Hurricane Harvey's Impact on Disposable Income and Housing Values in the Golden Triangle of Southeast Texas

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Abstract

This paper examines the impact of Hurricane Harvey on disposable income and values of flooded houses. The analysis is based upon data pulled from the call reports on 10 local credit unions from the National Credit Union Administration. The data of the flooded 48 houses is used for analysis of the values of flooded homes pulled from the Multiple Listing Service and the Jefferson County Tax Assessor's Office. The findings suggest that using this small sample of financial institutions, the residents of Southeast Texas will have to use more of their disposable income to just maintain the Pre-Harvey levels. The flooded houses results show a significant drop in value for the houses flooded with few having flood insurance looking at both the sales prices and new appraise values by the tax assessor.

Using 10 local credit unions and other local data sources; this study shows a glimpse into the impact Hurricane Harvey had on the Golden Triangle of Southeast Texas. The results are only a sampling of the effects of Hurricane Harvey on resident's disposable income and savings. The authors believe that as many residents used up savings and then borrowed money to replace lost items due to all the flooding. This study shows as residents replaced or repaired the damage due to flooding from Hurricane Harvey their monthly disposable income and/or savings were used. These losses potentially causes their ability to afford higher education to shrink.

Local credit unions were used to examine the increase in financial services needed in Southeast Texas after Hurricane Harvey. The call report for each credit union was pulled from the National Credit Union Administration to gather the data examined. Local credit unions had a jump of $132,393,658 (7%) in total loans outstanding in 2017 from $1,894,314,692 in 2016 to $2,025,708,623 in 2017. The authors show through our small sample of only 10 credit unions that number and amounts of various types of loans increased significantly after Hurricane Harvey by 6.5% in 2017 over 2016. The number of loans granted decreased by 25,260 (18.9%) from 133,362 in 2016 to 108,102 in 2017. The value of loans granted increased by $73,813,490 (8.3%) from $893,085,836 in 2016 to $966,949,326 in 2017. The average aggregate loan grant increased on average by $2,248 (33.6%). This large increase in outstanding loan average amounts represents a significant increase in monthly payments $99.63 per loan based on average increase.[1] CU's had their loan losses increase by $1.99m (14.1%) and the provision for next year's loan losses increased by $1.8m (14.7%). The increase in loans losses can be attributed to Hurricane Harvey.

The increase in new car loans is an example of how much Harvey victims had to replace destroyed vehicles. The title applications increased by 8,444 (72.2%) in the 4th quarter from 11,703 in 2016 to 20,147 in 2017. For the overall credit union group, the average car loan increased to $25,883 from $24,607 in 2016. With only the new car loans in 2017 increase, the authors can estimate for the new 2,208 car loans written that the average loan was $33,464 up by $8,857 (36%) over the previous outstanding balance

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[1] Based on 24 months at 6% APR

average. This increase translated into an additional $163.46 in payments each month.[2] The average payment was estimated to be $449.52 based on previous year's averages, but now the new loan average payment is estimated on new loan average to be $612.98. The 15,329 new car loans held by the CU group represent only a small portion of car loans in Southeast Texas. Car title applications each year is slightly below 50,000 with an average of 3,100 made each by the CU group each year on average. The CU group had 2,208 more new car loans in 2017 for each $73,863,490. CU group held $396,757,252 in new car loans. Residents of the Golden Triangle that had to replace paid off or partially paid off vehicles with new vehicle that have higher per month payments and higher insurance cost.

The CU group had 122 fewer used car loans but had an increase of $24,775,016 in used car loan values outstanding. This shows that the outstanding average loan for used cars increased from an average of $14,603 in 2016 to $15,437 in 2017. The average used car payment rose from $329.98 to $349.24.[3] This is an increase of $19.26 per month per loan. The CU group held 31,856 used car loans for a book value of $491,744,307.

The estimated damage as reported on Fox News from Hurricane Harvey was $125 billion affecting 13 million people. The number of approved registrations in the Golden Triangle of Southeast Texas for FEMA was 54,578. The total amount in survivor's pocket in the Golden Triangle of Southeast Texas was $1.77 billion as estimated by FEMA. National Flood Insurance Program (NFIP) paid $752.5 million in the Golden Triangle for the 11,968 flood claims. It was estimated that in Beaumont alone there was a little over 20,000 flooded homes. Disaster related expenses for the Golden Triangle was $331 million.

FEMA issued 57,826 applications for home loans. The number of applications received was 15,927. Applications approved were 7257 for $625 million. These approvals were 12.5% of applications issued and 27.5% of received applications. The average home loan approved by FEMA was $86,138. The extra payment on their home to

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[2] Based on 60 months at 3.7% APR
[3] Based on 48 months at 4.1% APR

service this new mortgage on their home would be $364.56 a month in addition to any previous 1st or 2nd mortgage already on their residence.[4]

      FEMA issued 11,290 applications for business loans in the Golden Triangle. The number of applications received was 1,461. The total of applications approved was 470. Theses approvals were 4.2% of applications issued and 32.2% of applications received. The average business loan approved was $131,072. Business would on average have to pay an extra $1036.52.[5] These number show a lot of people got applications for home loans and business loans but for various reasons did not apply or get approved.

      Sales tax collected increased by $1,599,964 (24%) in the 4th quarter in 2017 as compared to the 4th quarter of 2016. This increase was due to residents having to replace items lost due to Hurricane Harvey. This increase represents an unplanned additional expenditure of $319,992,800. An example of local business increase in sales is a local hardware store in Southeast Texas. In the 4th quarter of 2017, sales increased by 66.7% in their Beaumont store, 173.2% in their Lumberton store and 124.1% in their Vidor store.

      Using the small sample of real estate loans from the CU group, the number of RE loans increased by 227 ($40,987,121). The overall average new loan can be estimated as $180,560. This means the potential payment for principal and interest ignoring escrow cost would be $1,427.86 per month.[6] Aggregate the whole RE loan together, the authors can estimate at least a $42.82 increase in payments on average. The one fact that shows clearly from the data is for this small sampling of RE loans, many residents are paying more per month on average.

      Examining a small sample of flooded homes in Beaumont, the appraised value for 2017 before Harvey had an average of $105,628 per home. The average for this sample after Harvey is $36,190. This difference is $69,438 (65.7%) less for the homes after Harvey. The average price that homes actually sold for after Harvey was $73,749. This difference is $31,879 (30.2%) less than their 2017 pre-Harvey appraised values by the appraisal district. These losses represent a huge decrease in the equity home owners have built up. A regression model with a dummy variable for pre versus post Harvey flooded

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[4] Based on 360 months at 3.03% APR
[5] Based on 180 months at 5% APR
[6] Based on 360 months at 5% APR

homes shows that the sales price on average was $33,664 less after Harvey as compared to before Harvey.

In summary, Residents in the Golden Triangle of Southeast Texas will have to pay more out of their disposable income each month to just recover and maintain the Pre-Harvey standard of living. The victims of Hurricane Harvey will have to pay on average $164 more each month for their new car, $20 more each month for their used car, $100 more a month for the general outstanding loans, $365 more for the SBA home loans, $1,037 for SBA business loans plus many other hidden cost associated with Hurricane Harvey.

__Important note: These numbers only represent a small portion of loans and expenditure in the area after Harvey.__

Table - 10 Local Credit Unions in Southeast Texas

	Dec-17	Dec-16	Difference
Cash on hand	$ 38,871,873.00	$ 35,808,306.00	$ 3,063,567.00
Total investments	$ 550,445,891.00	$ 393,505,210.00	$ 156,940,681.00
Loan losses	$ 16,079,737.00	$ 14,087,282.00	$ 1,992,455.00
Provision loans losses	$ 14,169,249.00	$ 12,348,356.00	$ 1,820,893.00
Credit card loans	47493	46393	1100
Credit card loans	$ 107,969,440.00	$ 107,650,970.00	$ 318,470.00
Autos - new	15329	13121	2208
Autos - new	$ 396,757,252.00	$ 322,867,957.00	$ 73,889,295.00
Autos - used	31856	31978	-122
Autos - used	$ 491,744,307.00	$ 466,969,291.00	$ 24,775,016.00
Total loans	161593	160826	767
Total loans	$ 2,025,708,623.00	$ 1,893,314,965.00	$ 132,393,658.00
Loans granted	108102	133362	-25260
Loans granted	$ 966,949,326.00	$ 893,085,836.00	$ 73,863,490.00
Credit card loss	$ 2,769,378.00	$ 2,468,384.00	$ 300,994.00
New auto loss	$ 1,759,287.00	$ 856,539.00	$ 902,748.00
Used auto loss	$ 3,566,960.00	$ 2,297,824.00	$ 1,269,136.00

Table - FEMA	Jefferson	Hardin	Orange	Golden Triangle
Approved number of registrations	32237	4735	17606	54578
Number of flood Insurance claims	6941	798	4229	11968
Amount paid on claims	$391.99M	$90.3M	$270.2M	$752.5M
Disaster related expenses	$173.3M	$35.1M	$122.4M	$330.8M
SBA loans	3787	950	3050	7787
SBA amount	$294.5M	$110.3M	$279.9M	$687.4M
Total amount survivors pocket	$859.8M	$235.7M	$672.6M	$1.77B
Home Loans				
Applications Issued	34220	5707	17899	57826
Applications Received	8466	1698	5763	15927
Applications Approved	3486	893	2878	7257
Dollars Approved	$259.3M	$110.4M	$255.4M	$625.1M
Business Loans				
Applications Issued	6918	1190	3182	11290
Applications Received	896	132	433	1461
Applications Approved	263	51	156	470
Dollars Approved	$32.8M	$8.1M	$20.7M	$61.5M

	Jefferson	Hardin	Orange	Golden Triangle
Average Home Loan	$ 74,382.21	$ 123,615.45	$ 88,749.27	$ 86,138.27
Average Business Loan	$ 124,661.22	$ 158,588.24	$ 132,884.62	$ 131,072.13
Average Home Loan - Payment	$ 314.81	$ 523.17	$ 375.61	$ 364.56
Average Business Loan - Payment	$ 985.82	$ 977.55	$ 1,050.85	$ 1,036.52

Table - Hardware Store Beaumont

	Increase in Sales	Increase in Sales	Increase in Customers	Increase in Amount Charged	Increase in Amount Charged	Percent increase in Percentage Charging
2ND Q 2018	$ 1,012,215.00	29.48%	9317	$ 531,009.00	34.31%	1.68%
1ST Q 2018	$ 1,026,915.00	32.32%	16667	$ 448,234.00	32.24%	-0.03%
YTD 2017	$ 2,932,672.00	24.02%	18576	$ 1,354,712.00	41.97%	1.01%
4TH Q 2017	$ 1,618,830.00	66.72%	14782	$ 862,899.00	127.07%	10.13%
Hardware Store Lumberton						
2ND Q 2018	$ 170,574.00	23.18%	4042	$ 10,300.00	12.99%	-0.89%
1ST Q 2018	$ 187,314.00	27.18%	4019	$ 7,411.00	10.21%	-1.41%
YTD 2017	$ 715,926.00	27.36%	9386	$ (30,598.00)	9.29%	-3.71%
4TH Q 2017	$ 615,112.00	173.20%	3416	$ (44,515.00)	-37.05%	-26.03%
Hardware Store Vidor						
2ND Q 2018	$ 307,105.00	43.26%	10474	$ 16,796.00	19.84%	-1.95%
1ST Q 2018	$ 614,533.00	94.94%	21048	$ 17,574.00	20.05%	-5.20%
YTD 2017	$ 1,121,458.00	42.86%	28710	$ 38,006.00	10.12%	-2.88%
4TH Q 2017	$ 791,704.00	124.14%	21829	$ 21,191.00	23.79%	-6.25%

Table Real Estate

Difference in appraise values	2018 vs 2017	2017 vs Sales Price
Mean	31878.35	69437.5
Standard Error	6524.96	5383.00
Median	28615	58315
Mode		
Standard Deviation	45206.27	37294.50
Sample Variance	2.04E+09	1.391E+09
Kurtosis	-0.600	6.775
Skewness	0.078	2.053
Range	181380	208770
Minimum	-54990	24410
Maximum	126390	233180
Sum	1530161	3333000
Count	48	48

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Table Real Estate	
Appraised Value 2017	
Mean	105627.71
Standard Error	8163.02
Median	88135
Mode	#N/A
Standard Deviation	56555.04
Sample Variance	3198473001
Kurtosis	8.057
Skewness	2.226
Range	326330
Minimum	36960
Maximum	363290
Sum	5070130
Count	48

Table Real Estate	
Appraised Value 2018	
Mean	36190.21
Standard Error	2951.48
Median	33980
Mode	#N/A
Standard Deviation	20448.46
Sample Variance	418139360
Kurtosis	8.256
Skewness	2.181
Range	117560
Minimum	12550
Maximum	130110
Sum	1737130
Count	48

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Table Real Estate	
Actual Sales Price	
Mean	73749.35
Standard Error	6938.79
Median	61950
Mode	25000
Standard Deviation	48073.34
Sample Variance	2311046123
Kurtosis	2.814
Skewness	1.406
Range	248705
Minimum	1295
Maximum	250000
Sum	3539969
Count	48

Table Real Estate - Regression on Flooded Homes

Regression Statistics	
Multiple R	0.7530
R Square	0.5671
Adjusted R Square	0.5461
Standard Error	40193.47
Observations	66

ANOVA

	df	SS	MS	F
Regression	3	1.31203E+11	43734381574	27.07148384
Residual	62	1.00162E+11	1615514754	
Total	65	2.31365E+11		

	Coefficients	Standard Error	t Stat	P-value
Intercept	19873.32	13890.13302	1.430751183	0.157522569
Acres	15054.24	6977.144721	2.157651035	0.034837497
SQFT	42.83	7.227622762	5.926038859	1.48411E-07
Dummy (Pre vs Post)	-33663.94	9894.947454	-3.402134226	0.001175682

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Table Title Applications

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