Land Value Based Wealth Inequality in Turkey

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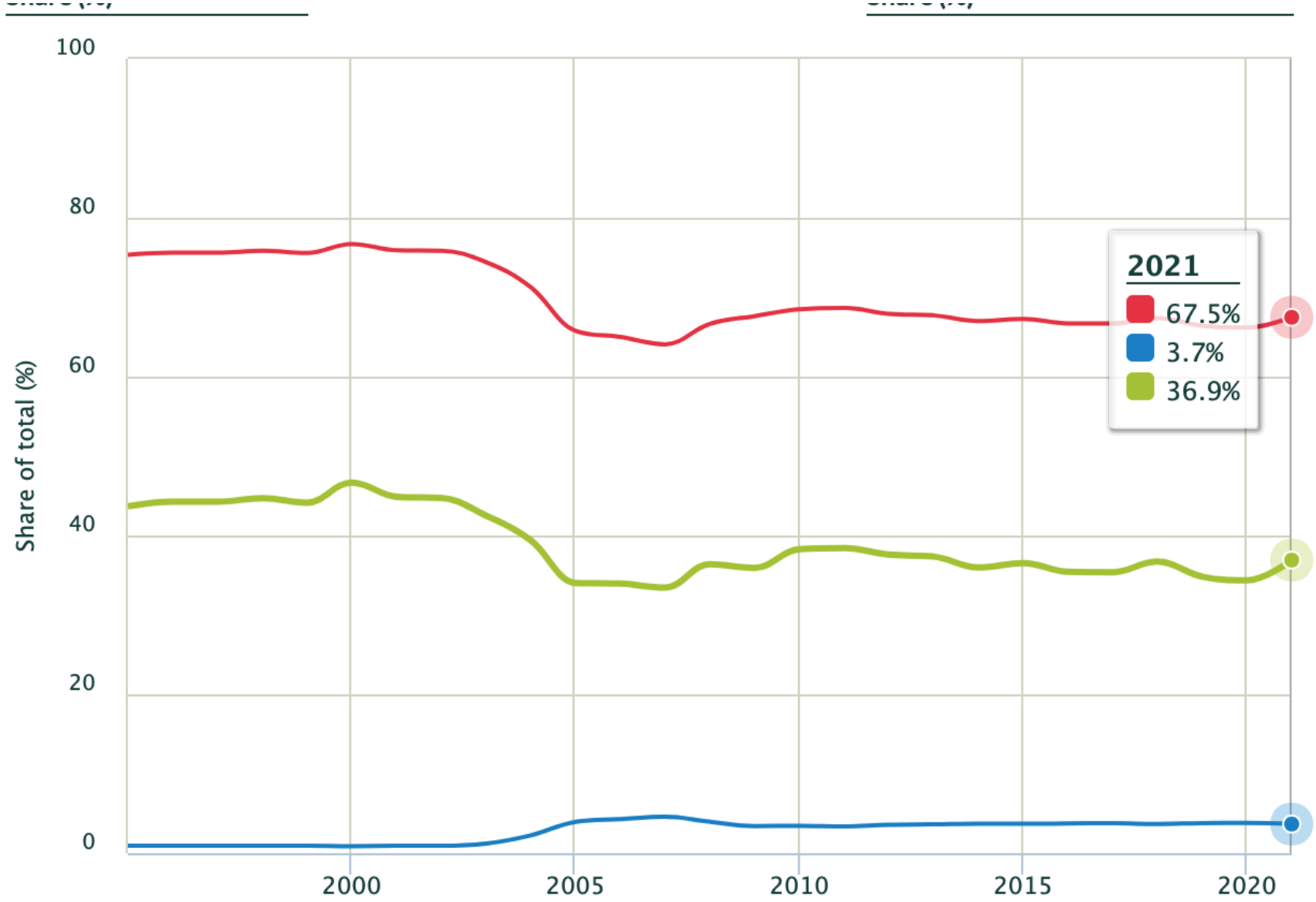
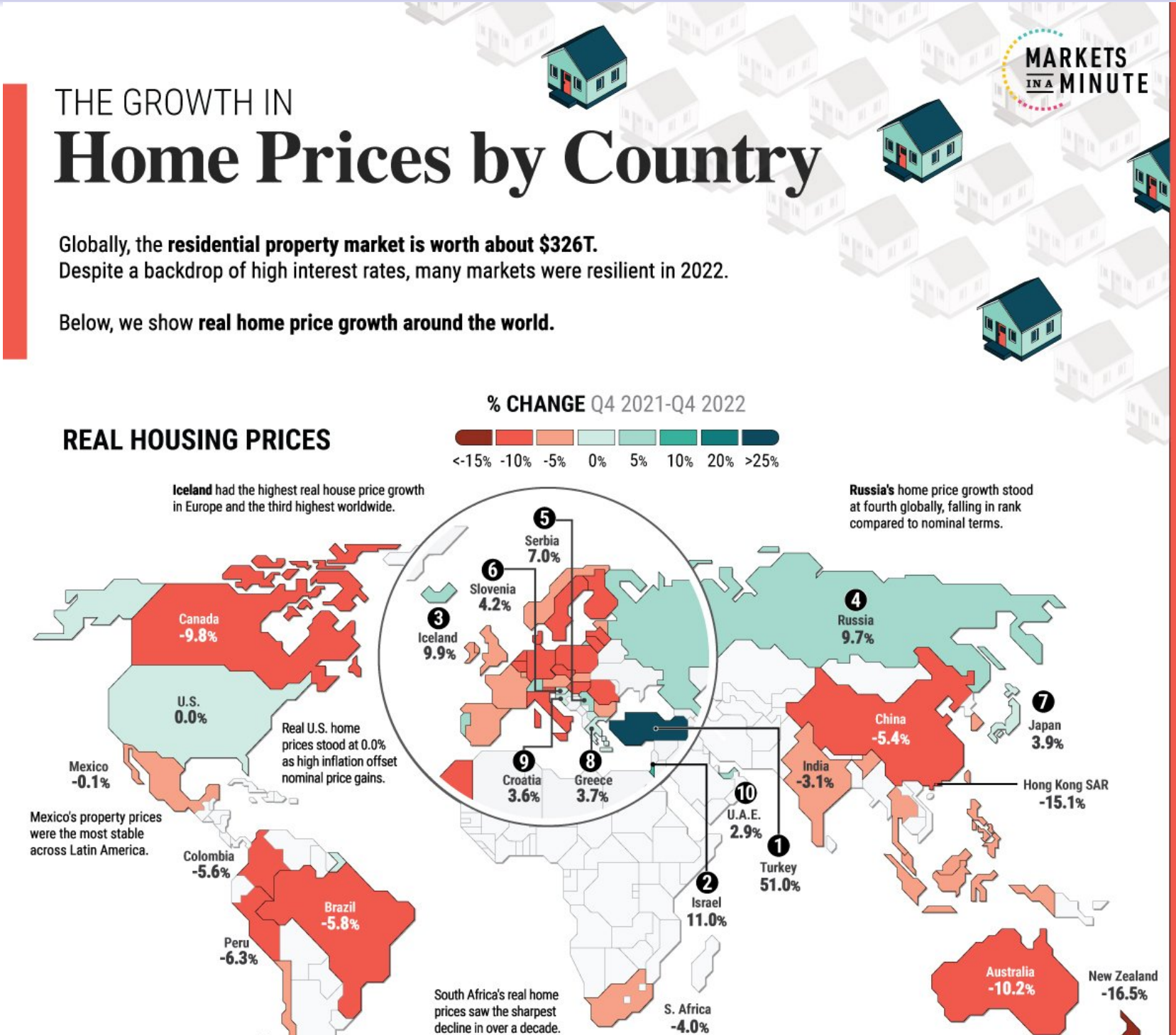
Outline

- Wealth inequality rising
- Distinction between wealth and capital
- None whatsoever empirical study on Turkey
- Super important for both allocation and accumulation in the long-run


100
80
60
40
20
0
Share of total (%)
2000
2005
2010
2015
2020
2021
67.5%
3.7%
36.9%

- Turkey is on par with Russia and China
- The bubble in real estate got even worse
- Note that half of all housing value is attributed to the land value


MARKETS IN A MINUTE
THE GROWTH IN
Home Prices by Country
Globally, the residential property market is worth about $326T.
Despite a backdrop of high interest rates, many markets were resilient in 2022.
Below, we show real home price growth around the world.
REAL HOUSING PRICES
% CHANGE Q4 2021-Q4 2022
<-15% -10% -5% 0% 5% 10% 20% >25%
Iceland had the highest real house price growth in Europe and the third highest worldwide.
Russia's home price growth stood at fourth globally, falling in rank compared to nominal terms.
Canada -9.8%
U.S. 0.0%
Real U.S. home prices stood at 0.0% as high inflation offset nominal price gains.
Mexico -0.1%
Mexico's property prices were the most stable across Latin America.
Colombia -5.6%
Brazil -5.8%
Peru -6.3%
5 Serbia 7.0%
6 Slovenia 4.2%
3 Iceland 9.9%
9 Croatia 3.6%
8 Greece 3.7%
4 Russia 9.7%
China -5.4%
India -3.1%
7 Japan 3.9%
Hong Kong SAR -15.1%
10 U.A.E. 2.9%
1 Turkey 51.0%
2 Israel 11.0%
South Africa's real home prices saw the sharpest decline in over a decade.
S. Africa -4.0%
Australia -10.2%
New Zealand -16.5%

- We show that the wealth inequality based on land values is dramatic in Turkey as of 2021.
- The top 1 percent possesses almost 15 % of all land wealth based on available data extracted from a comprehensive private dataset
- Top 10 percent controls 59 % of all land value.
- Gini coefficients in both land values and land sizes are around 0.7
- There exists a positive relation between the mean price of the land and inequality across cities
- There are significant premiums on features of the land, ie. zoned, sea view, shore, OSB

- Piketty (2014) highlight a concerning trend: a growing capital-to-income ratio, largely fueled by the rapid rise in housing wealth. Knoll, Schularick, and Steger (2017) connects this trend directly to a surge in land prices, suggesting that land ownership, particularly in areas experiencing development or high demand, offers a significant avenue for wealth accumulation.
- Glaeser and Gyourko (2018) emphasizes the importance of location. Land in prime locations, near economic centers, infrastructure, or amenities, tends to appreciate faster, creating concentrated wealth for owners. This can be seen in the rise of superstar cities like London or İstanbul, where housing prices significantly outpace average income growth, leading to wealth accumulation for existing property owners

- Saez and Zucman (2016) highlight the role of inheritance in perpetuating wealth inequality. Land, particularly in the form of family estates or income-generating commercial properties, can serve as a cornerstone of intergenerational wealth transfer, solidifying the economic advantage of those born into land-owning families.
- Binswanger and Deininger (1997) highlight a key difference; land inequality tends to be even more pronounced in developing countries.
- Chetty et al. (2022) suggests that geographic mobility, particularly across zip codes with different land value growth rates, can be a key factor in intergenerational economic mobility.

- Davies et al. (2009) is a study that depicts the extent of wealth inequality across countries based on Credit Suisse Wealth Reports. The wealth gini calculated in that study is 0.71 for Turkey. However, this finding is limited to only financial assets
- Toruland Oztunalı(2018) estimates awealth Giniof0.78 based on a calibration in a general equilibrium model. The model's finding depends critically on the assumptions made with regards to key parameters for which official data rarely exist.
- Our approach is more general and bottom-up. It is important to note that measuring land value inequality can be challenging due to limitations in data availability and quality, particularly in developing countries

- Biggest online platform for real estate (www.sahibinden.com)
- Webscraping dynamic data on 188 thousand ads
- Ads have info on price, size, town and some features
- We have to webscrape town by town and with substantive waiting times as the website blocks otherwise

- Data cleaning
- Trimming the outliers
- The exchange rate was around 8 TL per dollar (but we keep all calculations in Turkish Lira)

Table: Descriptive Statistics, Turkey

Statistic	Mean	St. Dev.	Min	Median	Max
price	1,096,704.0	2,266,945.0	20,160	360,000	23,750,000
size	6,177.6	12,177.6	101	1,783	134,600
PPSM	700.3	1,898.0	0.3	230.9	67,164.2

Table: Summary Statistics for Selected Cities, Turkey

City	Mean Price	Mean Size	PPSM	N
istanbul	10010109.4	7441.365	5359.6353	3819
rize	2702819.7	6492.908	1362.4801	217
gumushane	889092.5	23596.883	1284.8013	60
ardahan	491606.6	112103.699	1078.7973	73
izmir	2719356.9	15469.884	975.2958	6112
yalova	1812033.4	4114.119	930.8468	1650
mugla	2011005.6	11161.370	908.0400	3115
antalya	2429786.3	14055.737	855.4837	6882
sanliurfa	1872708.3	32722.013	834.1184	696
kocaeli	1779136.1	7078.282	833.9609	4514

- Inferring wealth inequality measures from our data requires both explicit and implicit assumptions
- We first assume that our dataset covers a representative sample of the land ownership data
- Second, we assume that each land plot is owned by a distinct individual (or a household)
- Third, we assume that the prices on the postings do not deviate significantly with the final price at the time of the transaction of sale.

Suppose that there is an n units of land values (or land sizes) and that unit i has a price (size) of x_i. The price (size) distribution is then simply the vector $X = (x_1, x_2, .., x_n)$ Let $\mu(X) = \frac{1}{n}\sum x_i$ be the mean of the price (size) vector. Then Gini coefficient will be

$$I_{gini}(X) = \frac{1}{2n^2 mu(X)} \sum\sum |x_i - x_j| \tag{1}$$

Top 10 percent share is simply the sum of the largest 10% of the ordered vector X in total.
Theil index is based on the generalised entropy class measures.

$$I_{Theil}(X) = \frac{1}{n}\sum[\frac{x_i}{\mu(X)}]log(\frac{x_i}{\mu(X)}) \tag{2}$$

Table: Wealth Inequality in Land Values

Gini	0.689
10 Percent	0.59
Theil	0.955

Table: Wealth Inequality in Land Size

Gini	0.707
10 Percent	0.556
Theil	1.133

Table: Premiums in %

Zoned Land	43.17
Sea view	55
Industrial	111
Agr. Field	-71

Table: Unequal Cities

	city	Price Gini	Size Gini	GDPC
1	balikesir	0.858	0.903	44,302
2	tekirdag	0.843	0.883	70,787
3	kirikkale	0.833	0.914	39,245
4	istanbul	0.832	0.929	86,798
5	bursa	0.820	0.916	58,956
6	izmir	0.797	0.857	60,553
7	antalya	0.790	0.875	60,631
8	konya	0.789	0.909	40,892
9	kutahya	0.787	0.820	41,820
10	eskisehir	0.784	0.910	55,608

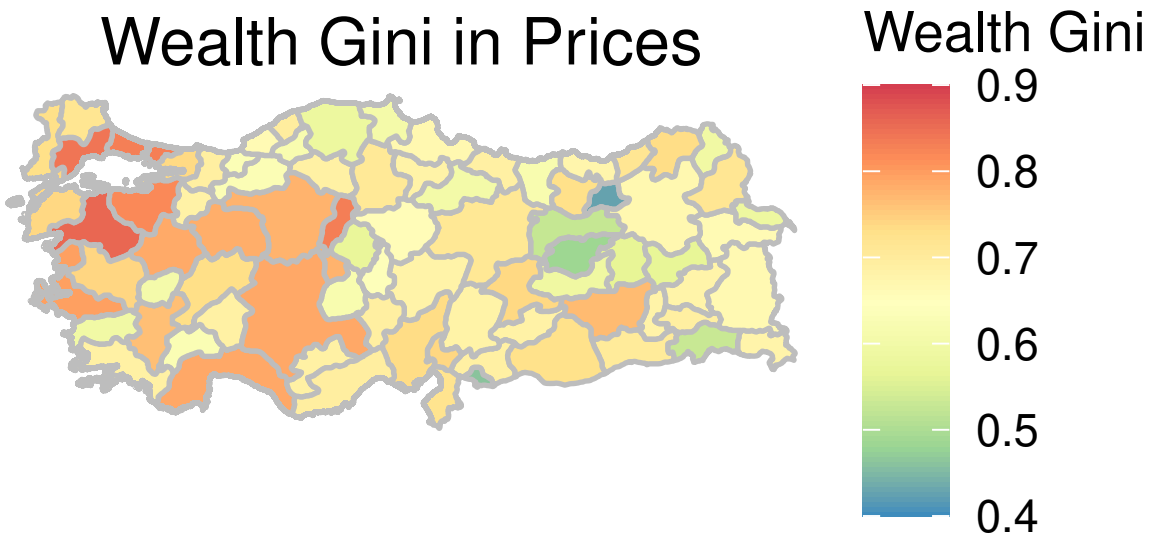

Wealth Gini in Prices
Wealth Gini
0.9
0.8
0.7
0.6
0.5
0.4

Table: OLS Regression

	Dependent variable:
	cityGiniP
log(GDPC)	0.048^{**}
	(0.022)
log(cityMeanP)	0.083^{***}
	(0.012)
log(cityMeanS)	0.015
	(0.010)
Constant	-1.108^{***}
	(0.289)
Observations	81
R^2	0.440
Adjusted R^2	0.419
Residual Std. Error	0.063 (df = 77)
F Statistic	20.207^{***} (df = 3; 77)
Note:	*p<0.1; **p<0.05; ***p<0.01

- Developing countries in general, Turkey in particular, suffer from lack of data on wealth distribution. Turkey has no official survey on wealth. Tax audits are not public. Given the lack of data we attempt to bridge the knowledge gap between the studies on developed countries by focusing one of the largest component of wealth in developing countries.
- Top 10 percent controls 59% of all land value. Gini coefficient in land values is around 0.7

- Further research is essential
- There are some drawbacks of our study. First, our dataset is just a sample. It would be much better to have access to the whole universe of private land ownership data. Second, we have not considered and included the effects of households without any land. Thus, we note that our estimation is a lower benchmark. Third, we have small sample sizes for some cities.
- Further research is essential. We can extend our study in various ways. Naturally, we can do the same analysis with housing data. Second, we can compare the real estate wealth inequality measures with the financial asset wealth inequality measures. Third, in the future we can re-do the same analysis to dynamically trace the developments in land value based wealth inequality in Turkey.