# URBAN AFFORDABILITY FOR YOUNG AMERICAN ADULTS 2006-2017

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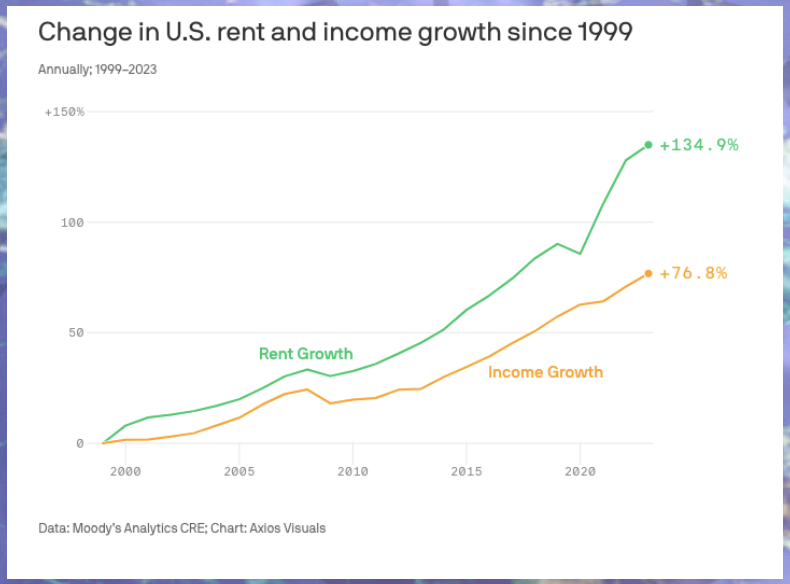
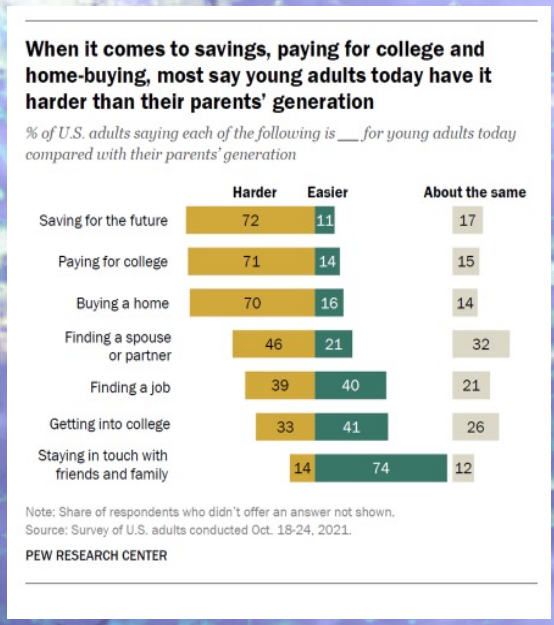
Background & Context

## Rent vs. Income




## The attitudes American young adults hold over their financial future





## U.S Cities in context to the world

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# Purpose of Study

To assess deeper dynamics of urban living in the U.S, more specifically the financial environment in which young adults are facing and how that differs within metropolitan areas of varying populations sizes.

Research Question:

Do metropolitan areas with larger populations experience price increases that outpace wages at a greater rate than metropolitan areas with smaller populations?

# Methods

$H_0$: $\beta_{1(pitt)} = \beta_{1(dc)}$

$H_1$: $\beta_{1(pitt)} > \beta_{1(dc)}$

$\beta_1$ *being larger signifies wages experiencing a greater increase alongside with prices*

Multivariate Regression Analysis

Independent Variables – Consumer Price Index (CPI) by Metropolitan Area {Pittsburgh or Washington D.C}

Rent
Transportation
Apparel

Dependent Variables:
Hourly Wage by Industry [CES Data]

Leisure and Hospitality
Retail Trade
Education and Health Services →
[Health Care and Social Assistance]

# Results pt.1

```
Call:
lm(formula = yngwage_combinedindex ~ CPIindex_Pitt, data = Data_BLSproject)

Residuals:
    Min      1Q  Median      3Q     Max
-2.0396 -0.6993  0.2671  0.7007  1.7331

Coefficients:
             Estimate Std. Error t value Pr(>|t|)
(Intercept)    0.64882    5.08944   0.127    0.901
CPIindex_Pitt  0.09671    0.00921  10.501 1.01e-06 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 1.24 on 10 degrees of freedom
Multiple R-squared:  0.9169,    Adjusted R-squared:  0.9085
F-statistic: 110.3 on 1 and 10 DF,  p-value: 1.014e-06
```

```
Call:
lm(formula = yngwage_combinedindex ~ CPIindex_DC, data = Data_BLSproject)

Residuals:
    Min      1Q  Median      3Q     Max
-2.0310 -1.0898  0.3307  0.7477  2.0326

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept)  0.43040    6.51194   0.066    0.949
CPIindex_DC  0.12801    0.01554   8.239 9.09e-06 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 1.541 on 10 degrees of freedom
Multiple R-squared:  0.8716,    Adjusted R-squared:  0.8588
F-statistic: 67.89 on 1 and 10 DF,  p-value: 9.087e-06
```

# Results pt.2

```
Call:
lm(formula = yngwage_combinedindex ~ rent_dc, data = Data_BLSproject)

Residuals:
    Min      1Q  Median      3Q     Max
-0.7825 -0.3911 -0.1150  0.5250  0.9486

Coefficients:
             Estimate Std. Error t value Pr(>|t|)
(Intercept) 14.778611   1.712297   8.631 6.02e-06 ***
rent_dc      0.216005   0.009394  22.994 5.47e-10 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.5859 on 10 degrees of freedom
Multiple R-squared:  0.9814,    Adjusted R-squared:  0.9796
F-statistic: 528.7 on 1 and 10 DF,  p-value: 5.465e-10
```

```
Call:
lm(formula = yngwage_combinedindex ~ rent_pitt, data = Data_BLSproject)

Residuals:
     Min       1Q   Median       3Q      Max
-1.01961 -0.58819 -0.08875  0.57804  1.06822

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept)  8.39607    2.43758   3.444  0.00628 **
rent_pitt    0.21060    0.01123  18.759 4.01e-09 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.7149 on 10 degrees of freedom
Multiple R-squared:  0.9724,    Adjusted R-squared:  0.9696
F-statistic: 351.9 on 1 and 10 DF,  p-value: 4.01e-09
```

```
Call:
lm(formula = wage_retail ~ apparel_dc, data = Data_BLSproject)

Residuals:
    Min      1Q  Median      3Q     Max
-0.7777 -0.4071 -0.1719  0.3151  1.8164

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept) -1.96639    4.62497  -0.425  0.67972
apparel_dc   0.19064    0.04797   3.974  0.00263 **
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.739 on 10 degrees of freedom
Multiple R-squared:  0.6123,    Adjusted R-squared:  0.5735
F-statistic: 15.79 on 1 and 10 DF,  p-value: 0.002626
```

```
Call:
lm(formula = wage_retail ~ apparel_pitt, data = Data_BLSproject)

Residuals:
     Min       1Q   Median       3Q      Max
-1.08980 -0.33734 -0.08677  0.34491  1.02629

Coefficients:
             Estimate Std. Error t value Pr(>|t|)
(Intercept)   4.29926    2.37803   1.808 0.100745
apparel_pitt  0.07738    0.01517   5.101 0.000463 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.6254 on 10 degrees of freedom
Multiple R-squared:  0.7224,    Adjusted R-squared:  0.6946
F-statistic: 26.02 on 1 and 10 DF,  p-value: 0.0004635
```

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# Limitations of Study & Conclusions

Lack of Metropolitan Areas Available for CPI analysis, it would've been much more effective to use areas outside of the Mid-Atlantic Region ---> Washington D.C MSA extended to Baltimore as well, different cities economically → made study less applicable to research question

CPI data for Metropolitan Areas appears to be discontinued in 2017, at least for the ones used for this project, one or more of the data categories evaluated had records starting in 2006→ limited time period

- There was a lot of significant economic context that occurred outside of these bounds, especially after 2017 during the pandemic

More metropolitan area CPI data is required for a truly effective evaluation of this topic

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# References


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