

Economic Analysis of Postpartum Depression in Louisiana

Executive Summary

Postpartum depression (PPD) is depression that occurs after giving birth. Women with PPD experience emotional highs and lows, frequent crying, fatigue, guilt, and anxiety, with these emotional swings having an impact on a woman's family, social and financial well-being. The National Library of Medicine estimates that PPD affects 1 in 7 women giving birth. There were, in 2023, over 57,000 births in Louisiana, which means that women suffering from PPD are estimated to vary from 7,200 to 8,200 per year or 28,800 to 32,800 over a four-year period. A woman's inability to take care of her newborn leads to short-term and possibly long-term medical, economic, and social costs.

Women suffering from PPD are located across the state, with New Orleans having over 1,300 women suffering from PPD, Baton Rouge and Lafayette having over 1,100, the Northshore approaching 1,000, Shreveport-Bossier having over 900, Houma-Thibodaux and Monroe having around 700, and Lake Charles and Alexandria around 500. Dealing with PPD is a state-wide issue.

Women suffering from PPD incur healthcare issues requiring medical and psychological assistance. Additional costs associated with PPD will be loss of employment for at least a period of time with these costs affecting the ability of many women to assist in the support of their families. Other public programs may be utilized if the woman cannot return to work. The estimated cost per woman suffering from PPD per year approaches \$37,026 in 2023 - dollars are based on national studies. The estimated cost incurred by women in Louisiana suffering from PPD, based on national studies, is estimated to be \$267 million to \$304 million over a five-year period, with 53% of these costs being experienced in the first year. The healthcare costs are estimated to range from \$114.6 million to \$130.6 million; the loss of wages is estimated to range from \$93.3 million to \$106.3 million; and, other social costs are estimated to range from \$45.6 million to \$53.0 million.

The cost of PPD over the five-year period stretches across the state, just as the births are from around the state. In the New Orleans area, the direct cost of PPD is estimated to be around \$50 million, while in the Baton Rouge region and the Lafayette Region, the cost is estimated to be just over \$40 million. In the Shreveport-Bossier region and the Northshore, the cost related to PPD is estimated to be in the \$30 million to \$40 million range. In Houma-Thibodaux, Lake Charles, Alexandria, and Monroe regions, the cost related to PPD is estimated to range around \$20 million.

Women in the workforce who give birth, begin suffering from PPD, and cannot continue in the workforce for a designated period of time, incur a loss of income that affects their family's well-being. In providing support for their family, these women are gainfully employed and add extra spending to the local economy. PPD creates an indirect cost to the local economy in terms of lost employment and all of the ripple effects of lost employment in an area ranging from 1,000 jobs to 2,000 jobs indirectly affected by women suffering from PPD and not being able to be in the workforce.

Economic Analysis of Postpartum Depression in Louisiana

Introduction

Postpartum depression (PPD), according to the Centers for Disease Control and Prevention, the Cleveland Clinic, the Mayo Clinic, the Kaiser Family Foundation, and other health-related institutions, is depression that can occur after giving birth. Women with PPD, according to the Cleveland Clinic, experience emotional highs and lows, frequent crying, fatigue, guilt, and anxiety, with these emotional swings having an impact on a woman's family, social and financial well-being.

In 2018, The National Library of Medicine found that PPD is a serious mental and physical medical condition affecting an estimated 10% to 15% of women giving birth or close to 1 in 7 women giving birth.¹ In the first six months after birth, the estimates of prevalence range from 13% to 19% of women who gave birth.² The American Hospital Association's Institute for Diversity and Health Equity estimates that 1 in 8 women are affected by PPD, but the risk for Black women is 1.6 times higher than for White women. These estimates of women with a serious mental and physical medical condition after giving birth amounts from 10% to almost 15% of women giving birth. This mental and physical condition can lead to their inability to take care of themselves, inability to care for their children, and inability to participate in the labor force if they so desire.

This possible inability to take care of their newborn or other members of their family leads to social costs that may affect a person's family in the short- and long-term and possibly the local and/or state government in terms of needing financial support. As noted in the **Annual Review of Clinical Psychology**, PPD "is a common and serious mental health problem that is associated with maternal suffering and numerous negative consequences for offspring."³ Using the rates from the American Hospital Association and the National Library of Medicine, the number of women in Louisiana likely to suffer from PPD ranges from 7,200 to 8,200 per year. Over a four-year period, that amounts to a range of 28,800 to 32,800 women who may have major social issues or may not be able to return to the workforce in a timely fashion if they were employed prior to giving birth or if they need to join the workforce given the financial responsibility of taking care of their family.

¹ *Prevalence of postpartum depression and interventions utilized for its management*, Reindolf Anokye, and other authors, **Annals of General Psychiatry**, 2018. Prevalence is the proportion of a population that has a specific characteristic in a given time period, regardless of when they first developed the characteristic.

² *Postpartum depression: current status and future directions*, Michael O'Hare and Jennifer McCabe, **Annual Review of Clinical Psychology**, February 2013.

³ Ibid.

PPD can affect the individual's ability to work and contribute to the family's economic success as well as being an active participant in the local economy. Loss of participation in the labor force affects the state's economy by reducing overall production, income earned, and state and local taxes. The economic loss of production may lead to additional responsibilities for state government support programs for eligible women and children. This study provides estimates of the cost to the state's economy due to the inability of women who are suffering from PPD to participate in the economy for at least a period of time.

Births in Louisiana and Estimates of Postpartum Depression

Louisiana births in 2023 were 57,437 according to the National Center for Health Statistics. In a report issued by the U.S. Department of Health & Human Services, Louisiana had a fertility rate (number of births per 1,000 women) of 1,876 for all populations with 1,782 for Whites, 1,904 for Blacks, and 2,712 for Hispanics.⁴ Births are spread across Louisiana with the number of births by regional economic districts as defined by the Louisiana Department of Health (LDH) as illustrated in Map 1 with the 2021 number of births by health districts in Louisiana being illustrated in Table 1.

Map 1. Louisiana Department of Health's Healthcare Districts



⁴ National Vital Statistics Reports, Vol. 68, No 1, January 10, 2019.

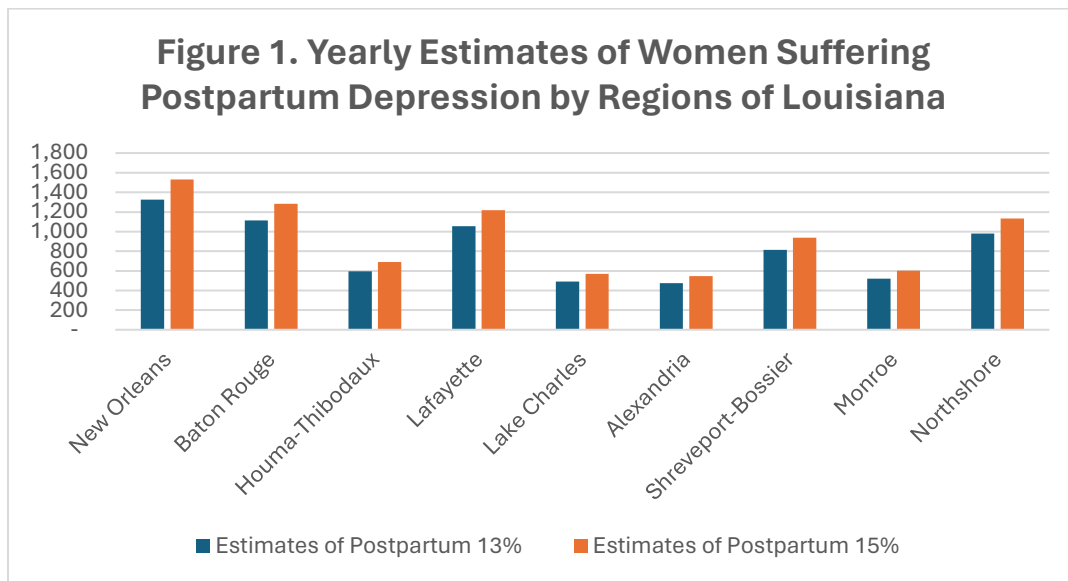
Table 1. Number of Births by Health Districts of the State*

Louisiana's Health Districts	Age of Woman Giving Birth				
	19 and younger	20-29	30-39	40-44	45+
Region 1-- New Orleans	524	4,552	4,733	375	23
Region 2-- Baton Rouge	526	4,425	3,405	192	9
Region 3-- Houma- Thibodaux	305	2,570	1,622	84	7
Region 4-- Lafayette	542	4,651	2,774	148	12
Region 5-- Lake Charles	249	2,279	1,198	57	1
Region 6-- Alexandria	285	2,288	1,018	52	1
Region 7-- Shreveport- Bossier	455	3,530	2,151	114	11
Region 8-- Monroe	326	2,386	1,226	69	7
Region 9-- Northshore	348	4,006	3,011	172	8
*The numbers do not add up to total births in the state since some of the births did not have a geographic identity.					

According to the Kaiser Family Foundation, in 2022 in Louisiana there were 56,479 births with just over 61% of the births being financed by Medicaid. Louisiana has the largest fraction of total births financed by Medicaid compared to other states. Mississippi is second with 57.3%; New Mexico is third with 55.02%; and Oklahoma is fourth with 50.9%. Nationally, about 41% of all births are financed by Medicaid.

Estimates of women suffering from PPD in the various regions of the state are illustrated in Figure 1. These estimates depend on the relative size of the region in terms of population, such as New Orleans having over 10,000 births, Baton Rouge and Lafayette having over 8,000 births, the Northshore having over 7,500 births, Shreveport-Bossier having over 6,000 births, Houma-Thibodaux and Monroe having over 4,000 births, and Lake Charles and Alexandria having over 3,500 births. Dealing with PPD is a state-wide issue.

James A Richardson
 Economic Consultant
 Professor Emeritus, LSU



Women in Louisiana in Labor Force

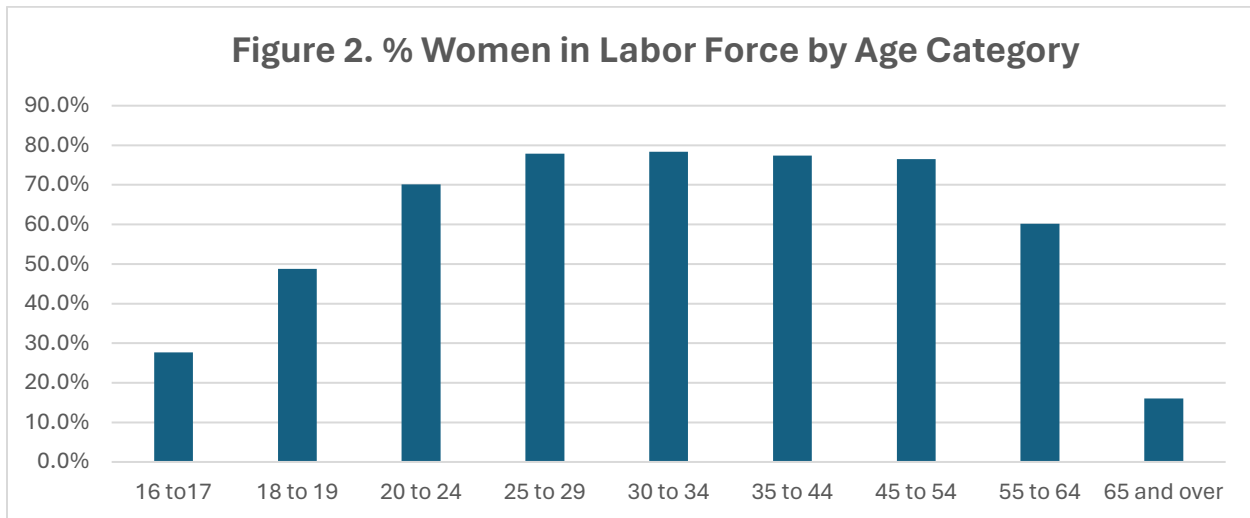
Women make up a major part of the labor force in Louisiana. Women's labor force participation rate⁵ in Louisiana is 54% with women's labor force participation varying by race. The labor force participation rate for White women is 53.8%, for Black women 59.7%, for Hispanic women 57.4%, for Asian women 58.4%, for Native American women 45.4%, and for Multiracial women 58.5%.⁶ The number of women in the labor force in Louisiana, according to the U.S. Bureau of Labor Statistics, was 1,010,000 in 2022 or 48.6% of the Louisiana labor force.

Nationally, women in the workforce vary by age as noted in Figure 2. 70% of women in the age category of 20 to 24 participate in the workforce and over 75% of women in the age category of 25 years to 44 years of age. Women are active in the labor market, especially in their child-bearing years. There is no reason to believe that Louisiana's labor force diverges from the national averages with respect to women's participation in the labor force based on age. These average rates of workforce participation vary by the age of the children. Mothers with children less than six years of age have a 66% workforce participation, while Mothers with children between 6 years of age and 18 have a workforce participation rate of 76%.⁷ These workforce participation rates are even higher for single-parent families.

⁵ Labor force participation is the percentage of the civilian noninstitutional population 16 years of age or older who are working or actively looking for work as defined by the U.S. Bureau of Labor Statistics.

⁶ Estimated from the American Community Survey, 2011-2016.

⁷ U.S. Bureau of Labor Statistics, "Women in the Labor Force: a Data Book," March 2023.



Source: U.S. Bureau of Labor Statistics, 2023

Women are an essential part of the national labor force and the Louisiana labor force. Women are dealing with the medical and psychological issues related to childbirth. Women with medical and psychological issues related to childbirth may experience loss of income due to the inability to participate in the labor force once giving birth, at least for a period of time. The women unable to work are losing their income as well as any long-term promotions and this loss of employment also affects the state and local economies. And state and local governments are involved, since social programs to assist women who are unable to work and who meet the financial requirements will be eligible to apply for public assistance.

Estimates of the Direct Cost of Postpartum Depression to Louisiana

The costs associated with PPD can be measured in several different ways. First, healthcare costs, including medical and psychological assistance, are essential in terms of providing assistance to women suffering from PPD, but this assistance imposes a cost, which will be incurred by the woman, her family, or her insurance, either privately or publicly provided. Second, there are costs associated with loss of employment for at least a period of time with these costs affecting the ability of many women to assist in the support of their families. Finally, other public programs may be utilized if the woman cannot return to work. These social costs may include such public programs as SNAPs, which is primarily covered by the federal government, and other such public programs with the cost being absorbed by the federal government or the state and local governments. As previously noted, over 60% of births in Louisiana will be covered by Medicaid, so PPD and its treatment is important to the state in terms of caring for the woman and her newborn as well as the financial implications of extended PPD. All of these costs are unique to each individual, but we can arrive at average estimates based on the overall costs and the number of women who are estimated to be suffering from PPD.

In a study published in **Mathematica**⁸ based on 2017 national data there was a cost of \$32,000 per mother-child not treated over a five-year period.⁹ In 2023 dollars the cost per mother-child not treated over a five-year period would be \$37,026 based on increases in healthcare costs over this time period. Over half of this cost was incurred in the first year. If this average in the first year is incurred by the 7,200 to 8,200 births in Louisiana, the costs to the individual, her family, and public agencies of Louisiana amount to over \$267 million to \$304 million over five years and with \$141 million to almost \$161 million being sustained in the first year with these costs including medical and other health-related activities, other social costs, and loss of employment.

The healthcare costs associated with PPD over a five-year period are estimated to range from \$114.6 million to \$130.6 million based on the **Mathematica** study but updated to 2023 healthcare costs, and with 53% of these costs, or \$60.7 million to \$69.2 million, being incurred in the first year.

Loss of wages due to not being able to work because of PPD is estimated to range from \$93.3 million to \$106.3 million over the five-year period, with over half of this loss of wages occurring in the first year or a loss of \$46 million to \$53 million in the first year. These are direct economic losses occurring to the women who are able to enter the labor force.

Other social costs that will be incurred range from \$45.6 million to \$66.7 million over a five-year period or a range of societal costs of \$24.2 million to \$35.4 million in the first year.

The estimate that 7,200 to 8,200 women suffer from PPD each year in Louisiana leads to healthcare costs, general economic losses, and other social costs due to a woman's or family's need to seek public assistance. These estimated costs to the Louisiana economy range over a five-year period from \$267 million to \$304 million, with 53% of these losses being incurred in the first year or \$141 million to \$161 million.

In Table 2, we estimate the increased costs associated with PPD in Louisiana given that there are additional women suffering from PPD every year. We will focus on a five-year period since the medical journals have suggested a five-year period for women suffering from PPD. This means that each year a new set of mothers will be suffering from PPD, and this may continue for up to five years. Hence, we focus on the upcoming five years, but from the state's perspective the fifth year is the estimate that counts since there will be an estimated 7,200 to 8,200 births per year.

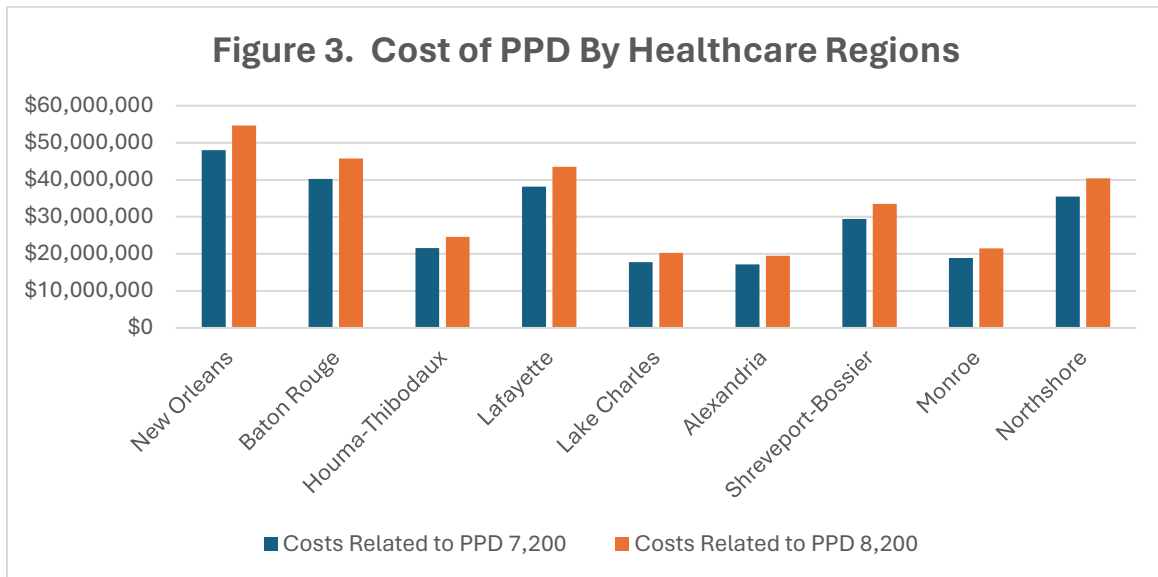
⁸ Posted on Website on April 29, 2019.

⁹ The conclusions reached in the article in **Mathematica** has been reinforced by other studies such as "Healthcare resource utilization and costs associated with postpartum depression among commercially insured households," **Current Medical Research and Opinion**, C. Neill Epperson, et al, 2020 and "Financial Toll of Untreated Perinatal Mood and Anxiety Disorders Among 2017 Births in the United States," **American Journal of Public Health**, Dara Lee Luca, et al, June 2020.

Table 2. Healthcare, Direct Economic, and Social Costs Related to 7,200 and 8,400 Women Suffering from PPD Each Year over a 5-Year Period

Years in Which Costs Are Occuring	Healthcare and Social Costs and Economic Losses Incurred Due to PPD 7,200 New Births Each Year with Mothers Subject to PPD				
	Year 1	Year 2	Year 3	Year 4	Year 5
Year 1	\$141,268,320	\$31,318,920	\$31,318,920	\$31,318,920	\$31,318,920
Year 2		\$141,268,320	\$31,318,920	\$31,318,920	\$31,318,920
Year 3			\$141,268,320	\$31,318,920	\$31,318,920
Year 4				\$141,268,320	\$31,318,920
Year 5					\$141,268,320
Costs for all 5 Years	\$141,268,320	\$172,587,240	\$203,906,160	\$235,225,080	\$266,544,000
	Healthcare and Social Costs and Economic Losses Incurred Due to PPD 8,200 New Births Each Year with Mothers Subject to PPD				
Year 1	\$160,888,920	\$35,668,770	\$35,668,770	\$35,668,770	\$35,668,770
Year 2		\$160,888,920	\$35,668,770	\$35,668,770	\$35,668,770
Year 3			\$160,888,920	\$35,668,770	\$35,668,770
Year 4				\$160,888,920	\$35,668,770
Year 5					\$160,888,920
Costs for all 5 years	\$160,888,920	\$196,557,690	\$232,226,460	\$267,895,230	\$303,564,000

The cost of PPD is scattered across the state, just as the births are from around the state. In Figure 3 the cost over a five-year period in each region is presented for 7,200 births per year or 8,200 births per year. In the New Orleans area, the direct cost of PPD is around \$50 million, while in the Baton Rouge region and the Lafayette Region, the cost is just over \$40 million. In the Shreveport-Bossier region and the Northshore the cost related to PPD is in the \$30 million to \$40 million range. In Houma-Thibodaux, Lake Charles, Alexandria, and Monroe regions, the cost related to PPD ranges around \$20 million. As one would expect, PPD is a state-wide issue.



Estimates of the Indirect Cost of Postpartum Depression to Louisiana

Employed women who give birth, begin suffering from PPD, and cannot continue in the workforce for a designated period of time, incur a loss of income that affects their family's well-being, may or most probably will require additional public assistance, and may incur higher than average healthcare services as noted in Table 2.¹⁰ This individual's loss affects the family's ability to support its basic needs, including paying the rent or mortgage payment, supporting the food budget, paying for utilities, and providing other care for the person's family. This individual may not be able to maintain her employment if she cannot return to work. The cost to this woman may be extended beyond just the time in which she is suffering from PPD until she is able to find another job.

Second, these individual losses of employment add up and indirectly affect the local economies. We previously noted that in Louisiana it is estimated that 7,200 to 8,200 women giving birth incur PPD and this may affect their ability to return to work or to retain their jobs.

If these women cannot return to the labor force due to PPD, then the state is forfeiting employment, and this has an impact throughout the economy. The overall impact of these women suffering from PPD due to their inability to maintain active employment is summarized in Tables 3 and 4.

¹⁰ "Financial Toll of Untreated Perinatal Mood and Anxiety Disorders Among 2017 Births in the United States," Dara Lee Luca and others, *American Journal of Public Health*, June 2020.

In Table 3 we focus on the group of 8,200 wanting to return to the labor market and the 61% of this group that are Medicaid recipients. In Table 4, we focus on the estimate of 7,200 women suffering from PPD.

In Table 3, we focus on the estimate of 8,200 women suffering from PPD and cannot return to the workforce for one year. We assumed that the average wages were similar to the limits established for the LaMoms program for a family of two and a family of three. This is an estimate but, most likely, a low estimate. If these 8,200 women could have returned to the workforce, then their salaries would have been spent in the local economies and supported from 994 to 1,629 jobs and earnings from \$37.1 million to \$60.8 million, with the range depending on only women who are enrolled in Medicaid to all women suffering from PPD and assuming the LaMoms limit on income for a family of two. If these 8,200 women could have returned to the workforce, then their salaries would have been spent in the local economies and supported from 1,255 to 2,058 jobs and earnings from \$46.9 million to \$76.8 million, with the range depending on only women who are enrolled in Medicaid to all women suffering from PPD and assuming the LaMoms limit on income for a family of three.

Table 3. The Indirect Loss of Employment and Income Related to the Inability of 8,200 Women not Being Able to Return to the Louisiana Workforce Due to Postpartum Depression (estimated 8,200 Women Suffering from PPD)

Assumptions on Average Wages	Average Wage Of Women who want to join the labor force	Annual Spending by 8,200 Families	Employment Necessary to Support Spending	Personal Earnings Associated with Employment
All Women Suffering from Postpartum Depression				
LaMoms Limit on Income for Family of 2	\$28,212	\$231,338,400	1,629	\$60,818,865
LaMoms Limit on Income for Family of 3	\$35,640	\$292,248,000	2,058	\$76,831,999
Only Women Who Are Enrolled in Medicaid				
LaMoms Limit on Income for Family of 2	\$28,212	\$141,116,424	994	\$37,099,508
LaMoms Limit on Income for Family of 3	\$35,640	\$178,271,280	1,255	\$46,867,520

In Table 4 we focus on the estimate of 7,200 women suffering from PPD who cannot return to the workforce for one year. We assumed that the average wages were similar to the limits established for the LaMoms program for a family of two and a family of three. This is an estimate but, most likely, a low estimate. If these 7,200 women could have returned to the workforce, then their salaries would have been spent in the local economies and supported from 872 to 1,430 jobs and earnings from \$32.6 million to \$53.4 million, with the range depending on only women who are enrolled in Medicaid to all women suffering from PPD and assuming the LaMoms limit on income for a family of two. If these 7,200 women could have returned to the workforce, then their salaries would have been spent in the local economies and supported from 1,102 to 1,807 jobs and earnings from \$41.2 million to \$67.5 million with the range depending on only women who are enrolled in Medicaid to all women suffering from PPD and assuming the LaMoms limit on income for a family of three.

Table 4. The Indirect Loss of Employment and Income Related to the Inability of 7,200 Women not Being Able to Return to the Louisiana Workforce Due to Postpartum Depression (estimated 7,200 Women Suffering from PPD)

Assumptions on Average Wages	Average Wage	Annual Spending by 7,200 Families	Employment Necessary to Support Spending	Personal Earnings Associated with Employment
All Women Suffering from Postpartum Depression				
LaMoms Limit on Income for Family of 2	\$28,212	\$203,126,400	1,430	\$53,401,931
LaMoms Limit on Income for Family of 3	\$35,640	\$256,608,000	1,807	\$67,462,243
Only Women Who Are Enrolled in Medicaid				
LaMoms Limit on Income for Family of 2	\$28,212	\$123,907,104	872	\$32,575,178
LaMoms Limit on Income for Family of 3	\$35,640	\$156,530,880	1,102	\$41,151,968

Women suffering from PPD may be getting financial assistance since they cannot be gainfully employed for at least a period of time, but they could, if not for the PPD, be gainfully employed and directly contribute to the economy’s production. And, by being employed, they are also contributing indirectly to other people having employment.

Summary

PPD can lead to several costs to the individual and/or the government with these costs including (1) the healthcare costs that will be incurred by the individual or the state government, (2) the short-term or long-term loss of earnings, and (3) the costs incurred by the children dependent on the Mother's well-being. We have focused on costs related to healthcare and social loss of earnings and the repercussions on other sectors of the local economies.

The estimate that 7,200 to 8,200 women suffer from PPD each year in Louisiana leads to healthcare costs, general economic losses, and other social costs due to a woman's or family's need to seek public assistance. These estimated costs to the Louisiana economy range over a five-year period from \$267 million to \$304 million, with 53% of these losses being incurred in the first year or \$141 million to \$161 million. These costs are distributed throughout the economy since births are distributed throughout the economy.

The women who cannot return to the labor force cannot continue to support their families. If they had been able to return to the marketplace, they would have been able to earn their wages, provide support for their families, and add extra spending to the local economy. PPD creates a cost to the local economy in terms of lost employment and all of the ripple effects of higher unemployment in an area. The women directly lose their earning ability, but this loss of earning ability will also have negative impacts on the local economies.

PPD is a medical condition after childbirth that can lead to healthcare costs, loss of earnings, and social costs. The woman giving childbirth bears these costs directly, but the costs are also borne by the community.