

# Visualizing transportation, health care, and utilities costs for renter CUs

**Andres Torrubia, CEO – Fixr.com**

Results available at:

<http://www.fixr.com/tx/>

# Context (i)

**Fixr.com** provides cost-related consumer resources, example:

## Typical costs

**\$22,000**

(32' x 16' inground)

▼ **Low:** \$6,200 (above ground 19' diameter)

**Medium:** \$22,000 (32' x 16' inground)

Cost to build a swimming pool may vary depending on the state or city. Get free estimates from swimming pool builders in your city.

[Get Free Estimates »](#)

# Context (ii)

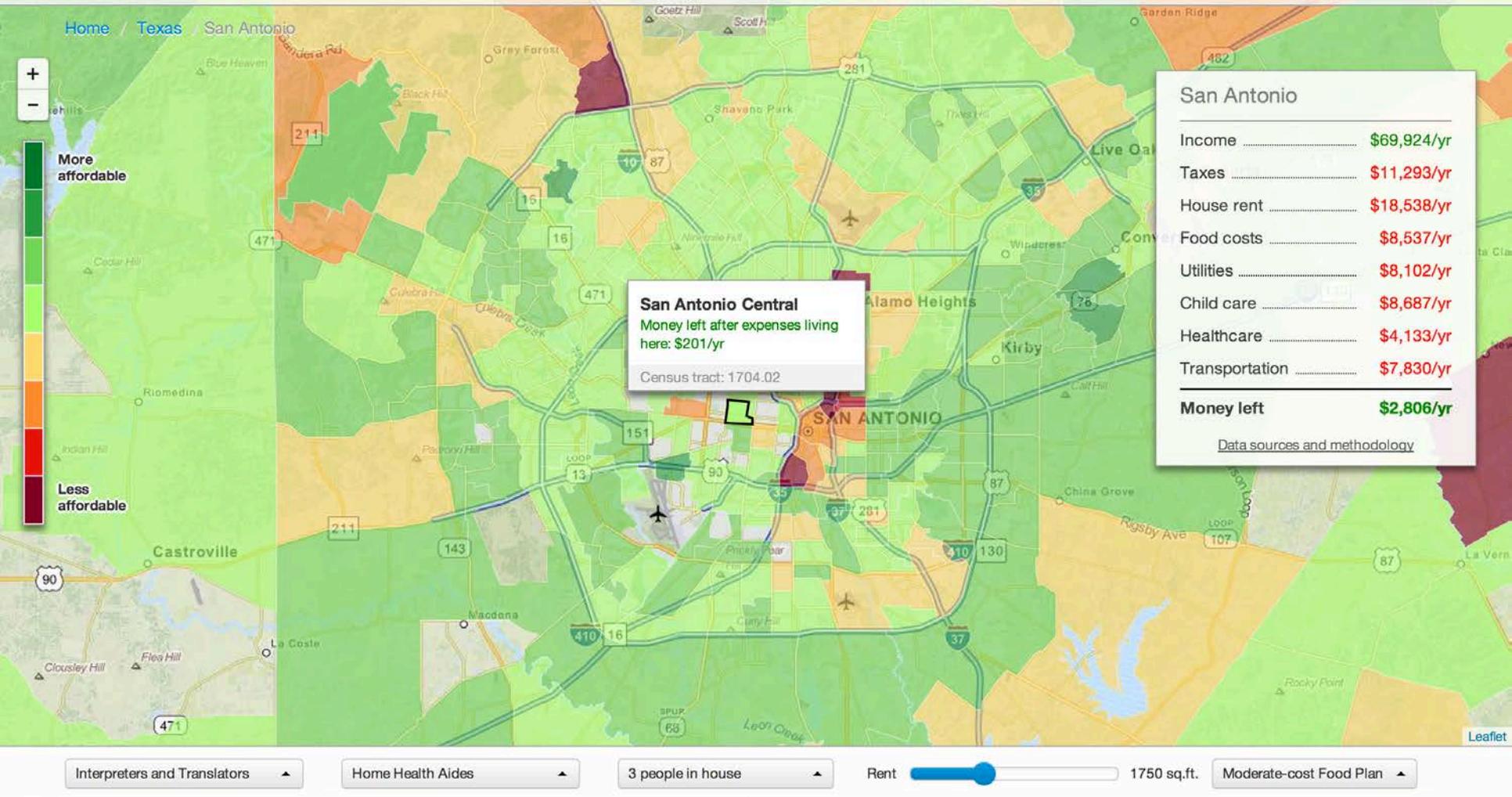
Goal: Show discretionary income

San Antonio	
Income .....	\$69,924/yr
Taxes .....	\$11,293/yr
House rent .....	\$18,538/yr
Food costs .....	\$8,537/yr
Utilities .....	\$8,102/yr
Child care .....	\$8,687/yr
Healthcare .....	\$4,133/yr
Transportation .....	\$7,830/yr
<b>Money left</b>	<b>\$2,806/yr</b>

Based on **household (CU) members,**  
**income and location**

# San Antonio Affordability Atlas & Calculator

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Available at <http://www.fixr.com/tx/>

# Data sources

## San Antonio

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BLS OES

Dynamically calculated (IRS)

Rental estimates by kwellia.com

U.S. Dept of Agriculture's Food Plans

**BLS CE Public Use Micro Data**

Childcare Aware of America

**BLS CE Public Use Micro Data**

**BLS CE Public Use Micro Data**

Interpreters and Tran... ▲

Home Health Aides ▲

3 people in house ▲

Rent  
sq.ft.



1750

Moderate-cost Fo... ▲

# How input variables affect output

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Income driven by occupation(s)  
and location

Interpreters and Tran... ▲

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Taxes\* depend on:

- Income
- Number of earners
- Number of people in the house

\* Our simplified tax estimator

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House rent driven by sq. ft. cost and location (down to the census tract level)

Interpreters and Tran... ▲

Home Health Aides ▲

3 people in house ▲

Rent sq.ft.



1750

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Food costs driven by household members' age and sex, and type of food plan

You 30 y.o.  Male  Female

27 y.o.  Male  Female

3 y.o.  Male  Female

+ add member

Thrifty Food Plan  
Low-cost Food Plan  
Moderate-cost Food Plan  
Liberal Food Plan

Interpreters and Tran... ▲

Home Health Aides ▲

3 people in house ▲

Rent  1750  
sq.ft.

Moderate-cost Fo... ▲

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Child care depends on children's age

You 30 y.o.  Male  Female  
27 y.o.  Male  Female  
3 y.o.  Male  Female

[+ add member](#)

Interpreters and Tran... ▲

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Utilities, healthcare and transportation modeled as a percentage of income, and dependent on number people in the household

Interpreters and Tran... ▲

Home Health Aides ▲

3 people in house ▲

Rent  
sq.ft.



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Moderate-cost Fo... ▲

# CE PUMD – How (i)

- Used the adaptation to the "R" language of the program "Integrated Mean and SE.sas" available here:

<https://github.com/ajdamico/usgsd/tree/master/Consumer%20Expenditure%20Survey>

```
86 + year <- 2012
87 + cohort.fam_size <- 6
88 + cohort.cutenure <- 4 # rent
89 +
```

```
431 +
432 + if (exists("cohort.cutenure")) {
433 +   f <- subset(f, cutenure %in% cohort.cutenure)
434 +   d <- subset(d, cutenure %in% cohort.cutenure)
435 + }
436 + if (exists("cohort.fam_size")) {
437 +   f <- subset(f, fam_size %in% cohort.fam_size)
438 +   d <- subset(d, fam_size %in% cohort.fam_size)
439 + }
440 +
```

Create cohort for renters (cutenure = 4) and family size.

and ran the program with

```
fam_size <- 1
fam_size <- 2
fam_size <- 3
fam_size <- 4
fam_size <- 5
fam_size <- 6
```

To get CE means for 6 cohorts

# CE PUMD – How (ii)

- “R” was very slow running the calculations, taking 30 mins for each cohort
- We added a RAM DISK to hold temporary files in RAM:

```
- temp.db <- tempfile()  
+ #temp.db <- tempfile("ram", "/Volumes/RAM Disk/" )  
+ temp.db <- paste("/Volumes/RAM Disk/db", year, cohort.suffix, sep = "-")  
+
```

- Speed gain: 10 mins instead of 30 mins

# CE PUMD – Results\*

Expenses as percentage of income by income bracket

Utilities & household expenses (% of income)		11.97%	59.99%	24.78%	17.52%	17.98%	14.29%	10.48%	10.77%	8.19%	6.81%
Transportation (% of income)		9.61%	39.69%	14.46%	11.83%	11.51%	13.05%	9.16%	9.89%	8.04%	4.98%
Healthcare & personal care (% of income)		6.50%	24.83%	13.13%	11.69%	11.86%	7.93%	5.61%	4.96%	4.17%	3.47%
title	estimate	all consumer	less than \$5,	\$5,000 to \$9	\$10,000 to \$	\$15,000 to \$	\$20,000 to \$	\$30,000 to \$	\$40,000 to \$	\$50,000 to \$	\$70,000 and over
Number of consumer units (in thousands)	N	17144850.2	1766234.9	2029990.56	2909433.61	1926285.13	2687534.28	1987465.22	1214524.22	1483045.29	1140337
Income before taxes	MEAN	28058.7489	3099.36875	8091.12936	12694.2071	17301.3182	24639.5451	34485.3698	44569.4008	58600.13	99188.516
Meals as pay	MEAN	51.4962783	58.1303139	2.82576357	37.0617891	32.8920846	36.5955899	47.6783744	116.118177	88.7089936	120.666752
Rent as pay	MEAN	172.094783	364.778289	309.147993	344.322243	132.389256	91.2231856	26.8510505	6.79208249	7.17123563	91.6133424
Income before taxes	MEAN	27835.1579	2676.46015	7779.1556	12312.823	17136.0369	24511.7263	34410.8404	44446.4906	58504.2497	98976.2359
Income after taxes	MEAN	26930.4465	3272.479	8063.85441	12734.0143	17269.9866	24298.2535	33572.5711	43058.927	55373.3073	90156.9718
Meals as pay	MEAN	51.4962783	58.1303139	2.82576357	37.0617891	32.8920846	36.5955899	47.6783744	116.118177	88.7089936	120.666752
Rent as pay	MEAN	172.094783	364.778289	309.147993	344.322243	132.389256	91.2231856	26.8510505	6.79208249	7.17123563	91.6133424
Income after taxes	MEAN	26706.8555	2849.57039	7751.88065	12352.6302	17104.7053	24170.4347	33498.0416	42936.0167	55277.4271	89944.6917
Age of reference person	MEAN	45.9287772	38.8394041	45.1634344	53.5814461	52.6337687	45.9509778	42.3278983	43.9917563	40.8343382	42.3327165
Persons	MEAN	0.9996	0.9996	0.9996	0.9996	0.9996	0.9996	0.9996	0.9996	0.9996	0.9996
Children under 18	MEAN	0.0011244	0.00544559	0	0.00332003	0	0	0	0	0	0
Persons 65 and older	MEAN	0.21367288	0.1410567	0.23232853	0.35897281	0.37313109	0.1954662	0.12711874	0.14738853	0.08719309	0.08170973
Earners	MEAN	0.63250787	0.42415983	0.38448172	0.34041294	0.52104641	0.75822071	0.84561666	0.93877624	0.92893289	0.9508644
Vehicles	MEAN	0.78360261	0.39320098	0.45463408	0.55392051	0.72979845	0.92258608	1.04420554	1.08128398	1.16871543	1.05114445
Vehicles (owned)	MEAN	0.75842954	0.38955235	0.45148892	0.55009342	0.70695715	0.88713651	1.01622345	1.0427662	1.11576029	0.97447852
Vehicles (leased)	MEAN	0.02517307	0.00364863	0.00314516	0.0038271	0.0228413	0.03544956	0.02798209	0.03851778	0.05295515	0.07666593
Male	MEAN	52.8632414	55.2804909	49.7454067	44.3854665	44.1713329	55.3854153	55.2504128	56.5627136	63.8945416	62.5906264
Female	MEAN	47.1363586	44.7191091	50.2541933	55.6141335	55.8282671	44.6141847	44.7491872	43.4368864	36.1050584	37.4089736
Homeowner	MEAN	0	0	0	0	0	0	0	0	0	0
With mortgage	MEAN	0	0	0	0	0	0	0	0	0	0
Without mortgage	MEAN	0	0	0	0	0	0	0	0	0	0
Renter	MEAN	99.9996	99.9996	99.9996	99.9996	99.9996	99.9996	99.9996	99.9996	99.9996	99.9996

Renter 1 person CUs Renter 2 people CUs Renter 3 people CUs Renter 4 people CUs Renter

Cohorts

\*Data available <http://www.fixr.com/info/map.html>

# Questions

- Are there better cohorts based on our user inputs?

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3 people in house ▲

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Moderate-cost Fo... ▲

- How to weight costs by location (MSA)?
- Is 30 minute normal for running “Integrated Mean and SE.sas” ?

A map of San Antonio, Texas, showing major highways, neighborhoods, and landmarks. The map is overlaid with text. The text includes a thank you message, a URL for a live tool, and an email address. The map shows the city of San Antonio with various districts like Alamo Heights, Kirby, and Converse. Major highways like I-35, I-490, and I-10 are visible. Landmarks like the airport and various parks are also shown.

**Thank you**

Live tool available at:

<http://www.fixr.com/tx/>

[andres@fixr.com](mailto:andres@fixr.com)