby, T.B. and Rangaprasad, V. (2002). *DIVERT Court of Dallas County: Cost-benefit analysis*. Dallas: Department of Economics, Southern Methodist University.
[82] Michigan Department of Community Health. Office of Drug Control Policy. *Michigan 2007 State Snapshot*. (2008, August).

Bexar County, Texas has also seen savings through a jail diversion program. During fiscal year 2004, the initiative resulted in some 1,700 diversions from jail incarcerations.[83] One reason for implementation of the program is that roughly 14% of the Bexar County jail population suffers from mental illness. By placing persons who need treatment for mental disorders into appropriate avenues other than jail, diversions resulted in an estimated $3.8 million to $5.0 million in avoided costs within the county criminal justice system.[84] In general, treatment helps to keep mental health and substance abuse patients out of the criminal justice system reduces costs producing significant savings to society.

Mental health treatment benefits all of society, moving people out of expensive institutions to become contributing members of society. Improvements in treatment options such as psychotropic drugs have made it possible for the majority of mental patients to live on their own, have steady jobs, raise families, and contribute to society.[85]

However, as medicine and other treatment options have improved, often funding has not; thus, patients are not always able to reap the benefits of better health care for mental disorders. Studies across a variety of time periods, geographic areas, and specific disorders confirm that treatment typically more than pays for itself on a purely economic basis (not to mention the quality-of-life enhancements for the patients, their families, and their communities).

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[83] Johnsrud, M. (2004). *The Bexar County jail diversion program: Measuring the potential economic and societal benefits.* Austin: Center for Pharmacoeconomic Studies, University of Texas.
[84] Johnsrud, M. (2004). *The Bexar County jail diversion program: Measuring the potential economic and societal benefits.* Austin: Center for Pharmacoeconomic Studies, University of Texas.
[85] Barrett K., Greene R., & Mariani, M. (2004). A case of neglect: Why health care is getting worse, even though medicine is getting better. *Governing*, 22-83.

Results of this Analysis

The specific impact assessment conducted herein focuses on the overall cost of mental disorders and substance abuse as well as the return on spending for mental health care in Texas and the potential net benefits of expanding budget allocations for State programs. **Even in the current challenging budget environment, it is important to note that investments in treatment bring about savings in many areas.**

The Perryman Group analyzed the effects on the Texas economy and fiscal receipts to the State of

- total mental health and substance abuse related expenses including medial, comorbidities and disability, lost of income and productivity, incarceration, homelessness, mortality, and business activity;
- different scenarios of implementing Medicaid substance abuse coverage;
- the current Crisis Redesign initiative and proposed expansions;
- jail diversion program; and
- varying potential funding levels.

This analysis included both the health-related savings as well as spillover effects in the economy.

Methodology

As an initial step in assessing the economic impact of expanding mental health treatment, The Perryman Group quantified the total cost of mental and substance abuse disorders to the state economy. Using a variety of public and private sources, TPG quantified the number of Texans with disorders as well as the associated costs. Aggregate treatment spending for 2008 was determined based on (1) information compiled from the US Department of Commerce which permits estimation of total health care spending in the state, and (2) national trends in outlays for severe mental health and substance abuse treatment relative to overall expenditures with appropriate adjustments for factors unique to Texas (such as the proportion of the adult population with substantial issues and the level of public funding). The values are also calibrated to account for those who received treatment for both mental health issues and substance abuse.

The initial calculation of the direct costs associated with comorbidities and disabilities was based on information regarding hospital discharges and disability payments adjusted for the specific spending patterns in Texas. The numbers were fully adjusted to eliminate any amounts already included in the treatment category.

The effects related to the loss of wages and productivity were estimated using the earnings losses reported in the prior discussion. These values were adjusted to 2008 price and population values, then allocated to Texas based on its percentage of adults suffering from severe mental illness or substance abuse and relative earning capacity. Once this value is obtained, it is possible to approximate lost productivity and other measures of foregone economic activity. This process involves (1)

allocating the lost earnings across industrial categories based on employment patterns in Texas, (2) using the relationships between income and output reflecting the direct coefficients of the Texas submodel of the US Multi-Regional Impact Assessment System (described in Appendix A) to derive productivity losses, and (3) applying analogous techniques with regards to the expenditure and jobs parameters. With the exception of the induced spending from the lost wages, no "multiplier" effects are derived for this segment of the analysis. The productivity effects and their consequences for other aspects of economic activity are fully captured in the direct calculation.

Another source of direct losses to the economy from mental health and substance abuse issues is the cost associated with incarceration. This amount was determined based on the typical Texas prison population; the estimated percentage of those incarcerated who are either (1) convicted of drug related crimes, (2) suffering from untreated mental illness, or (3) recipients of prior mental health services from public sources; and the typical annual cost of maintaining a prisoner.[86] An increment was also added to account for local jail cost.[87] It should be noted that this calculation likely reflects only about 65% of the total estimated cost of crime related to these problems.

Homelessness is also part of the social loss associated with severe mental health and substance abuse issues. To determine the direct

[86] See, for example, *Texas mental health system. Support is critical $88.3 million needed to divert people from jails and emergency rooms: Department of State Health Services Exceptional Item.* (2009, January). College Station: Public Policy Research Institute, Texas A&M University; Mental Health Association in Texas. (2005). Should Texas reform its mental health system? *The Mental Health Advocate; and* Liptak, A. 1 in 100 US adults behind bars, new study says. (28 February 2008). *The New York Times.*
[87] State of Texas. Legislative Budget Board. Criminal justice uniform cost report: Fiscal years 2006-2008. (2009, January).

effects of this phenomenon, an approximation was derived based on (1) the estimated number of homeless persons in Texas, (2) the proportion of both chronic and non-chronic members of the population suffering from mental health and substance abuse issues, and (3) the annual cost of maintaining an individual in both groups (converted to constant 2008 dollars).[88] Because most of the expense resulting from homelessness is manifested in emergency room care, incarceration, disability, and similar outlays, each of these categories is reduced in the final simulations in order to isolate the specific effects.

The final category of costs to be considered is that of mortality. Research has shown that those with severe mental health and substance abuse problems have shorter life spans, thus resulting in substantial losses in aggregate welfare.[89] Using survey studies which document and quantify this differential and estimates of the number of affected persons and age-adjusted standard death rates in Texas, TPG computed the number of excess deaths and the corresponding annual reduction in life-years on a cumulative basis. These factors are then translated into economic terms on an annualized basis using the value of a quality-adjusted life-year (QALY), a concept used in evaluating the efficacy of investments in new medical research and technology, with coefficients to reflect the relative disparity in the earning capacity of persons with major mental health and substance issues. This approach will again understate overall harms, as

[88] National Institutes of Health. National Institute of Mental Health. Mental disorders cost society billions in unearned income. (2008 May 7). *ScienceDaily*. Retrieved March, 11, 2009, from http://www.sciencedaily.com/releases/2008/05/080507083940.htm; and *Mental Health: Pay for Services or Pay a Greater Price.* (n.d.). National Mental Health Association.
[89] National Institutes of Health. National Institute of Mental Health. *Statistics.* (2009). Retrieved March 10, 2009, from http://www.nimh.nih.gov/health/topics/statistics/index.shtml.

recent research suggests that the value of a QALY is presently underestimated by more than 60%.[90]

The combination of all of the above categories provides a comprehensive, yet conservative approximation of the total direct cost of mental health and substance abuse issues. In assessing their overall impact, it is assumed that (1) treatment, comorbidity and disability, and incarceration affect various sectors in proportion to their proportion of State tax burdens, both in terms of direct outlays and incidence of indirect payments; (2) lost earnings and mortality result in foregone spending in accordance with standard consumer purchasing patterns, fully adjusted to account for leakages from the spending stream; and (3) homelessness has spillover harms which reflect the patterns in the underlying areas in which outlays are incurred. As noted earlier, no multiplier effects are ascribed to the losses in productivity. For purposes of consistency in the calculations, TPG expressed all monetary values in constant 2008 dollars.

Once the direct costs were quantified and allocated, this study assessed the economic impact of mental health and substance abuse issues on the Texas economy using the appropriate submodel of the US Multi-Regional Impact Assessment System (USMRIAS) which was developed and is maintained by The Perryman Group. The methods employed include dynamic input-output assessment, 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. In particular, the base information

[90] Prieto, L. and Sacristán, J.A. (2003). Commentary: Problems and solutions in calculating quality-adjusted life years (QALYs). *Health and Quality of Life Outcomes*, 1:80.

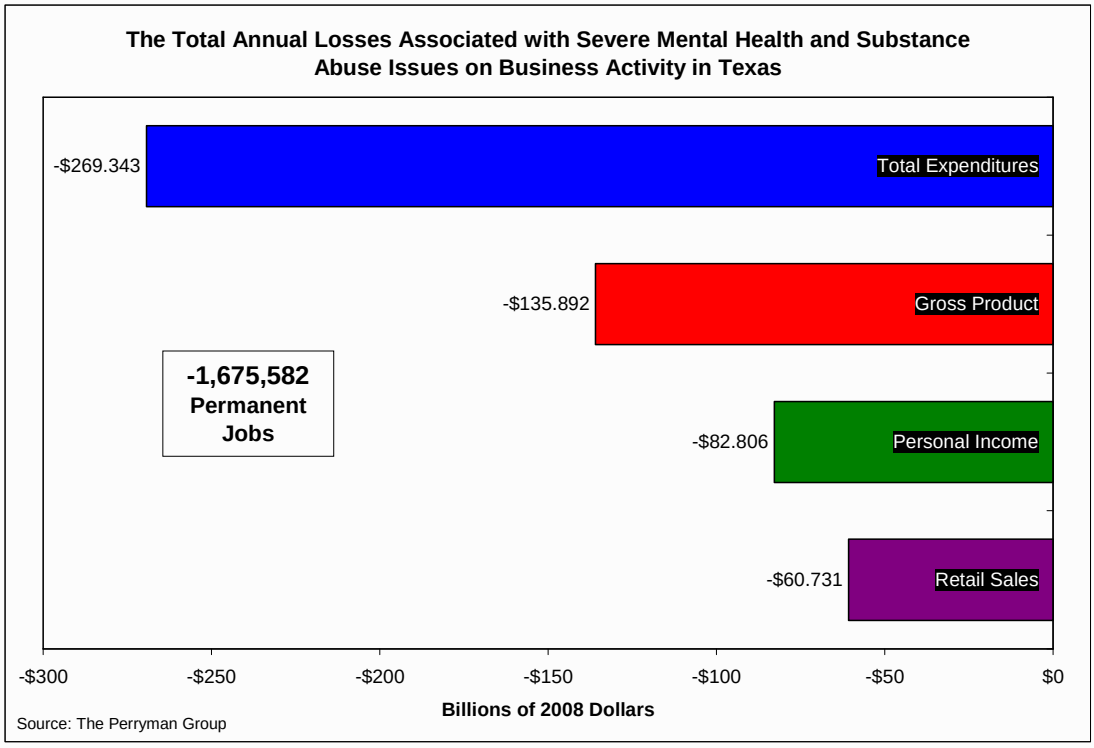
described above can be mathematically simulated within the USMRIAS to generate evaluations of the magnitude of successive rounds of activity involved in the overall production process. A detailed explanation of the methods and terms used in this study, including the modeling system, may be found in Appendix A.

The evaluation of the overall losses associated with severe mental health and substance abuse problems establishes a framework for determining the net economic benefits and return on investment for various programs and funding initiatives. This process involves simulating the consequences of the costs to the State of the proposal (including multiplier effects and any supporting federal funds) and the offsetting benefits with regard to improvements in health outlays, incarceration rates, mortality, and other factors.[91] The improvement rates are based on various academic studies and are converted to an annual and constant (2008) basis. The results of this analysis are presently described.

[91] See, for example, *Medical cost offset*. (2009). American Psychological Association. Retrieved March 10, 2009, http://www.apa.org/practice/offset3.html; French, M.T., Salome, H.J., Carney, M. (2002). Using the DATCAP and ASI to estimate the costs and benefits of residential addiction treatment in the State of Washington. *Social Science & Medicine*, 55, 2267-2282; Greenberg, P.E., et al. (2003). The economic burden of depression in the United States: How did it change between 1990 and 2000? *Journal of Clinical Psychiatry*, 64(12), 1465-1475; Rosenheck, R.A., et al. (1999). Effect of declining mental health service use on employees of a large corporation. *Journal of Health Affairs*, 18(5), 193-203; Fomby, T.B. and Rangaprasad, V. (2002). *DIVERT Court of Dallas County: Cost-benefit analysis.* Dallas: Department of Economics, Southern Methodist University; Michigan Department of Community Health. Office of Drug Control Policy. *Michigan 2007 State Snapshot*. (2008, August); and . Johnsrud, M. (2004). *The Bexar County jail diversion program: Measuring the potential economic and societal benefits.* Austin: Center for Pharmacoeconomic Studies, University of Texas.

Results of the Impact Analysis: Cost of Mental Health and Substance Abuse in Texas

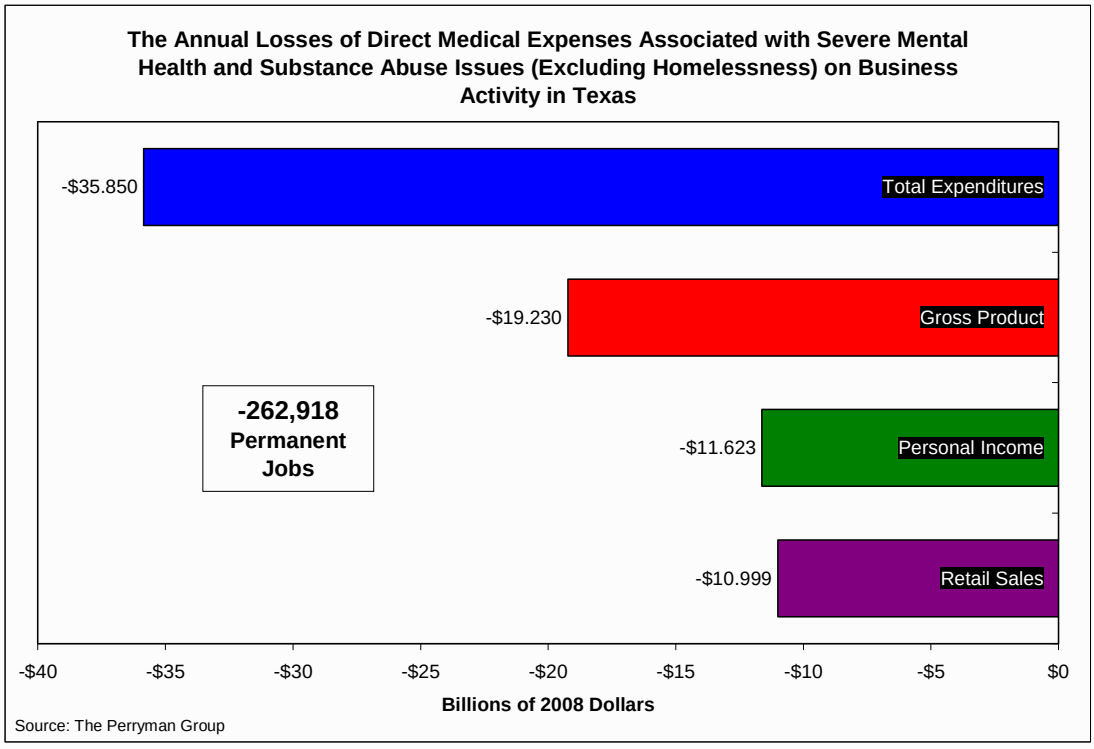
According to The Perryman Group's analysis, **the total impact of severe mental health and substance abuse issues on business activity includes losses of $269.343 billion in total spending each year (the direct declines alone are estimated to be $127.4 billion annually) and 1,675,582 permanent jobs. In addition, associated expenditures have a $135.892 billion annual impact on gross product, $82.806 billion on annual personal income, and $60.731 billion on annual retail sales in the state. Moreover, the cost in terms of State tax dollars from this foregone activity and actual outlays (net of federal matching and reimbursement funds) totals $13.099 billion each year.** Simply stated, **if all of the costs and associated losses associated with these factors could be eliminated, the Texas economy would be approximately 10% larger than its present size**.



The components of this total cost include medical spending related to treatment, comorbidity and disability expense, lost income and productivity, incarceration, homelessness, and mortality. Specific results for each of these components of the total cost are discussed below.

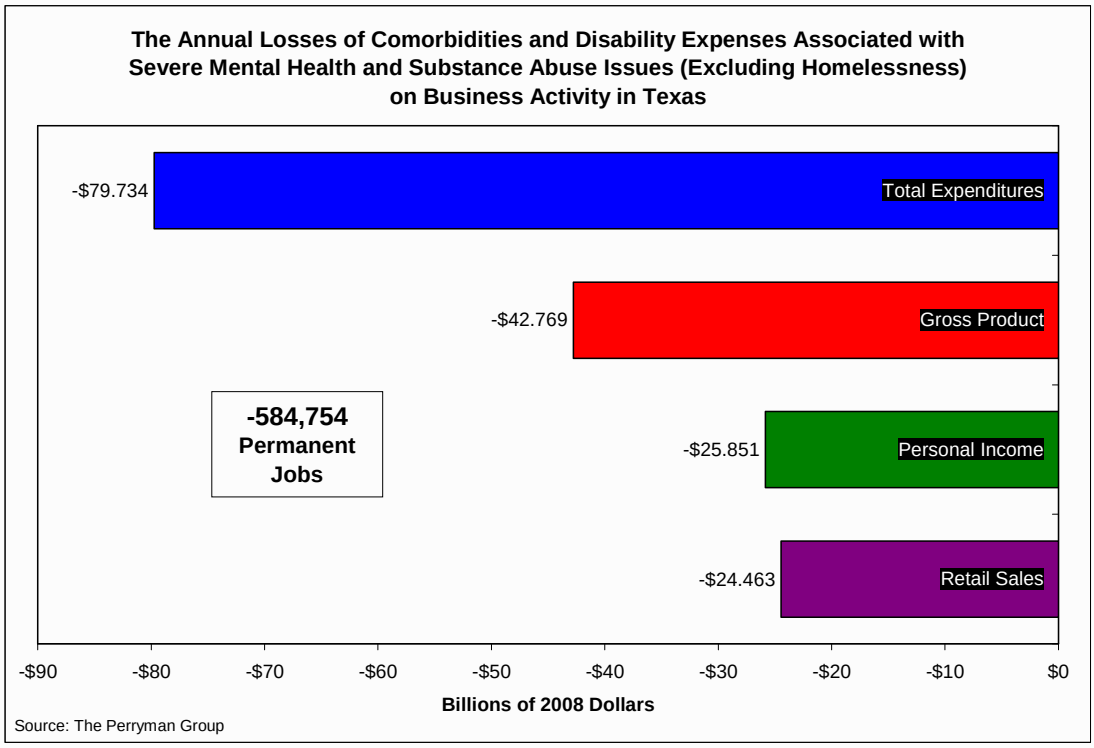
Medical Expenses

Medical expenses for treatment alone cause annual losses of $35.850 billion in total spending and more than 262,900 jobs. The negative effect on State tax receipts and outlays totals $2.005 billion.



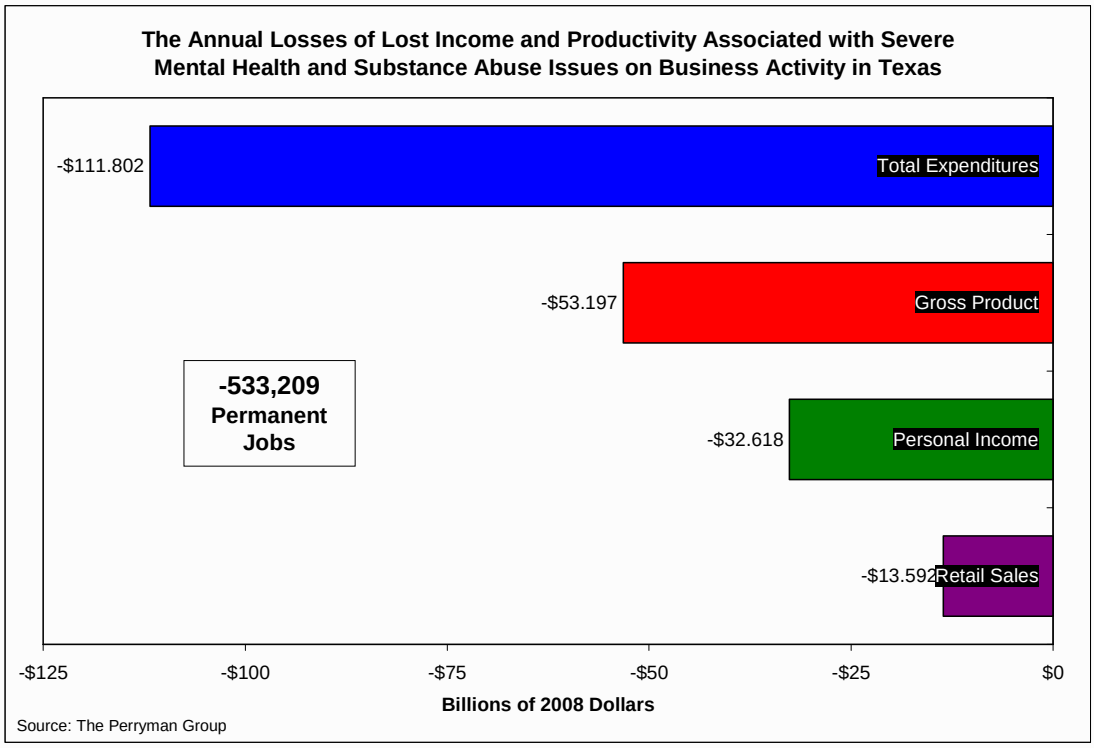
Comorbidities and Disability

Even greater is the impact of comorbidities and disability expenses associated with severe mental health and substance abuse issues. Combined, they are responsible for $79.734 billion in annual losses throughout Texas and over 584,750 jobs. In addition, they cause a reduction in annual gross product of $42.769 billion. The associated lost State net fiscal resources total $4.126 billion per year.



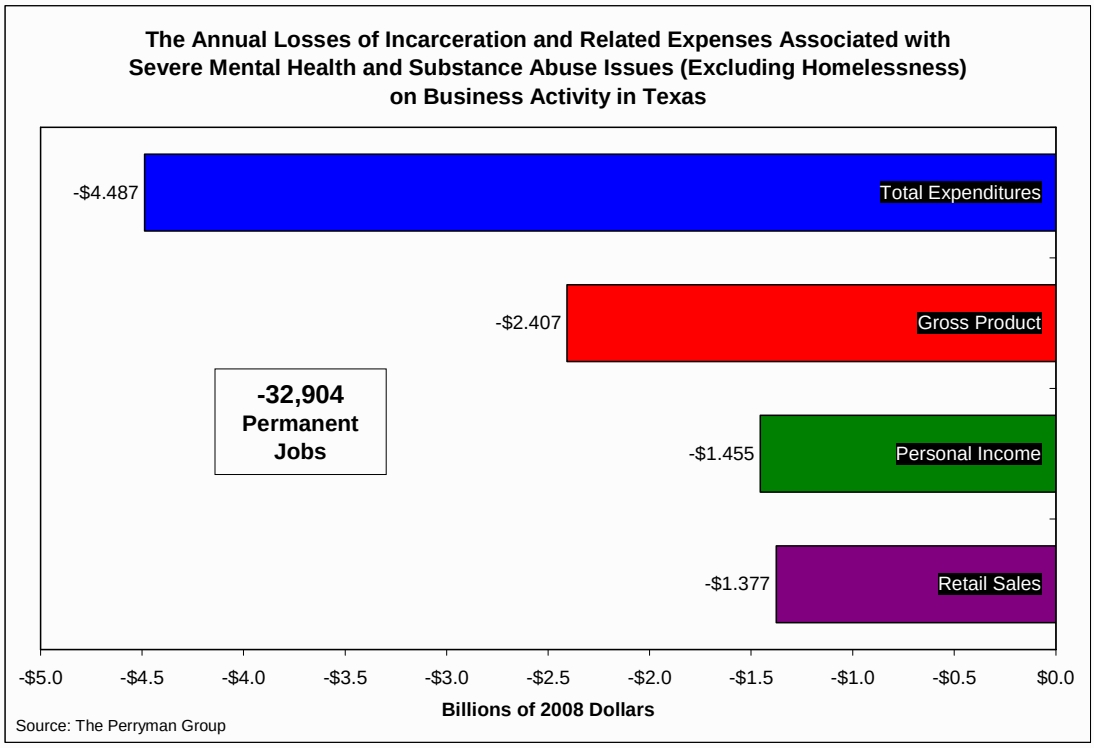
Lost Income and Productivity

Mental and substance abuse disorders lead to large losses in income and productivity. The Perryman Group estimated these effects to include reductions in total expenditures of $111.802 billion per annum. In addition, these problems lead to losses of some 533,209 jobs. State fiscal receipts are adversely affected by $2.051 billion each year.



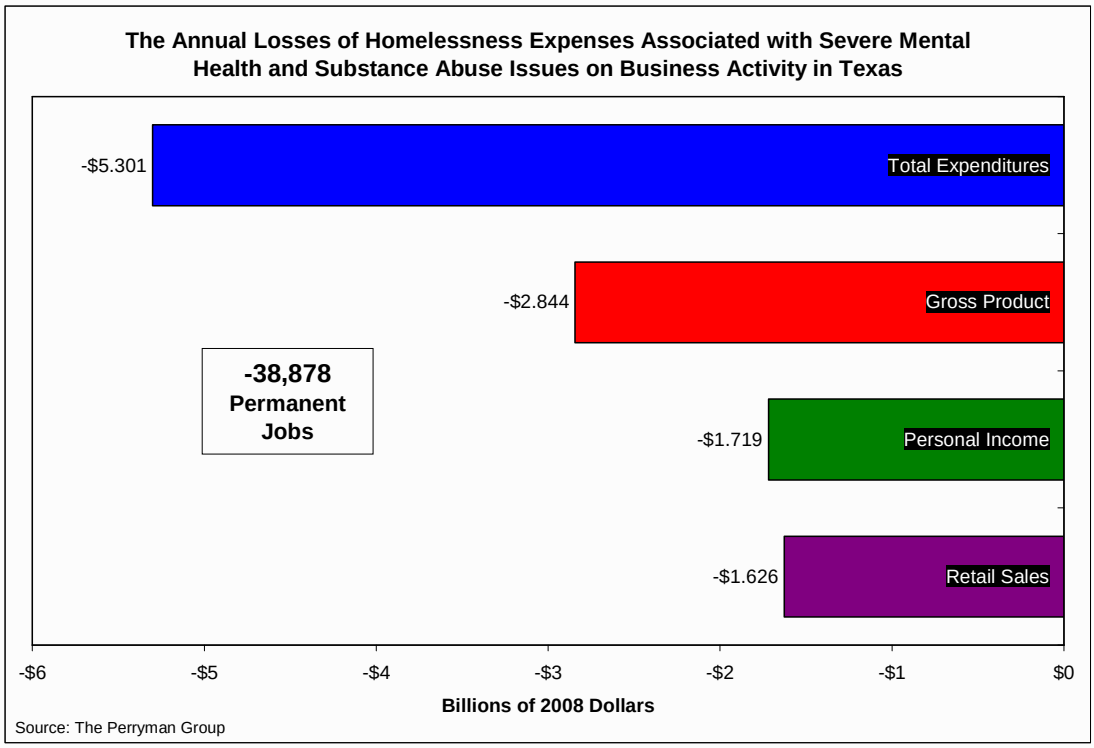
Incarceration

People with mental health and substance abuse issues make up a significant portion of the incarcerated population within Texas. This analysis shows incarceration and related expenses for such persons cost the state economy $4.487 billion in annual spending and some 32,900 jobs. In addition, State tax receipts are reduced and expenses increased by an estimated annual amount of $1.698 billion.



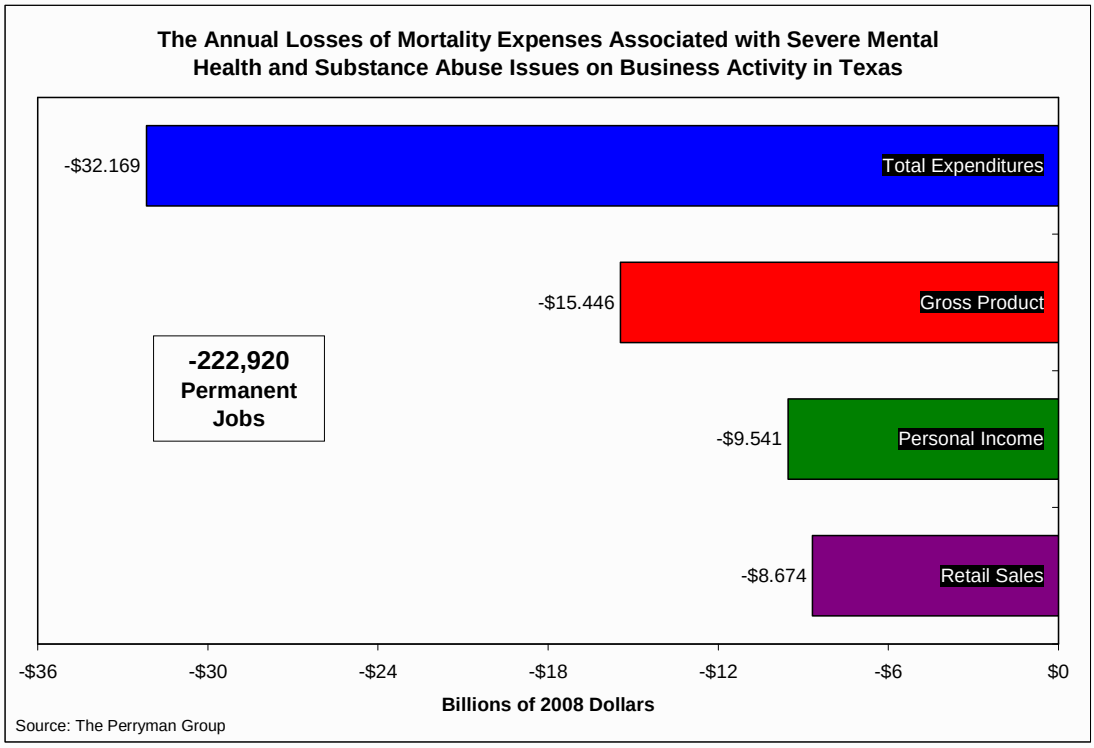
Homelessness

Like incarceration, a notable proportion of the homeless population deals with mental illness and substance abuse issues. In relation to business activity in the state, homelessness expenses related to severe mental health and substance abuse issues are responsible for annual losses to the economy of $5.301 billion in total expenditures and 38,878 jobs. State government resources are adversely impacted by $1.697 billion per annum.



Mortality

Loss of life due to mental and substance abuse disorders not only involves enormous human costs, it also negatively affects the state economy. TPG estimated that mortality expenses lead to reductions in total spending each year of $32.169 billion and State revenue losses of $1.521 billion.



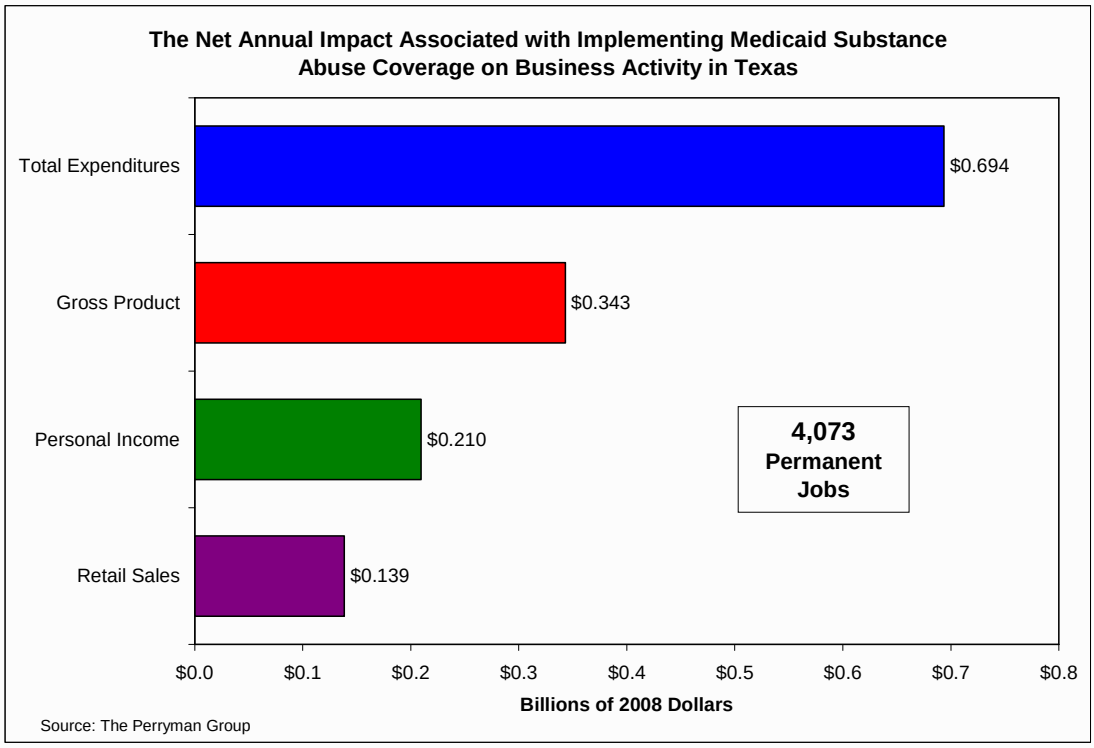
Results of the Impact Analysis: Benefit of Expanding Funding for Treatment of Mental Health and Substance Abuse and Related Programs in Texas

Obviously, the effects of severe mental illness and substance abuse cannot be totally eliminated. In fact, it is only through increased outlays in selected areas, such as various treatment options and jail diversion, that reductions in some of the enormous social and economic costs can be ameliorated. The Perryman Group analyzed several alternative scenarios for expanding State funding for treatment of mental illness and substance abuse issues. Net annual impacts of implementing these initiatives are displayed in the following graphs, and the related rates of return are evaluated.

As noted, affordability is often the reason people fail to get adequate treatment for mental and substance abuse disorders. Without treatment, problems can escalate to the point where they involve much higher costs. For example, by increasing funding for crisis intervention, spending for hospitalization and incarceration can be reduced. By offering substance abuse treatment, other problems can be avoided. Even when the costs of treatment are included, the net effect on business activity is typically significantly positive.

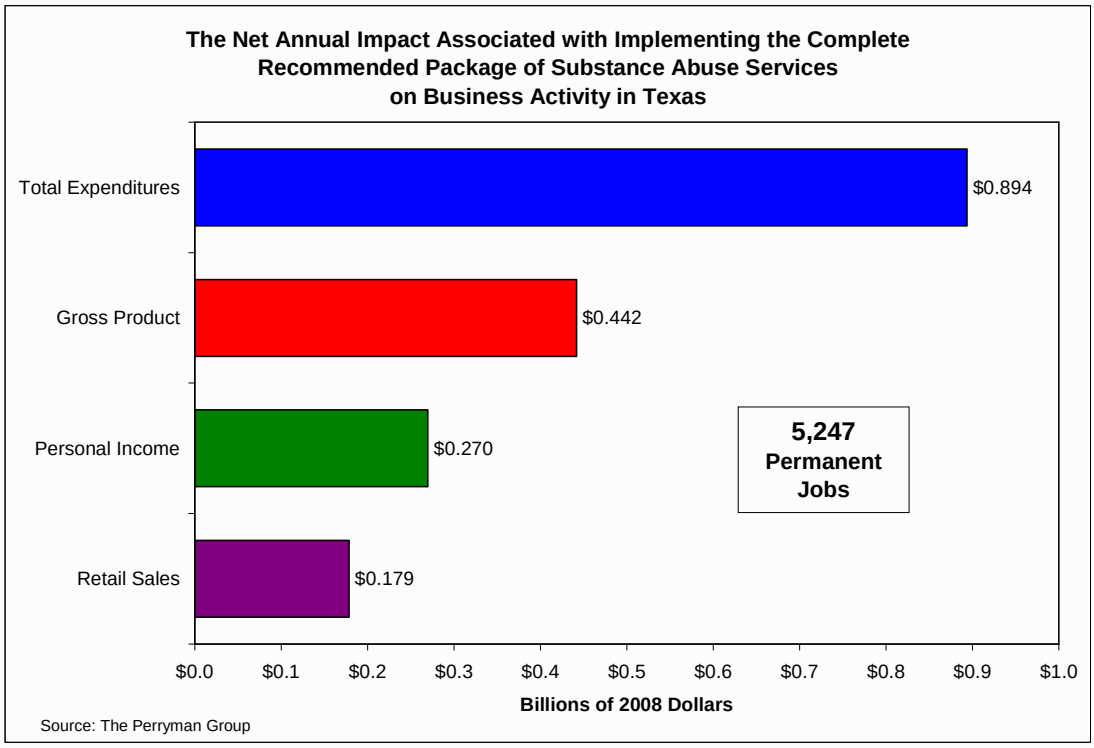
Expanded Substance Abuse Coverage

One proposal which is frequently discussed is to expand the current Medicaid program to include substance abuse programs. The net annual impact associated with implementing this type of coverage (which brings substantial federal matching funds) includes net gains in total spending in the state economy of an annual $0.694 billion and 4,073 jobs.



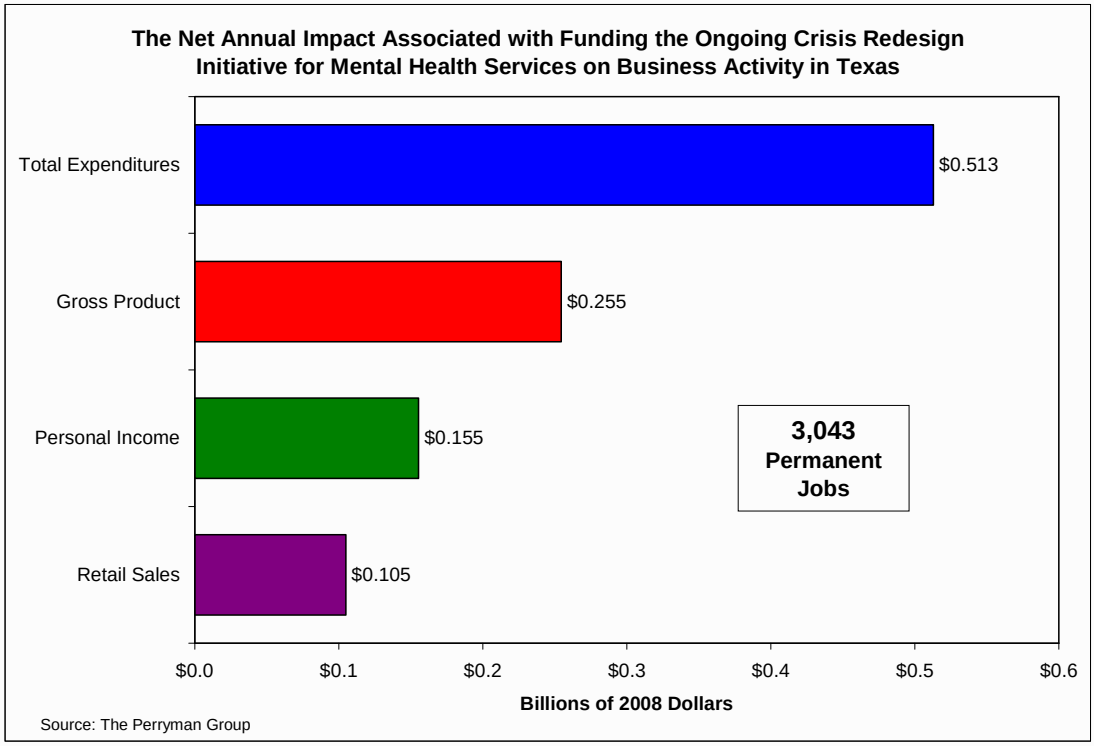
The associated gains in tax receipts to the State include $37.566 million each year, or a return on investment of $2.82 for every $1 of State funds committed. With regard to the overall economy, **aggregate spending benefits by $52.16 for each dollar of State tax funds.**

Implementing a **comprehensive recommended package of substance abuse services would involve even greater effects of $0.894 billion in total spending and 5,247 jobs, as well as $48.393 million in State fiscal receipts (representing an annual return on investment of $2.26 for each $1 in direct outlays).** The economy as a whole generates $41.64 in enhanced expenditures for each dollar of public resource commitment

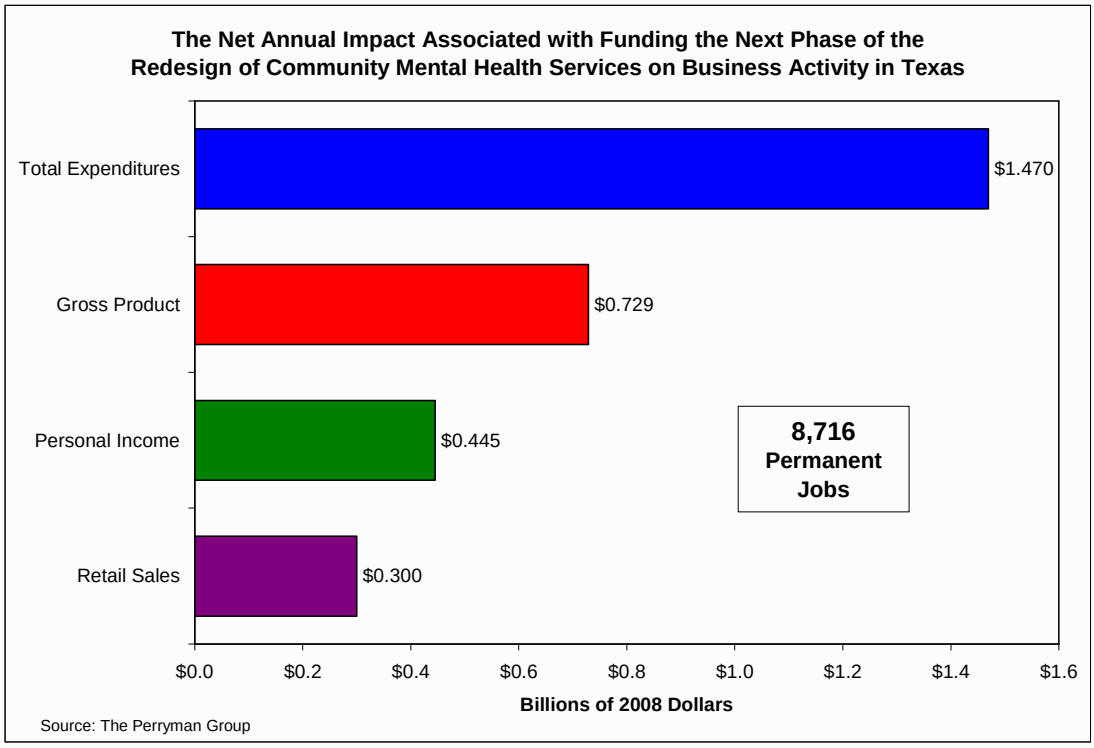


Crisis Redesign Funding

In addition, The Perryman Group separately analyzed the net impact of maintaining ongoing funding for the Crisis Redesign program as well as increasing funding to implement the next phase. **Continuing the Crisis Redesign initiative leads to net economic benefits of $0.513 billion in total expenditures, 3,043 jobs, and $36.588 million in incremental State taxes. The annual rate of return on this investment to the State government is estimated at 175%, while the aggregate spending in the economy as a whole rises by $33.80 per direct dollar devoted to this effort.**



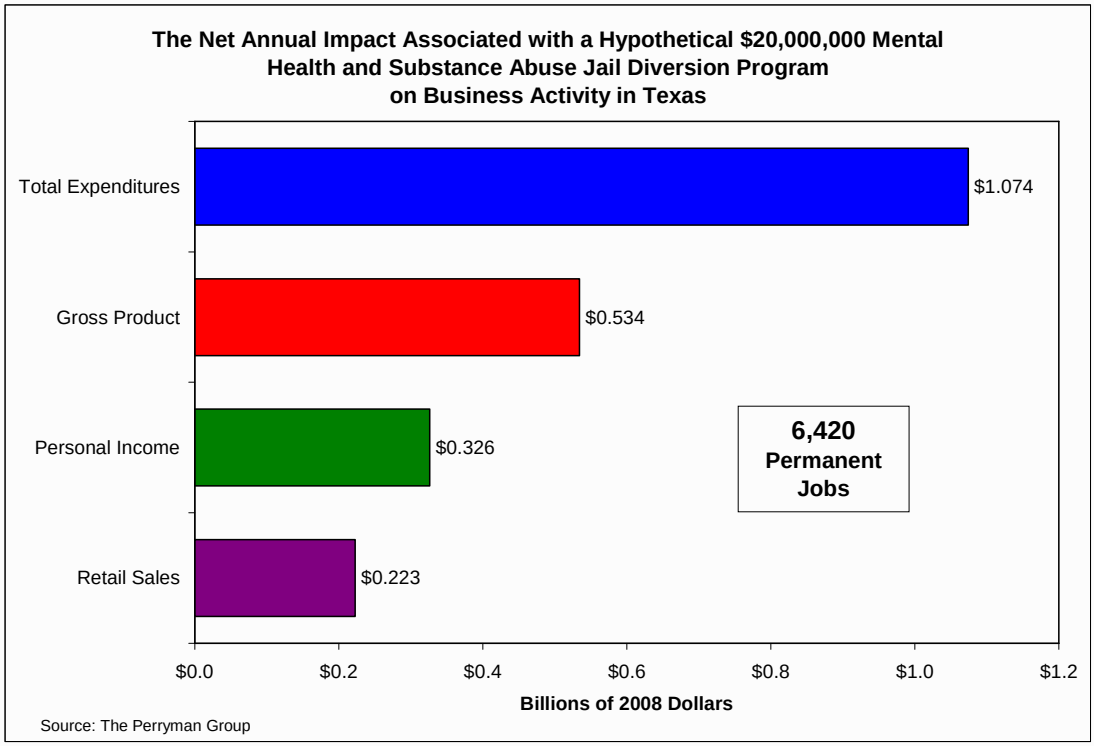
If funding is provided for the next phase of the Redesign initiative, net gains of $1.470 billion in annual total spending and 8,716 permanent jobs could be realized. In addition, State tax receipts could be expected to rise by $76.286 million per year, resulting in a return of 185% to the government and an expenditure gain in the economy of $35.71 for every $1 of direct outlays.



Jail Diversion Programs

One option that has shown promising results in numerous areas around the country is jail diversion, whereby persons with mental and substance abuse disorders are provided with crisis intervention in an appropriate setting rather than being placed in jail.

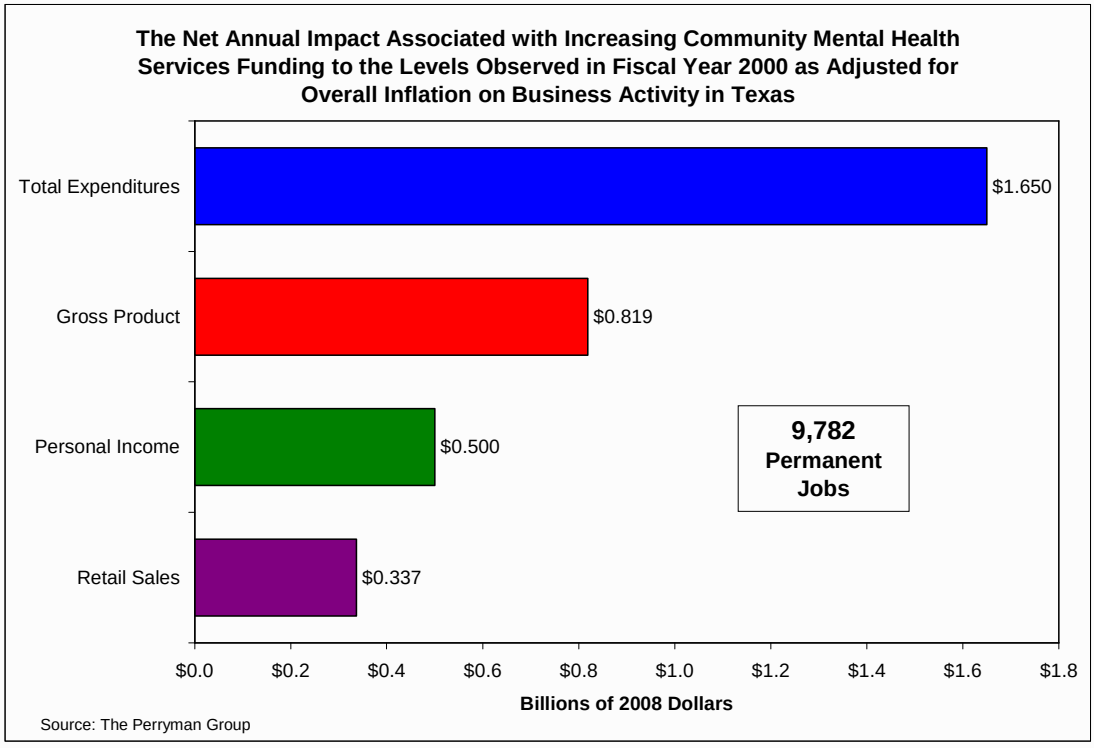
To illustrate the potential magnitude of the benefits of such programs, The Perryman Group analyzed the results of implementing a $20 million hypothetical jail diversion program. Gains of such an initiative would include a positive net annual impact of $1.074 billion in total expenditures and 6,420 permanent jobs. The yearly increment to State tax receipts that could be expected was calculated to be $53.964 million, or a return of $2.70 per dollar of investment and $53.71 in overall benefit.



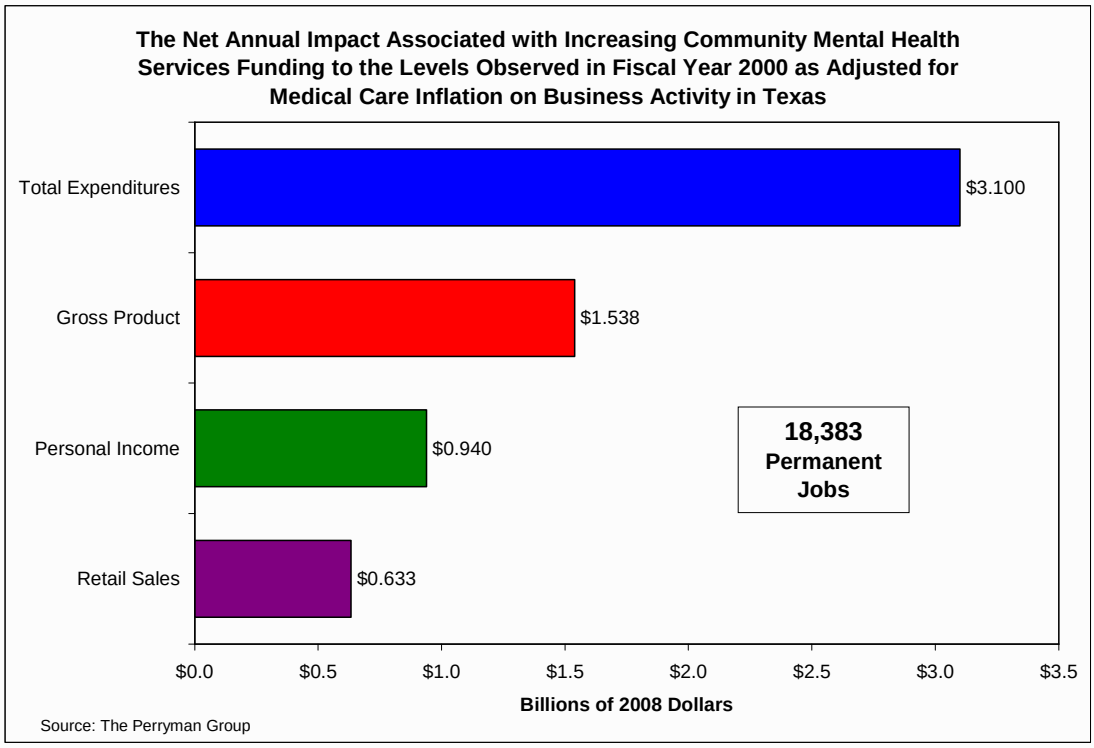
Overall Funding Increases

Finally, The Perryman Group looked at several options for increasing overall funding for mental health and substance abuse services. The initial scenario involves restoring funding for community-based services to the 2000 level on an inflation-adjusted basis. Two different inflation measures were utilized for this portion of the analysis; the first adjusts funding by overall inflation while the second adjusts funding by using a measure of medical care inflation.

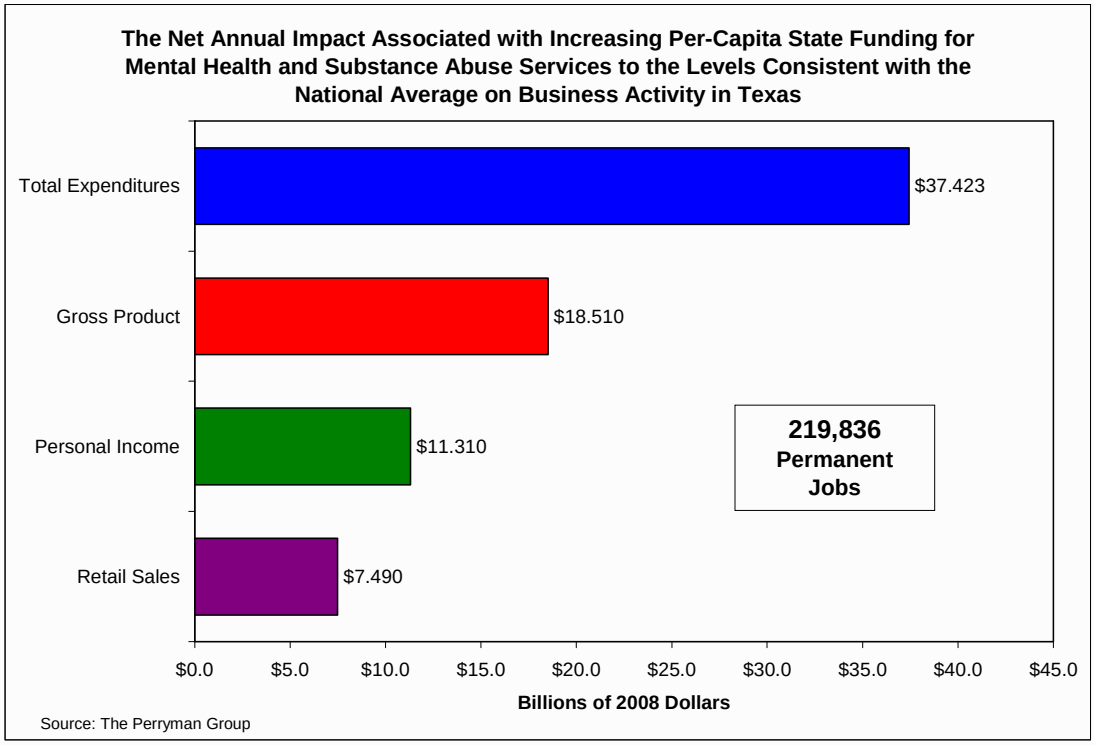
The net impact on business activity naturally depends on this inflation assumption in that it determines the level of direct spending for treatment. Using the overall inflation measure to calculate current funding would lead to net gains in business activity of $1.650 billion in total expenditures and 9,782 permanent jobs.



Adjusting funding by using the higher rate of inflation in medical care would lead to a larger amount of funds available and, thus, a greater impact. Using a medical care inflation rate to equate funds to 2000 levels produces a net impact of $3.100 billion in total spending and 18,383 permanent jobs, almost twice that of the overall inflation adjusted impact. Both simulations reveal an annual return on investment to the State of approximately 170% and a gain of $32.76 in overall spending per dollar of investment.



As a final illustration, TPG examined the effects of increasing State funding for mental health and substance abuse services to a per-capita level equivalent to the national average. Texas presently ranks near the bottom of all states on this measure despite the overall economic and fiscal benefits associated with greater resource commitments. Assuming that the allocation to community-based and other programs remains constant on a percentage basis, such an increase would yield $37.423 billion in total spending and 219,836 jobs. The return on investment for the State would be 122%, with about $22.51 in overall activity per dollar of direct spending. Note that these gains could be substantially enhanced by directing more of the funds to community-level programs, thus achieving greater relative efficiency.



Conclusion

Even beyond the often devastating consequences for the individuals involved, severe mental health and substance abuse disorders cost the Texas economy some $269.343 billion in total spending each year and 1,675,582 permanent jobs. Finding ways to reduce these negative effects is clearly a worthy goal.

The costs of inadequate care involve lost productivity and other economic fallout. Moreover, there is an immeasurable cost in quality of life for those Texans unable to afford the services they may need. While these human costs defy measurement, the economic rationale for funding for mental health and substance abuse programs is clear.

By providing appropriate treatment, other more costly outcomes (such as hospitalization or incarceration) can be reduced. Productivity and income gains can also be realized. In addition, spending for other types of health care and homelessness can be lowered significantly.

The Perryman Group's analysis indicates that investing resources in funding mental health treatment would lead to substantial gains in business activity. In fact, the State's investment in funding for treatment of mental health and substance abuse disorders more than pays for itself in reduced costs and increased revenues and produces excellent returns on the commitment of public resources.

Mental and substance abuse disorders extract a notable toll on millions of Texans. Many of these people are unable to afford even the most basic care. **Expanding funding for both traditional and innovative treatment options would pay sizable economic benefits even beyond the immeasurable quality-of-life improvement for those involved and represents an appropriate and highly productive use of State funds.**

Respectfully submitted,

The Perryman Group
M. Ray Perryman, PhD, President

APPENDICES

APPENDIX A

US Multi-Regional Impact Assessment System Methodology

The US Multi-Regional Impact Assessment System

The basic modeling technique employed in this study is known as input-output analysis. This methodology 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. This process was described at length within the report.

The second step is the simulation of the input-output system to measure overall economic effects. In the case of a prospective evaluation, it is necessary to first calculate reasonable estimates of the direct activity. Note that all monetary values are given in constant (2008) dollars to adjust for the effects of inflation.

Once the direct input values were determined, 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. In addition, the model has been in operation and continually updated for over two decades. The systems used in the current simulations reflect the unique industrial structure of the Texas economy.

The USMRIAS is somewhat similar in format to the Input-Output Model of the United States and the Regional Input-Output Modeling System, both of which are 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 models used for the present investigation have been thoroughly tested for reasonableness and historical reliability.

As noted earlier, 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 *ACCRA 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.

The fiscal effects are estimated from a model maintained by TPG that tracks revenues in a manner that reflects the specific tax structure of

Texas, as well as a full accounting of the federal reimbursement parameters of the Medicaid program.

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, say, Amarillo is the amount of US output that is produced in that area. 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 fourth measure, Retail Sales, represents the component of Total Expenditures which occurs in retail outlets (general merchandise stores, automobile dealers and service stations, building materials stores, food stores, drugstores, restaurants, and so forth). Retail Sales is a commonly used measure of consumer activity.

The final aggregates used are Permanent Jobs and Person-Years of Employment. The Person-Years of Employment measure reveals the full-time equivalent jobs generated by an activity. It should be noted that, unlike the dollar values described above, Permanent Jobs is a "stock" rather than a "flow." In other words, if an area produces $1 million in output in 2007 and $1 million in 2008, it is appropriate to say that $2 million was achieved in the 2007-2008 period. If the same area has 100 people working in 2007 and 100 in 2008, it only has 100 Permanent 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 Person-Years (a person working for a year). This concept is distinct from Permanent Jobs, which anticipates that the relevant positions will be maintained on a continuing basis.

APPENDIX B

Detailed Sectoral Results

Table 1
The Annual Losses of Direct Medical Expenses Associated with Severe Mental Health and Substance Abuse Issues (Excluding Homelessness) on Business Activity in Texas—Detailed Industrial Category

Category	Total Expenditures (2008 Dollars)	Gross Product (2008 Dollars)	Personal Personal (2008 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	($630,453,389)	($167,298,236)	($113,939,373)	-1,993
Forestry & Fishery Products	($15,315,295)	($14,698,497)	($5,451,422)	-70
Coal Mining	($67,434,560)	($19,485,385)	($20,533,011)	-144
Crude Petroleum & Natural Gas	($1,309,289,958)	($286,750,808)	($132,249,148)	-697
Miscellaneous Mining	($27,431,634)	($11,959,322)	($7,030,282)	-73
New Construction	($201,916,041)	($88,362,633)	($72,816,367)	-1,134
Maintenance & Repair Construction	($785,990,252)	($423,438,612)	($348,939,863)	-5,411
Food Products & Tobacco	($1,253,787,525)	($323,098,837)	($165,054,237)	-3,028
Textile Mill Products	($17,922,472)	($4,247,000)	($3,593,365)	-78
Apparel	($246,866,234)	($137,122,670)	($69,482,192)	-2,072
Paper & Allied Products	($240,019,013)	($106,699,487)	($48,238,073)	-776
Printing & Publishing	($437,576,121)	($223,165,767)	($145,665,383)	-2,711
Chemicals & Petroleum Refining	($1,295,421,352)	($211,928,928)	($99,512,827)	-781
Rubber & Leather Products	($177,918,440)	($76,608,530)	($44,785,127)	-954
Lumber Products & Furniture	($109,594,259)	($38,847,486)	($27,696,036)	-623
Stone, Clay, & Glass Products	($169,949,463)	($89,174,379)	($46,638,543)	-825
Primary Metal	($114,332,329)	($31,916,817)	($23,757,266)	-382
Fabricated Metal Products	($237,175,210)	($88,064,278)	($56,854,497)	-1,052
Machinery, Except Electrical	($191,226,616)	($77,685,514)	($55,498,851)	-630
Electric & Electronic Equipment	($223,691,278)	($126,629,135)	($75,703,276)	-675
Motor Vehicles & Equipment	($101,659,782)	($21,826,591)	($14,180,000)	-203
Transp. Equip., Exc. Motor Vehicles	($55,054,029)	($25,111,214)	($16,409,215)	-198
Instruments & Related Products	($44,627,679)	($18,974,472)	($14,422,324)	-192
Miscellaneous Manufacturing	($100,578,412)	($39,921,097)	($27,533,947)	-463
Transportation	($1,034,899,128)	($702,192,550)	($464,405,277)	-7,067
Communication	($1,323,693,718)	($810,739,672)	($346,130,700)	-3,360
Electric, Gas, Water, Sanitary Services	($1,972,526,312)	($447,250,617)	($195,168,236)	-895
Wholesale Trade	($1,750,672,445)	($1,184,668,604)	($683,090,536)	-8,415
Retail Trade	($8,881,876,089)	($7,359,911,003)	($4,400,991,538)	-127,513
Finance	($535,381,545)	($293,386,448)	($170,839,781)	-1,662
Insurance	($1,015,339,521)	($693,361,473)	($414,518,599)	-5,480
Real Estate	($3,906,060,416)	($717,724,265)	($115,640,949)	-1,109
Hotels, Lodging Places, Amusements	($627,473,530)	($315,219,634)	($206,794,995)	-5,552
Personal Services	($718,713,558)	($440,327,486)	($342,582,106)	-6,364
Business Services	($1,765,673,787)	($1,131,612,086)	($923,105,594)	-12,399
Eating & Drinking Places	($2,117,083,619)	($1,240,225,986)	($659,866,296)	-32,953
Health Services	($1,104,061,854)	($770,998,670)	($651,886,455)	-11,882
Miscellaneous Services	($995,082,775)	($422,889,907)	($366,610,310)	-9,657
Households	($46,460,891)	($46,460,891)	($45,477,717)	-3,448
Total	**($35,850,230,536)**	**($19,229,984,989)**	**($11,623,093,714)**	**-262,918**

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

Table 2
The Annual Losses of Comorbidities and Disability Expenses Associated with Severe Mental Health and Substance Abuse Issues (Excluding Homelessness) on Business Activity in Texas—Detailed Industrial Category

Category	Total Expenditures (2008 Dollars)	Gross Product (2008 Dollars)	Personal Personal (2008 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	($1,402,186,129)	($372,086,612)	($253,411,611)	-4,432
Forestry & Fishery Products	($34,062,619)	($32,690,805)	($12,124,463)	-155
Coal Mining	($149,980,644)	($43,337,283)	($45,667,300)	-319
Crude Petroleum & Natural Gas	($2,911,980,883)	($637,760,082)	($294,134,228)	-1,550
Miscellaneous Mining	($61,010,468)	($26,598,629)	($15,635,993)	-162
New Construction	($449,079,784)	($196,526,595)	($161,950,274)	-2,522
Maintenance & Repair Construction	($1,748,114,369)	($941,766,289)	($776,074,241)	-12,033
Food Products & Tobacco	($2,788,538,384)	($718,601,431)	($367,095,752)	-6,734
Textile Mill Products	($39,861,221)	($9,445,717)	($7,991,973)	-173
Apparel	($549,053,135)	($304,973,387)	($154,534,765)	-4,609
Paper & Allied Products	($533,824,286)	($237,309,439)	($107,285,896)	-1,725
Printing & Publishing	($973,209,405)	($496,341,122)	($323,973,165)	-6,029
Chemicals & Petroleum Refining	($2,881,135,832)	($471,349,362)	($221,325,649)	-1,737
Rubber & Leather Products	($395,706,920)	($170,384,393)	($99,606,228)	-2,123
Lumber Products & Furniture	($243,747,679)	($86,400,369)	($61,598,522)	-1,386
Stone, Clay, & Glass Products	($377,983,184)	($198,331,992)	($103,728,395)	-1,836
Primary Metal	($254,285,580)	($70,985,928)	($52,838,336)	-848
Fabricated Metal Products	($527,499,408)	($195,863,027)	($126,449,614)	-2,339
Machinery, Except Electrical	($425,305,524)	($172,779,705)	($123,434,531)	-1,402
Electric & Electronic Equipment	($497,509,907)	($281,634,804)	($168,371,026)	-1,501
Motor Vehicles & Equipment	($226,100,674)	($48,544,339)	($31,537,619)	-453
Transp. Equip., Exc. Motor Vehicles	($122,445,207)	($55,849,642)	($36,495,598)	-441
Instruments & Related Products	($99,256,050)	($42,200,965)	($32,076,571)	-426
Miscellaneous Manufacturing	($223,695,609)	($88,788,179)	($61,238,022)	-1,029
Transportation	($2,301,710,526)	($1,561,740,598)	($1,032,879,906)	-15,717
Communication	($2,944,016,166)	($1,803,159,348)	($769,826,405)	-7,473
Electric, Gas, Water, Sanitary Services	($4,387,079,331)	($994,726,370)	($434,072,047)	-1,989
Wholesale Trade	($3,893,655,994)	($2,634,811,569)	($1,519,255,968)	-18,716
Retail Trade	($19,754,106,586)	($16,369,116,721)	($9,788,208,601)	-283,601
Finance	($1,190,737,633)	($652,518,353)	($379,963,334)	-3,696
Insurance	($2,258,208,166)	($1,542,099,474)	($921,927,362)	-12,187
Real Estate	($8,687,436,417)	($1,596,284,556)	($257,196,070)	-2,467
Hotels, Lodging Places, Amusements	($1,395,558,649)	($701,077,361)	($459,931,024)	-12,349
Personal Services	($1,598,484,834)	($979,328,693)	($761,934,006)	-14,154
Business Services	($3,927,020,353)	($2,516,809,009)	($2,053,071,458)	-27,576
Eating & Drinking Places	($4,708,588,033)	($2,758,376,278)	($1,467,603,129)	-73,291
Health Services	($2,455,534,769)	($1,714,771,715)	($1,449,855,231)	-26,426
Miscellaneous Services	($2,213,155,308)	($940,545,919)	($815,374,935)	-21,477
Households	($103,333,281)	($103,333,281)	($101,146,611)	-7,668
Total	**($79,734,198,948)**	**($42,769,249,344)**	**($25,850,825,858)**	**-584,754**

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

Table 3
The Annual Losses of Lost Income and Productivity Associated with Severe Mental Health and Substance Abuse Issues on Business Activity in Texas
Detailed Industrial Category

Category	Total Expenditures (2008 Dollars)	Gross Product (2008 Dollars)	Personal Personal (2008 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	($1,296,993,628)	($444,368,109)	($266,368,873)	-4,481
Forestry & Fishery Products	($142,395,744)	($31,469,467)	($10,199,195)	-260
Coal Mining	($151,829,105)	($41,502,584)	($46,078,181)	-389
Crude Petroleum & Natural Gas	($13,267,743,221)	($5,398,460,955)	($2,198,973,345)	-6,127
Miscellaneous Mining	($125,505,772)	($58,372,555)	($45,380,871)	-672
New Construction	($2,714,818,905)	($1,295,212,723)	($1,036,516,435)	-12,562
Maintenance & Repair Construction	($2,132,012,596)	($1,313,900,209)	($1,062,249,144)	-14,167
Food Products & Tobacco	($2,760,093,803)	($685,489,133)	($352,961,144)	-6,475
Textile Mill Products	($41,044,142)	($9,620,654)	($8,312,838)	-199
Apparel	($294,610,642)	($161,007,696)	($82,632,058)	-2,591
Paper & Allied Products	($387,207,366)	($160,929,089)	($80,785,484)	-1,360
Printing & Publishing	($917,227,121)	($520,705,346)	($318,922,279)	-4,529
Chemicals & Petroleum Refining	($10,033,958,095)	($2,508,884,224)	($1,506,477,165)	-3,585
Rubber & Leather Products	($586,992,526)	($258,610,762)	($166,690,066)	-2,483
Lumber Products & Furniture	($381,588,428)	($144,560,478)	($108,158,002)	-2,267
Stone, Clay, & Glass Products	($453,332,918)	($241,023,739)	($140,734,509)	-1,818
Primary Metal	($501,493,933)	($150,062,590)	($126,368,398)	-1,024
Fabricated Metal Products	($1,008,617,571)	($460,460,106)	($309,572,539)	-4,601
Machinery, Except Electrical	($1,652,738,514)	($598,977,571)	($484,418,483)	-3,615
Electric & Electronic Equipment	($1,229,443,692)	($651,956,011)	($484,995,041)	-3,747
Motor Vehicles & Equipment	($572,550,905)	($180,515,216)	($109,762,239)	-1,290
Transp. Equip., Exc. Motor Vehicles	($373,924,649)	($191,812,022)	($126,474,599)	-1,968
Instruments & Related Products	($174,996,317)	($58,100,607)	($52,244,762)	-648
Miscellaneous Manufacturing	($229,701,332)	($72,360,399)	($72,985,397)	-840
Transportation	($3,183,850,506)	($2,098,182,464)	($1,441,160,352)	-18,907
Communication	($2,699,762,727)	($1,818,886,464)	($820,956,893)	-7,635
Electric, Gas, Water, Sanitary Services	($8,714,258,555)	($1,863,628,322)	($864,065,080)	-2,580
Wholesale Trade	($4,346,946,748)	($3,324,230,723)	($1,981,633,331)	-21,334
Retail Trade	($9,540,700,923)	($8,045,754,897)	($4,860,844,097)	-135,524
Finance	($2,829,971,545)	($1,443,982,639)	($1,036,569,537)	-10,713
Insurance	($1,334,558,549)	($803,346,284)	($479,061,045)	-8,186
Real Estate	($16,152,474,751)	($3,989,560,709)	($664,340,670)	-6,723
Hotels, Lodging Places, Amusements	($1,512,279,062)	($785,342,551)	($538,575,079)	-12,397
Personal Services	($1,766,819,484)	($1,112,596,615)	($868,419,845)	-17,119
Business Services	($6,952,378,117)	($4,964,010,899)	($4,399,669,053)	-51,022
Eating & Drinking Places	($4,051,596,029)	($2,444,906,193)	($1,326,689,843)	-70,860
Health Services	($4,301,125,139)	($3,382,494,999)	($2,859,831,825)	-50,547
Miscellaneous Services	($2,847,974,718)	($1,345,715,926)	($1,162,260,863)	-30,754
Households	($135,997,129)	($135,997,129)	($115,469,272)	-7,210
Total	**($111,801,514,908)**	**($53,196,999,063)**	**($32,617,807,831)**	**-533,209**

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

Table 4
The Annual Losses of Incarceration and Related Expenses Associated with Severe Mental Health and Substance Abuse Issues (Excluding Homelessness) on Business Activity in Texas—Detailed Industrial Category

Category	Total Expenditures (2008 Dollars)	Gross Product (2008 Dollars)	Personal Personal (2008 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	($78,901,299)	($20,937,389)	($14,259,523)	-249
Forestry & Fishery Products	($1,916,710)	($1,839,518)	($682,246)	-9
Coal Mining	($8,439,441)	($2,438,598)	($2,569,708)	-18
Crude Petroleum & Natural Gas	($163,857,757)	($35,886,890)	($16,550,993)	-87
Miscellaneous Mining	($3,433,071)	($1,496,710)	($879,840)	-9
New Construction	($25,269,811)	($11,058,592)	($9,112,975)	-142
Maintenance & Repair Construction	($98,366,751)	($52,993,381)	($43,669,855)	-677
Food Products & Tobacco	($156,911,622)	($40,435,849)	($20,656,553)	-379
Textile Mill Products	($2,242,999)	($531,512)	($449,710)	-10
Apparel	($30,895,332)	($17,160,915)	($8,695,703)	-259
Paper & Allied Products	($30,038,401)	($13,353,450)	($6,036,999)	-97
Printing & Publishing	($54,762,691)	($27,929,216)	($18,230,036)	-339
Chemicals & Petroleum Refining	($162,122,099)	($26,522,925)	($12,454,039)	-98
Rubber & Leather Products	($22,266,509)	($9,587,564)	($5,604,863)	-119
Lumber Products & Furniture	($13,715,731)	($4,861,766)	($3,466,161)	-78
Stone, Clay, & Glass Products	($21,269,191)	($11,160,182)	($5,836,818)	-103
Primary Metal	($14,308,701)	($3,994,393)	($2,973,224)	-48
Fabricated Metal Products	($29,682,499)	($11,021,252)	($7,115,345)	-132
Machinery, Except Electrical	($23,932,028)	($9,722,349)	($6,945,686)	-79
Electric & Electronic Equipment	($27,994,984)	($15,847,648)	($9,474,272)	-84
Motor Vehicles & Equipment	($12,722,731)	($2,731,600)	($1,774,628)	-25
Transp. Equip., Exc. Motor Vehicles	($6,890,017)	($3,142,671)	($2,053,615)	-25
Instruments & Related Products	($5,585,158)	($2,374,657)	($1,804,955)	-24
Miscellaneous Manufacturing	($12,587,397)	($4,996,129)	($3,445,876)	-58
Transportation	($129,517,720)	($87,879,461)	($58,120,362)	-884
Communication	($165,660,389)	($101,464,143)	($43,318,288)	-420
Electric, Gas, Water, Sanitary Services	($246,861,846)	($55,973,455)	($24,425,322)	-112
Wholesale Trade	($219,096,815)	($148,261,383)	($85,488,842)	-1,053
Retail Trade	($1,111,567,596)	($921,093,528)	($550,784,489)	-15,958
Finance	($67,003,049)	($36,717,340)	($21,380,614)	-208
Insurance	($127,069,833)	($86,774,251)	($51,877,040)	-686
Real Estate	($488,843,815)	($89,823,257)	($14,472,475)	-139
Hotels, Lodging Places, Amusements	($78,528,369)	($39,449,766)	($25,880,412)	-695
Personal Services	($89,947,067)	($55,107,025)	($42,874,182)	-796
Business Services	($220,974,234)	($141,621,355)	($115,526,749)	-1,552
Eating & Drinking Places	($264,953,207)	($155,214,394)	($82,582,327)	-4,124
Health Services	($138,173,441)	($96,490,553)	($81,583,649)	-1,487
Miscellaneous Services	($124,534,699)	($52,924,710)	($45,881,313)	-1,209
Households	($5,814,585)	($5,814,585)	($5,691,540)	-431
Total	**($4,486,659,596)**	**($2,406,634,362)**	**($1,454,631,230)**	**-32,904**

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

Table 5
The Annual Losses of Homelessness Expenses Associated with Severe Mental Health and Substance Abuse Issues on Business Activity in Texas
Detailed Industrial Category

Category	Total Expenditures (2008 Dollars)	Gross Product (2008 Dollars)	Personal Personal (2008 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	($93,225,543)	($24,738,496)	($16,848,288)	-295
Forestry & Fishery Products	($2,264,682)	($2,173,476)	($806,105)	-10
Coal Mining	($9,971,591)	($2,881,316)	($3,036,229)	-21
Crude Petroleum & Natural Gas	($193,605,538)	($42,402,024)	($19,555,766)	-103
Miscellaneous Mining	($4,056,333)	($1,768,433)	($1,039,572)	-11
New Construction	($29,857,453)	($13,066,239)	($10,767,402)	-168
Maintenance & Repair Construction	($116,224,878)	($62,614,137)	($51,597,959)	-800
Food Products & Tobacco	($185,398,358)	($47,776,830)	($24,406,675)	-448
Textile Mill Products	($2,650,207)	($628,007)	($531,353)	-12
Apparel	($36,504,267)	($20,276,416)	($10,274,376)	-306
Paper & Allied Products	($35,491,764)	($15,777,721)	($7,132,995)	-115
Printing & Publishing	($64,704,659)	($32,999,664)	($21,539,633)	-401
Chemicals & Petroleum Refining	($191,554,778)	($31,338,065)	($14,715,025)	-115
Rubber & Leather Products	($26,308,913)	($11,328,152)	($6,622,405)	-141
Lumber Products & Furniture	($16,205,773)	($5,744,402)	($4,095,430)	-92
Stone, Clay, & Glass Products	($25,130,535)	($13,186,272)	($6,896,471)	-122
Primary Metal	($16,906,394)	($4,719,560)	($3,513,002)	-56
Fabricated Metal Products	($35,071,249)	($13,022,121)	($8,407,111)	-156
Machinery, Except Electrical	($28,276,801)	($11,487,406)	($8,206,650)	-93
Electric & Electronic Equipment	($33,077,371)	($18,724,731)	($11,194,292)	-100
Motor Vehicles & Equipment	($15,032,497)	($3,227,512)	($2,096,806)	-30
Transp. Equip., Exc. Motor Vehicles	($8,140,874)	($3,713,211)	($2,426,441)	-29
Instruments & Related Products	($6,599,123)	($2,805,767)	($2,132,638)	-28
Miscellaneous Manufacturing	($14,872,594)	($5,903,158)	($4,071,462)	-68
Transportation	($153,031,191)	($103,833,658)	($68,671,903)	-1,045
Communication	($195,735,431)	($119,884,590)	($51,182,566)	-497
Electric, Gas, Water, Sanitary Services	($291,678,719)	($66,135,233)	($28,859,651)	-132
Wholesale Trade	($258,873,046)	($175,177,699)	($101,009,031)	-1,244
Retail Trade	($1,313,368,659)	($1,088,314,715)	($650,777,414)	-18,855
Finance	($79,167,209)	($43,383,240)	($25,262,187)	-246
Insurance	($150,138,900)	($102,527,801)	($61,295,129)	-810
Real Estate	($577,591,635)	($106,130,343)	($17,099,901)	-164
Hotels, Lodging Places, Amusements	($92,784,909)	($46,611,728)	($30,578,907)	-821
Personal Services	($106,276,630)	($65,111,505)	($50,657,834)	-941
Business Services	($261,091,304)	($167,332,198)	($136,500,210)	-1,833
Eating & Drinking Places	($313,054,499)	($183,393,004)	($97,574,848)	-4,873
Health Services	($163,258,328)	($114,008,063)	($96,394,864)	-1,757
Miscellaneous Services	($147,143,522)	($62,532,999)	($54,210,899)	-1,428
Households	($6,870,202)	($6,870,202)	($6,724,819)	-510
Total	**($5,301,196,360)**	**($2,843,550,094)**	**($1,718,714,250)**	**-38,878**

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

Table 6
The Annual Losses of Mortality Expenses Associated with Severe Mental Health and Substance Abuse Issues on Business Activity in Texas
Detailed Industrial Category

Category	Total Expenditures (2008 Dollars)	Gross Product (2008 Dollars)	Personal Personal (2008 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	($594,720,529)	($161,700,477)	($110,127,065)	-1,945
Forestry & Fishery Products	($15,018,757)	($15,750,245)	($5,841,504)	-83
Coal Mining	($80,371,437)	($23,214,151)	($24,462,241)	-183
Crude Petroleum & Natural Gas	($430,281,645)	($93,992,473)	($43,349,232)	-236
Miscellaneous Mining	($10,351,806)	($4,449,082)	($2,615,350)	-30
New Construction	($532,686,344)	($239,370,175)	($197,255,929)	-3,074
Maintenance & Repair Construction	($244,905,847)	($159,114,952)	($131,120,628)	-2,043
Food Products & Tobacco	($1,216,048,827)	($312,789,028)	($159,787,599)	-2,950
Textile Mill Products	($15,989,732)	($3,646,351)	($3,085,183)	-79
Apparel	($221,679,226)	($122,575,566)	($62,110,894)	-1,873
Paper & Allied Products	($191,782,684)	($84,869,938)	($38,369,074)	-647
Printing & Publishing	($269,945,951)	($136,688,742)	($89,219,828)	-1,673
Chemicals & Petroleum Refining	($1,008,746,221)	($152,753,536)	($71,726,682)	-588
Rubber & Leather Products	($146,522,846)	($63,008,206)	($36,834,304)	-812
Lumber Products & Furniture	($60,560,469)	($21,241,477)	($15,144,051)	-348
Stone, Clay, & Glass Products	($78,664,409)	($43,598,490)	($22,802,188)	-410
Primary Metal	($63,348,077)	($17,525,970)	($13,045,486)	-215
Fabricated Metal Products	($160,241,743)	($57,539,442)	($37,147,522)	-704
Machinery, Except Electrical	($99,039,183)	($39,699,921)	($28,361,784)	-334
Electric & Electronic Equipment	($96,016,642)	($50,558,214)	($30,225,426)	-278
Motor Vehicles & Equipment	($77,301,932)	($17,404,552)	($11,307,126)	-177
Transp. Equip., Exc. Motor Vehicles	($33,592,518)	($14,379,579)	($9,396,520)	-125
Instruments & Related Products	($27,030,627)	($11,084,911)	($8,425,511)	-119
Miscellaneous Manufacturing	($61,985,611)	($24,454,798)	($16,866,722)	-297
Transportation	($909,769,714)	($625,401,957)	($413,618,524)	-6,319
Communication	($948,765,190)	($586,219,520)	($250,275,932)	-2,448
Electric, Gas, Water, Sanitary Services	($2,310,679,094)	($518,698,478)	($226,346,200)	-1,059
Wholesale Trade	($976,594,511)	($660,863,267)	($381,059,634)	-4,713
Retail Trade	($6,049,360,871)	($5,012,733,044)	($2,997,454,069)	-86,860
Finance	($411,504,316)	($217,335,815)	($126,555,263)	-1,245
Insurance	($565,293,796)	($338,344,144)	($202,275,461)	-2,688
Real Estate	($5,642,476,508)	($554,227,843)	($89,298,113)	-877
Hotels, Lodging Places, Amusements	($480,067,508)	($252,851,979)	($165,879,635)	-4,470
Personal Services	($1,338,328,665)	($832,443,045)	($647,654,170)	-12,064
Business Services	($1,262,216,976)	($743,010,234)	($606,105,940)	-8,154
Eating & Drinking Places	($2,624,710,341)	($1,537,140,033)	($817,840,574)	-40,869
Health Services	($1,675,898,153)	($1,187,840,194)	($1,004,329,882)	-18,337
Miscellaneous Services	($1,198,492,993)	($468,931,056)	($406,524,170)	-10,733
Households	($38,190,531)	($38,190,531)	($37,382,445)	-2,857
Total	**($32,169,182,230)**	**($15,445,641,417)**	**($9,541,227,862)**	**-222,920**

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

Table 7
The Total Annual Losses Associated with Severe Mental Health and Substance Abuse Issues on Business Activity in Texas
Detailed Industrial Category

Category	Total Expenditures (2008 Dollars)	Gross Product (2008 Dollars)	Personal Personal (2008 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	($4,096,480,517)	($1,191,129,319)	($774,954,732)	-13,395
Forestry & Fishery Products	($210,973,807)	($98,622,009)	($35,104,935)	-587
Coal Mining	($468,026,779)	($132,859,317)	($142,346,670)	-1,074
Crude Petroleum & Natural Gas	($18,276,759,001)	($6,495,253,231)	($2,704,812,711)	-8,801
Miscellaneous Mining	($231,789,085)	($104,644,732)	($72,581,908)	-957
New Construction	($3,953,628,339)	($1,843,596,957)	($1,488,419,382)	-19,601
Maintenance & Repair Construction	($5,125,614,693)	($2,953,827,580)	($2,413,651,691)	-35,131
Food Products & Tobacco	($8,360,778,519)	($2,128,191,110)	($1,089,961,959)	-20,012
Textile Mill Products	($119,710,774)	($28,119,241)	($23,964,422)	-551
Apparel	($1,379,608,835)	($763,116,650)	($387,729,987)	-11,710
Paper & Allied Products	($1,418,363,513)	($618,939,123)	($287,848,522)	-4,720
Printing & Publishing	($2,717,425,949)	($1,437,829,857)	($917,550,325)	-15,682
Chemicals & Petroleum Refining	($15,572,938,378)	($3,402,777,040)	($1,926,211,386)	-6,904
Rubber & Leather Products	($1,355,716,154)	($589,527,607)	($360,142,992)	-6,633
Lumber Products & Furniture	($825,412,340)	($301,655,978)	($220,158,202)	-4,795
Stone, Clay, & Glass Products	($1,126,329,701)	($596,475,053)	($326,636,925)	-5,115
Primary Metal	($964,675,015)	($279,205,257)	($222,495,712)	-2,574
Fabricated Metal Products	($1,998,287,680)	($825,970,227)	($545,546,629)	-8,983
Machinery, Except Electrical	($2,420,518,667)	($910,352,468)	($706,865,985)	-6,154
Electric & Electronic Equipment	($2,107,733,874)	($1,145,350,543)	($779,963,333)	-6,385
Motor Vehicles & Equipment	($1,005,368,520)	($274,249,810)	($170,658,418)	-2,179
Transp. Equip., Exc. Motor Vehicles	($600,047,293)	($294,008,339)	($193,255,988)	-2,787
Instruments & Related Products	($358,094,955)	($135,541,379)	($111,106,762)	-1,438
Miscellaneous Manufacturing	($643,420,955)	($236,423,760)	($186,141,426)	-2,755
Transportation	($7,712,778,786)	($5,179,230,689)	($3,478,856,324)	-49,940
Communication	($8,277,633,620)	($5,240,353,738)	($2,281,690,784)	-21,832
Electric, Gas, Water, Sanitary Services	($17,923,083,858)	($3,946,412,475)	($1,772,936,536)	-6,767
Wholesale Trade	($11,445,839,560)	($8,128,013,245)	($4,751,537,343)	-55,475
Retail Trade	($46,650,980,725)	($38,796,923,908)	($23,249,060,208)	-668,312
Finance	($5,113,765,297)	($2,687,323,836)	($1,760,570,716)	-17,771
Insurance	($5,450,608,765)	($3,566,453,428)	($2,130,954,637)	-30,037
Real Estate	($35,454,883,542)	($7,053,750,972)	($1,158,048,177)	-11,479
Hotels, Lodging Places, Amusements	($4,186,692,027)	($2,140,553,019)	($1,427,640,052)	-36,284
Personal Services	($5,618,570,238)	($3,484,914,369)	($2,714,122,142)	-51,438
Business Services	($14,389,354,771)	($9,664,395,780)	($8,233,979,004)	-102,537
Eating & Drinking Places	($14,079,985,728)	($8,319,255,888)	($4,452,157,016)	-226,970
Health Services	($9,838,051,683)	($7,266,604,194)	($6,143,881,905)	-110,435
Miscellaneous Services	($7,526,384,016)	($3,293,540,518)	($2,850,862,490)	-75,258
Households	($336,666,620)	($336,666,620)	($311,892,403)	-22,124
Total	**($269,342,982,579)**	**($135,892,059,268)**	**($82,806,300,745)**	**-1,675,582**

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

Table 8
The Net Annual Impact Associated with Implementing Medicaid Substance Abuse Coverage on Business Activity in Texas
Detailed Industrial Category

Category	Total Expenditures (2008 Dollars)	Gross Product (2008 Dollars)	Personal Personal (2008 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	$10,032,678	$3,014,727	$1,930,377	33
Forestry & Fishery Products	$621,147	$244,455	$85,679	2
Coal Mining	$1,174,224	$331,242	$356,989	3
Crude Petroleum & Natural Gas	$53,916,706	$20,248,298	$8,353,811	26
Miscellaneous Mining	$617,854	$281,528	$202,970	3
New Construction	$12,158,365	$5,704,775	$4,596,728	59
Maintenance & Repair Construction	$12,570,470	$7,423,941	$6,048,419	86
Food Products & Tobacco	$20,676,972	$5,239,136	$2,685,816	49
Textile Mill Products	$296,235	$69,357	$59,268	1
Apparel	$3,168,461	$1,749,124	$889,854	27
Paper & Allied Products	$3,341,386	$1,446,158	$680,991	11
Printing & Publishing	$6,537,348	$3,509,925	$2,220,053	37
Chemicals & Petroleum Refining	$44,845,421	$10,232,092	$5,916,630	19
Rubber & Leather Products	$3,507,386	$1,529,792	$946,821	17
Lumber Products & Furniture	$2,127,695	$784,927	$576,860	12
Stone, Clay, & Glass Products	$2,779,157	$1,476,802	$822,077	12
Primary Metal	$2,570,419	$751,105	$608,759	6
Fabricated Metal Products	$5,322,453	$2,260,683	$1,501,147	24
Machinery, Except Electrical	$7,032,007	$2,609,617	$2,055,665	17
Electric & Electronic Equipment	$5,775,168	$3,107,349	$2,180,161	18
Motor Vehicles & Equipment	$2,785,380	$795,765	$491,543	6
Transp. Equip., Exc. Motor Vehicles	$1,696,662	$842,672	$554,490	8
Instruments & Related Products	$940,845	$343,435	$288,413	4
Miscellaneous Manufacturing	$1,566,331	$557,498	$462,658	7
Transportation	$19,815,541	$13,262,280	$8,952,353	126
Communication	$19,969,758	$12,808,299	$5,618,675	53
Electric, Gas, Water, Sanitary Services	$48,680,556	$10,640,058	$4,815,150	17
Wholesale Trade	$28,098,075	$20,309,651	$11,930,330	137
Retail Trade	$103,887,666	$86,559,531	$51,928,263	1,487
Finance	$14,056,332	$7,313,405	$4,921,416	50
Insurance	$12,274,435	$7,854,834	$4,691,827	68
Real Estate	$96,273,566	$19,515,244	$3,217,254	32
Hotels, Lodging Places, Amusements	$10,356,298	$5,328,973	$3,575,104	89
Personal Services	$14,649,382	$9,119,480	$7,104,591	135
Business Services	$37,974,121	$25,835,249	$22,261,164	272
Eating & Drinking Places	$34,786,752	$20,618,945	$11,057,978	568
Health Services	$26,591,043	$19,911,617	$16,835,121	302
Miscellaneous Services	$19,426,813	$8,577,625	$7,421,313	196
Households	$857,121	$857,121	$779,217	54
Total	**$693,758,232**	**$343,066,716**	**$209,625,936**	**4,073**

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

Table 9
The Net Annual Impact Associated with Implementing the Complete Recommended Package of Substance Abuse Services on Business Activity in Texas—Detailed Industrial Category

Category	Total Expenditures (2008 Dollars)	Gross Product (2008 Dollars)	Personal Personal (2008 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	$12,923,974	$3,883,535	$2,486,688	43
Forestry & Fishery Products	$800,154	$314,904	$110,370	2
Coal Mining	$1,512,622	$426,702	$459,869	4
Crude Petroleum & Natural Gas	$69,454,848	$26,083,612	$10,761,278	33
Miscellaneous Mining	$795,912	$362,661	$261,464	4
New Construction	$15,662,259	$7,348,822	$5,921,450	77
Maintenance & Repair Construction	$16,193,127	$9,563,431	$7,791,500	111
Food Products & Tobacco	$26,635,825	$6,748,991	$3,459,835	64
Textile Mill Products	$381,606	$89,345	$76,349	2
Apparel	$4,081,573	$2,253,201	$1,146,299	35
Paper & Allied Products	$4,304,333	$1,862,923	$877,244	15
Printing & Publishing	$8,421,333	$4,521,443	$2,859,846	47
Chemicals & Petroleum Refining	$57,769,328	$13,180,856	$7,621,732	24
Rubber & Leather Products	$4,518,173	$1,970,659	$1,219,684	21
Lumber Products & Furniture	$2,740,871	$1,011,133	$743,104	16
Stone, Clay, & Glass Products	$3,580,077	$1,902,399	$1,058,989	16
Primary Metal	$3,311,182	$967,564	$784,195	8
Fabricated Metal Products	$6,856,320	$2,912,184	$1,933,759	31
Machinery, Except Electrical	$9,058,547	$3,361,678	$2,648,082	22
Electric & Electronic Equipment	$7,439,501	$4,002,849	$2,808,457	23
Motor Vehicles & Equipment	$3,588,093	$1,025,095	$633,200	8
Transp. Equip., Exc. Motor Vehicles	$2,185,619	$1,085,520	$714,287	11
Instruments & Related Products	$1,211,985	$442,409	$371,530	5
Miscellaneous Manufacturing	$2,017,728	$718,163	$595,991	8
Transportation	$25,526,139	$17,084,308	$11,532,313	162
Communication	$25,724,800	$16,499,496	$7,237,910	69
Electric, Gas, Water, Sanitary Services	$62,709,703	$13,706,394	$6,202,818	23
Wholesale Trade	$36,195,600	$26,162,647	$15,368,507	176
Retail Trade	$133,826,834	$111,504,940	$66,893,360	1,915
Finance	$18,107,197	$9,421,039	$6,339,708	64
Insurance	$15,811,779	$10,118,502	$6,043,955	88
Real Estate	$124,018,443	$25,139,301	$4,144,428	41
Hotels, Lodging Places, Amusements	$13,340,858	$6,864,719	$4,605,405	115
Personal Services	$18,871,156	$11,747,603	$9,152,048	174
Business Services	$48,917,803	$33,280,655	$28,676,562	350
Eating & Drinking Places	$44,811,873	$26,561,076	$14,244,753	732
Health Services	$34,254,259	$25,649,904	$21,686,799	389
Miscellaneous Services	$25,025,386	$11,049,593	$9,560,046	253
Households	$1,104,133	$1,104,133	$1,003,778	69
Total	**$893,690,955**	**$441,934,390**	**$270,037,592**	**5,247**

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

Table 10
The Net Annual Impact Associated with Funding the Ongoing Crisis Redesign Initiative for Mental Health Services on Business Activity in Texas
Detailed Industrial Category

Category	Total Expenditures (2008 Dollars)	Gross Product (2008 Dollars)	Personal Personal (2008 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	$7,484,429	$2,235,519	$1,435,587	25
Forestry & Fishery Products	$448,940	$181,961	$63,958	1
Coal Mining	$872,110	$246,299	$265,159	2
Crude Petroleum & Natural Gas	$38,956,617	$14,505,304	$5,992,921	19
Miscellaneous Mining	$453,986	$206,532	$147,932	2
New Construction	$8,728,007	$4,091,348	$3,297,664	43
Maintenance & Repair Construction	$9,375,237	$5,512,071	$4,493,193	64
Food Products & Tobacco	$15,397,396	$3,904,691	$2,001,366	37
Textile Mill Products	$220,571	$51,673	$44,135	1
Apparel	$2,392,763	$1,321,419	$672,092	20
Paper & Allied Products	$2,510,982	$1,088,474	$511,337	8
Printing & Publishing	$4,893,191	$2,620,006	$1,659,919	28
Chemicals & Petroleum Refining	$32,527,969	$7,370,781	$4,248,077	14
Rubber & Leather Products	$2,590,664	$1,129,347	$697,377	12
Lumber Products & Furniture	$1,572,594	$579,181	$425,133	9
Stone, Clay, & Glass Products	$2,070,409	$1,099,493	$610,217	9
Primary Metal	$1,888,816	$551,025	$445,312	5
Fabricated Metal Products	$3,911,352	$1,653,610	$1,097,048	18
Machinery, Except Electrical	$5,093,318	$1,894,250	$1,488,683	12
Electric & Electronic Equipment	$4,223,552	$2,276,315	$1,589,095	13
Motor Vehicles & Equipment	$2,033,241	$576,491	$356,522	4
Transp. Equip., Exc. Motor Vehicles	$1,234,328	$611,688	$402,430	6
Instruments & Related Products	$693,051	$254,617	$212,904	3
Miscellaneous Manufacturing	$1,169,800	$418,872	$344,208	5
Transportation	$14,654,466	$9,813,853	$6,618,745	94
Communication	$14,939,421	$9,558,628	$4,187,332	40
Electric, Gas, Water, Sanitary Services	$35,654,485	$7,802,775	$3,526,736	13
Wholesale Trade	$20,952,170	$15,095,347	$8,859,537	102
Retail Trade	$78,933,503	$65,742,991	$39,431,413	1,130
Finance	$10,274,295	$5,354,668	$3,587,135	36
Insurance	$9,305,338	$5,981,355	$3,572,987	52
Real Estate	$70,515,522	$14,248,846	$2,347,411	23
Hotels, Lodging Places, Amusements	$7,711,657	$3,963,477	$2,656,170	66
Personal Services	$10,805,632	$6,722,371	$5,236,829	100
Business Services	$27,951,077	$18,973,792	$16,317,301	200
Eating & Drinking Places	$25,909,141	$15,348,071	$8,227,991	422
Health Services	$19,491,933	$14,561,811	$12,311,908	221
Miscellaneous Services	$14,355,105	$6,328,258	$5,475,617	145
Households	$634,912	$634,912	$579,176	40
Total	**$512,831,981**	**$254,512,121**	**$155,438,556**	**3,043**

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

Table 11
The Net Annual Impact Associated with Funding the Next Phase of the Redesign of Community Mental Health Services on Business Activity in Texas Detailed Industrial Category

Category	Total Expenditures (2008 Dollars)	Gross Product (2008 Dollars)	Personal Personal (2008 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	$21,440,678	$6,405,228	$4,112,907	71
Forestry & Fishery Products	$1,287,287	$521,298	$183,217	3
Coal Mining	$2,498,659	$705,641	$759,699	6
Crude Petroleum & Natural Gas	$111,704,846	$41,603,501	$17,187,905	53
Miscellaneous Mining	$1,301,115	$591,945	$424,072	6
New Construction	$25,031,727	$11,734,232	$9,457,813	123
Maintenance & Repair Construction	$26,857,487	$15,792,647	$12,873,253	184
Food Products & Tobacco	$44,111,307	$11,186,099	$5,733,513	105
Textile Mill Products	$631,906	$148,034	$126,440	3
Apparel	$6,852,131	$3,784,092	$1,924,657	58
Paper & Allied Products	$7,191,696	$3,117,352	$1,464,553	24
Printing & Publishing	$14,016,188	$7,505,411	$4,754,866	79
Chemicals & Petroleum Refining	$93,260,405	$21,137,017	$12,183,324	39
Rubber & Leather Products	$7,423,648	$3,236,238	$1,998,526	35
Lumber Products & Furniture	$4,506,243	$1,659,715	$1,218,315	26
Stone, Clay, & Glass Products	$5,931,348	$3,149,909	$1,748,347	26
Primary Metal	$5,413,299	$1,579,300	$1,276,423	14
Fabricated Metal Products	$11,209,813	$4,739,847	$3,144,624	51
Machinery, Except Electrical	$14,603,589	$5,430,852	$4,268,382	36
Electric & Electronic Equipment	$12,106,305	$6,524,457	$4,555,404	37
Motor Vehicles & Equipment	$5,828,363	$1,652,907	$1,022,180	13
Transp. Equip., Exc. Motor Vehicles	$3,538,605	$1,753,721	$1,153,779	17
Instruments & Related Products	$1,986,123	$729,536	$610,095	8
Miscellaneous Manufacturing	$3,351,022	$1,199,697	$986,133	14
Transportation	$41,991,405	$28,120,459	$18,965,737	268
Communication	$42,793,533	$27,382,348	$11,995,822	114
Electric, Gas, Water, Sanitary Services	$102,194,788	$22,363,897	$10,108,516	37
Wholesale Trade	$60,022,543	$43,248,366	$25,383,342	292
Retail Trade	$226,001,575	$188,236,661	$112,901,535	3,235
Finance	$29,450,503	$15,347,988	$10,283,117	104
Insurance	$26,644,647	$17,124,665	$10,229,470	148
Real Estate	$202,115,089	$40,844,582	$6,729,037	67
Hotels, Lodging Places, Amusements	$22,092,806	$11,355,190	$7,610,052	190
Personal Services	$30,965,204	$19,264,353	$15,007,246	286
Business Services	$80,103,122	$54,379,307	$46,768,426	573
Eating & Drinking Places	$74,225,542	$43,970,511	$23,572,544	1,209
Health Services	$55,867,443	$41,739,693	$35,290,616	633
Miscellaneous Services	$41,134,607	$18,134,491	$15,691,093	414
Households	$1,819,210	$1,819,210	$1,659,346	115
Total	**$1,469,505,808**	**$729,220,396**	**$445,364,324**	**8,716**

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

Table 12
The Net Annual Impact Associated with a Hypothetical $20,000,000 Mental Health and Substance Abuse Jail Diversion Program on Business Activity in Texas—Detailed Industrial Category

Category	Total Expenditures (2008 Dollars)	Gross Product (2008 Dollars)	Personal Personal (2008 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	$15,775,664	$4,692,531	$3,019,445	52
Forestry & Fishery Products	$925,402	$382,953	$134,869	2
Coal Mining	$1,832,639	$517,977	$557,229	4
Crude Petroleum & Natural Gas	$80,283,085	$29,706,772	$12,286,246	38
Miscellaneous Mining	$946,883	$430,283	$306,773	4
New Construction	$17,902,154	$8,385,997	$6,760,670	88
Maintenance & Repair Construction	$19,757,641	$11,580,417	$9,443,334	135
Food Products & Tobacco	$32,414,509	$8,224,907	$4,215,200	77
Textile Mill Products	$464,309	$108,819	$92,912	2
Apparel	$5,085,494	$2,809,230	$1,428,573	43
Paper & Allied Products	$5,319,088	$2,308,209	$1,082,587	18
Printing & Publishing	$10,337,419	$5,524,734	$3,504,194	58
Chemicals & Petroleum Refining	$67,222,283	$15,156,744	$8,714,446	28
Rubber & Leather Products	$5,423,205	$2,363,253	$1,456,980	26
Lumber Products & Furniture	$3,293,491	$1,211,575	$888,566	19
Stone, Clay, & Glass Products	$4,359,874	$2,314,317	$1,281,795	19
Primary Metal	$3,939,708	$1,147,999	$925,868	10
Fabricated Metal Products	$8,158,717	$3,437,952	$2,279,372	37
Machinery, Except Electrical	$10,515,073	$3,916,740	$3,072,998	26
Electric & Electronic Equipment	$8,779,867	$4,737,604	$3,295,543	27
Motor Vehicles & Equipment	$4,221,085	$1,190,325	$736,771	9
Transp. Equip., Exc. Motor Vehicles	$2,556,332	$1,264,811	$832,016	12
Instruments & Related Products	$1,448,055	$534,387	$445,501	6
Miscellaneous Manufacturing	$2,467,594	$887,200	$724,167	10
Transportation	$30,703,560	$20,570,142	$13,864,585	196
Communication	$31,549,829	$20,152,820	$8,819,935	84
Electric, Gas, Water, Sanitary Services	$74,196,166	$16,251,845	$7,339,110	27
Wholesale Trade	$44,149,733	$31,737,335	$18,615,489	214
Retail Trade	$168,447,283	$140,263,204	$84,114,860	2,411
Finance	$21,349,935	$11,140,296	$7,439,130	75
Insurance	$19,828,533	$12,783,303	$7,636,469	110
Real Estate	$146,745,734	$29,586,055	$4,871,712	49
Hotels, Lodging Places, Amusements	$16,234,096	$8,336,913	$5,582,948	140
Personal Services	$22,598,438	$14,052,574	$10,946,760	208
Business Services	$58,369,015	$39,560,019	$33,974,832	417
Eating & Drinking Places	$54,550,585	$32,301,817	$17,312,125	887
Health Services	$40,586,110	$30,270,688	$25,593,665	459
Miscellaneous Services	$30,059,025	$13,236,484	$11,453,708	302
Households	$1,331,752	$1,331,752	$1,217,717	85
Total	**$1,074,129,364**	**$534,410,983**	**$326,269,101**	**6,420**

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

Table 13
The Net Annual Impact Associated with Increasing Community Mental Health Services Funding to the Levels Observed in Fiscal Year 2000 as Adjusted for Overall Inflation on Business Activity in Texas
Detailed Industrial Category

Category	Total Expenditures (2008 Dollars)	Gross Product (2008 Dollars)	Personal Personal (2008 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	$24,064,262	$7,190,306	$4,616,616	80
Forestry & Fishery Products	$1,446,202	$585,126	$205,632	4
Coal Mining	$2,804,781	$792,064	$852,771	7
Crude Petroleum & Natural Gas	$125,495,988	$46,752,339	$19,314,222	60
Miscellaneous Mining	$1,460,996	$664,716	$476,301	7
New Construction	$28,127,826	$13,185,994	$10,627,836	138
Maintenance & Repair Construction	$30,144,129	$17,727,647	$14,450,320	206
Food Products & Tobacco	$49,511,660	$12,555,244	$6,435,312	118
Textile Mill Products	$709,270	$166,155	$141,919	3
Apparel	$7,687,779	$4,245,530	$2,159,369	66
Paper & Allied Products	$8,069,937	$3,497,874	$1,643,443	27
Printing & Publishing	$15,729,700	$8,423,656	$5,336,331	89
Chemicals & Petroleum Refining	$104,761,850	$23,748,824	$13,690,166	44
Rubber & Leather Products	$8,334,542	$3,633,389	$2,243,942	40
Lumber Products & Furniture	$5,059,068	$1,863,422	$1,367,898	30
Stone, Clay, & Glass Products	$6,657,413	$3,535,560	$1,962,578	30
Primary Metal	$6,078,475	$1,773,450	$1,433,466	15
Fabricated Metal Products	$12,587,228	$5,323,017	$3,531,622	57
Machinery, Except Electrical	$16,405,313	$6,100,479	$4,795,020	40
Electric & Electronic Equipment	$13,595,888	$7,326,862	$5,116,434	41
Motor Vehicles & Equipment	$6,545,870	$1,856,824	$1,148,243	14
Transp. Equip., Exc. Motor Vehicles	$3,974,642	$1,969,954	$1,296,046	19
Instruments & Related Products	$2,230,008	$818,959	$684,967	9
Miscellaneous Manufacturing	$3,760,942	$1,346,210	$1,106,892	16
Transportation	$47,142,057	$31,569,138	$21,292,255	301
Communication	$48,025,904	$30,732,637	$13,464,097	128
Electric, Gas, Water, Sanitary Services	$114,763,808	$25,113,485	$11,351,767	42
Wholesale Trade	$67,368,072	$48,545,836	$28,493,291	327
Retail Trade	$253,517,630	$211,157,119	$126,649,712	3,629
Finance	$33,074,693	$17,235,826	$11,549,559	117
Insurance	$29,890,646	$19,208,359	$11,474,149	166
Real Estate	$226,973,084	$45,872,468	$7,557,529	75
Hotels, Lodging Places, Amusements	$24,797,561	$12,745,823	$8,542,306	214
Personal Services	$34,766,140	$21,629,447	$16,849,721	321
Business Services	$89,941,465	$61,062,380	$52,519,249	643
Eating & Drinking Places	$83,312,192	$49,354,219	$26,459,055	1,357
Health Services	$62,737,031	$46,875,439	$39,632,851	710
Miscellaneous Services	$46,181,323	$20,360,352	$17,617,004	465
Households	$2,042,253	$2,042,253	$1,862,597	129
Total	**$1,649,777,628**	**$818,588,385**	**$499,952,486**	**9,782**

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

Table 14
The Net Annual Impact Associated with Increasing Community Mental Health Services Funding to the Levels Observed in Fiscal Year 2000 as Adjusted for Medical Care Inflation on Business Activity in Texas
Detailed Industrial Category

Category	Total Expenditures (2008 Dollars)	Gross Product (2008 Dollars)	Personal Personal (2008 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	$45,222,010	$13,512,157	$8,675,630	149
Forestry & Fishery Products	$2,717,730	$1,099,579	$386,427	7
Coal Mining	$5,270,797	$1,488,462	$1,602,543	12
Crude Petroleum & Natural Gas	$235,834,397	$87,857,866	$36,295,646	112
Miscellaneous Mining	$2,745,532	$1,249,146	$895,073	12
New Construction	$52,858,335	$24,779,365	$19,972,028	259
Maintenance & Repair Construction	$56,647,408	$33,314,124	$27,155,310	388
Food Products & Tobacco	$93,043,233	$23,594,048	$12,093,358	222
Textile Mill Products	$1,332,873	$312,241	$266,697	6
Apparel	$14,447,017	$7,978,278	$4,057,926	123
Paper & Allied Products	$15,165,176	$6,573,270	$3,088,388	51
Printing & Publishing	$29,559,545	$15,829,892	$10,028,133	166
Chemicals & Petroleum Refining	$196,870,418	$44,629,233	$25,726,814	83
Rubber & Leather Products	$15,662,427	$6,827,933	$4,216,857	75
Lumber Products & Furniture	$9,507,095	$3,501,778	$2,570,579	56
Stone, Clay, & Glass Products	$12,510,734	$6,644,090	$3,688,114	56
Primary Metal	$11,422,782	$3,332,701	$2,693,796	29
Fabricated Metal Products	$23,654,152	$10,003,113	$6,636,690	107
Machinery, Except Electrical	$30,829,170	$11,464,133	$9,010,890	75
Electric & Electronic Equipment	$25,549,645	$13,768,776	$9,614,898	77
Motor Vehicles & Equipment	$12,301,121	$3,489,378	$2,157,799	27
Transp. Equip., Exc. Motor Vehicles	$7,469,221	$3,701,973	$2,435,554	36
Instruments & Related Products	$4,190,673	$1,539,003	$1,287,203	17
Miscellaneous Manufacturing	$7,067,632	$2,529,823	$2,080,092	30
Transportation	$88,590,231	$59,325,312	$40,012,803	565
Communication	$90,251,174	$57,753,344	$25,301,981	241
Electric, Gas, Water, Sanitary Services	$215,666,284	$47,193,728	$21,332,451	78
Wholesale Trade	$126,599,336	$91,228,239	$53,545,123	615
Retail Trade	$476,415,050	$396,810,390	$238,002,497	6,819
Finance	$62,154,578	$32,389,885	$21,704,146	220
Insurance	$56,171,058	$36,096,706	$21,562,435	312
Real Estate	$426,532,046	$86,204,396	$14,202,249	142
Hotels, Lodging Places, Amusements	$46,600,038	$23,952,188	$16,052,860	401
Personal Services	$65,333,177	$40,646,460	$31,664,309	603
Business Services	$169,019,676	$114,749,562	$98,695,151	1,209
Eating & Drinking Places	$156,561,822	$92,747,368	$49,722,348	2,550
Health Services	$117,896,597	$88,089,198	$74,478,792	1,335
Miscellaneous Services	$86,784,803	$38,261,552	$33,106,201	874
Households	$3,837,841	$3,837,841	$3,500,228	243
Total	**$3,100,292,833**	**$1,538,306,533**	**$939,520,020**	**18,383**

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group

Table 15
The Net Annual Impact Associated with Increasing Per-Capita State Funding for Mental Health and Substance Abuse Services to the Levels Consistent with the National Average on Business Activity in Texas
Detailed Industrial Category

Category	Total Expenditures (2008 Dollars)	Gross Product (2008 Dollars)	Personal Personal (2008 Dollars)	Employment (Permanent Jobs)
Agricultural Products & Services	$541,466,873	$162,649,724	$104,164,410	1,793
Forestry & Fishery Products	$33,463,470	$13,191,632	$4,624,276	84
Coal Mining	$63,357,193	$17,873,873	$19,262,011	149
Crude Petroleum & Natural Gas	$2,904,639,668	$1,090,312,079	$449,863,757	1,377
Miscellaneous Mining	$33,316,955	$15,179,666	$10,939,870	151
New Construction	$654,767,950	$307,204,730	$247,540,015	3,203
Maintenance & Repair Construction	$678,422,366	$400,563,470	$326,356,294	4,642
Food Products & Tobacco	$1,115,827,598	$282,742,336	$144,944,932	2,662
Textile Mill Products	$15,986,141	$3,742,962	$3,198,402	75
Apparel	$171,123,758	$94,469,686	$48,060,023	1,460
Paper & Allied Products	$180,411,759	$78,089,672	$36,767,087	608
Printing & Publishing	$352,890,580	$189,438,379	$119,832,579	1,976
Chemicals & Petroleum Refining	$2,416,467,403	$551,138,111	$318,633,179	1,004
Rubber & Leather Products	$189,187,234	$82,513,929	$51,063,013	898
Lumber Products & Furniture	$114,771,366	$42,336,216	$31,111,648	671
Stone, Clay, & Glass Products	$149,980,150	$79,694,313	$44,355,042	664
Primary Metal	$138,606,860	$40,498,699	$32,818,201	345
Fabricated Metal Products	$287,008,263	$121,873,105	$80,922,523	1,295
Machinery, Except Electrical	$378,885,169	$140,623,429	$110,758,375	916
Electric & Electronic Equipment	$311,335,248	$167,530,883	$117,508,834	944
Motor Vehicles & Equipment	$150,142,147	$42,876,388	$26,486,452	331
Transp. Equip., Exc. Motor Vehicles	$91,438,847	$45,408,787	$29,879,319	443
Instruments & Related Products	$50,741,017	$18,528,704	$15,556,356	200
Miscellaneous Manufacturing	$84,540,828	$30,100,748	$24,965,922	352
Transportation	$1,068,918,783	$715,437,399	$482,912,932	6,802
Communication	$1,077,948,476	$691,282,917	$303,224,155	2,886
Electric, Gas, Water, Sanitary Services	$2,624,554,881	$573,687,017	$259,603,316	942
Wholesale Trade	$1,516,424,269	$1,095,886,630	$643,715,183	7,373
Retail Trade	$5,612,809,124	$4,676,507,768	$2,805,465,589	80,319
Finance	$757,744,077	$394,286,125	$265,260,012	2,698
Insurance	$663,072,979	$424,433,642	$253,522,422	3,692
Real Estate	$5,190,488,842	$1,051,956,527	$173,417,214	1,731
Hotels, Lodging Places, Amusements	$558,873,768	$287,556,663	$192,904,285	4,806
Personal Services	$790,120,916	$491,845,265	$383,174,150	7,304
Business Services	$2,047,904,614	$1,393,091,616	$1,200,237,827	14,653
Eating & Drinking Places	$1,877,277,869	$1,112,670,768	$596,714,015	30,644
Health Services	$1,433,692,087	$1,073,420,743	$907,569,116	16,260
Miscellaneous Services	$1,047,900,099	$462,643,257	$400,278,197	10,573
Households	$46,240,380	$46,240,380	$42,045,765	2,910
Total	**$37,422,750,007**	**$18,509,528,236**	**$11,309,656,697**	**219,836**

SOURCE: US Multi-Regional Impact Assessment System, The Perryman Group