

Land Wealth and Lack of Capital Accumulation

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Osman Aydoğus Anısına Türkiye Ekonomisi Sorunlar ve Çözüm
Önerileri Çalıştayı

Outline

- 1 Introduction and Stylized Facts
- 2 Land Wealth and Lack of Capital
- 3 Model
- 4 Mechanisms
- 5 Discussion and Conclusion

- Puzzle: Why is capital accumulation so low in Turkey? (Other puzzles from Pamuk, Filiztekin, Altug (2005) paper)
- Why is land (real estate) wealth is astronomic in Turkey?
- Can we link these two puzzles?
- Two and a half cheers for land value based wealth tax

Figure: Capital Stock per Worker

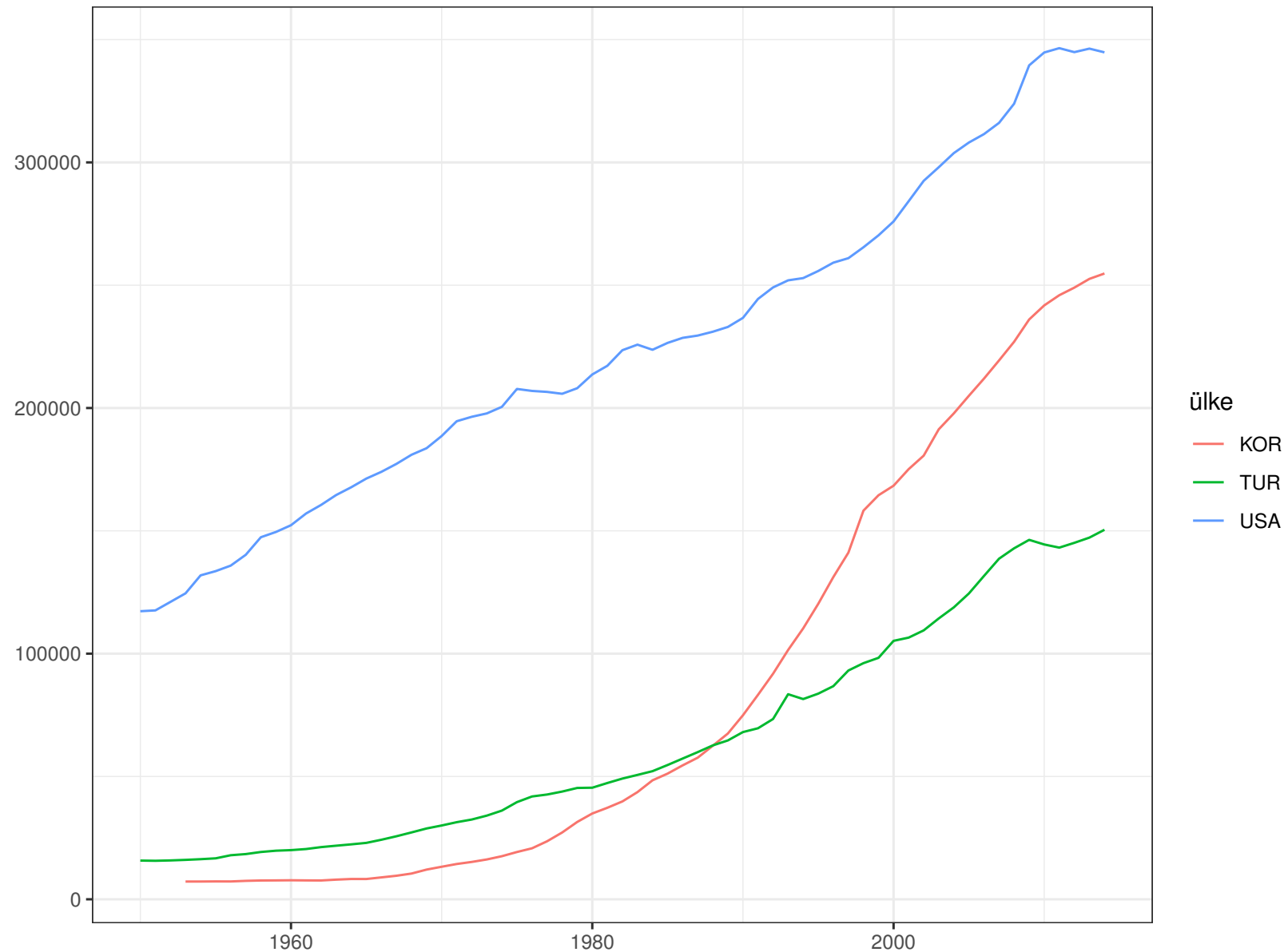


Figure: Capital Stock-Output Ratio

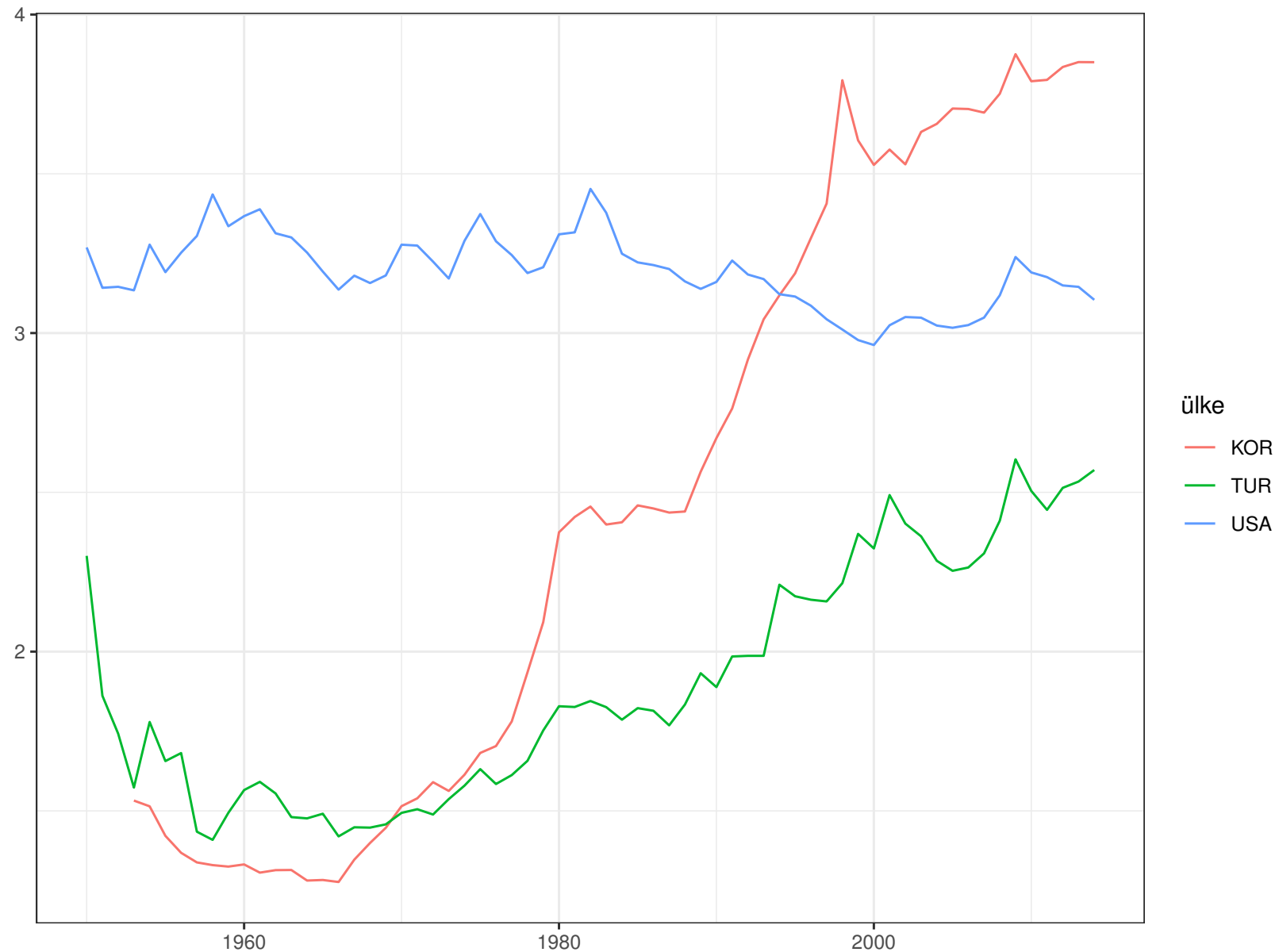


Figure: Capital Deepening Growth

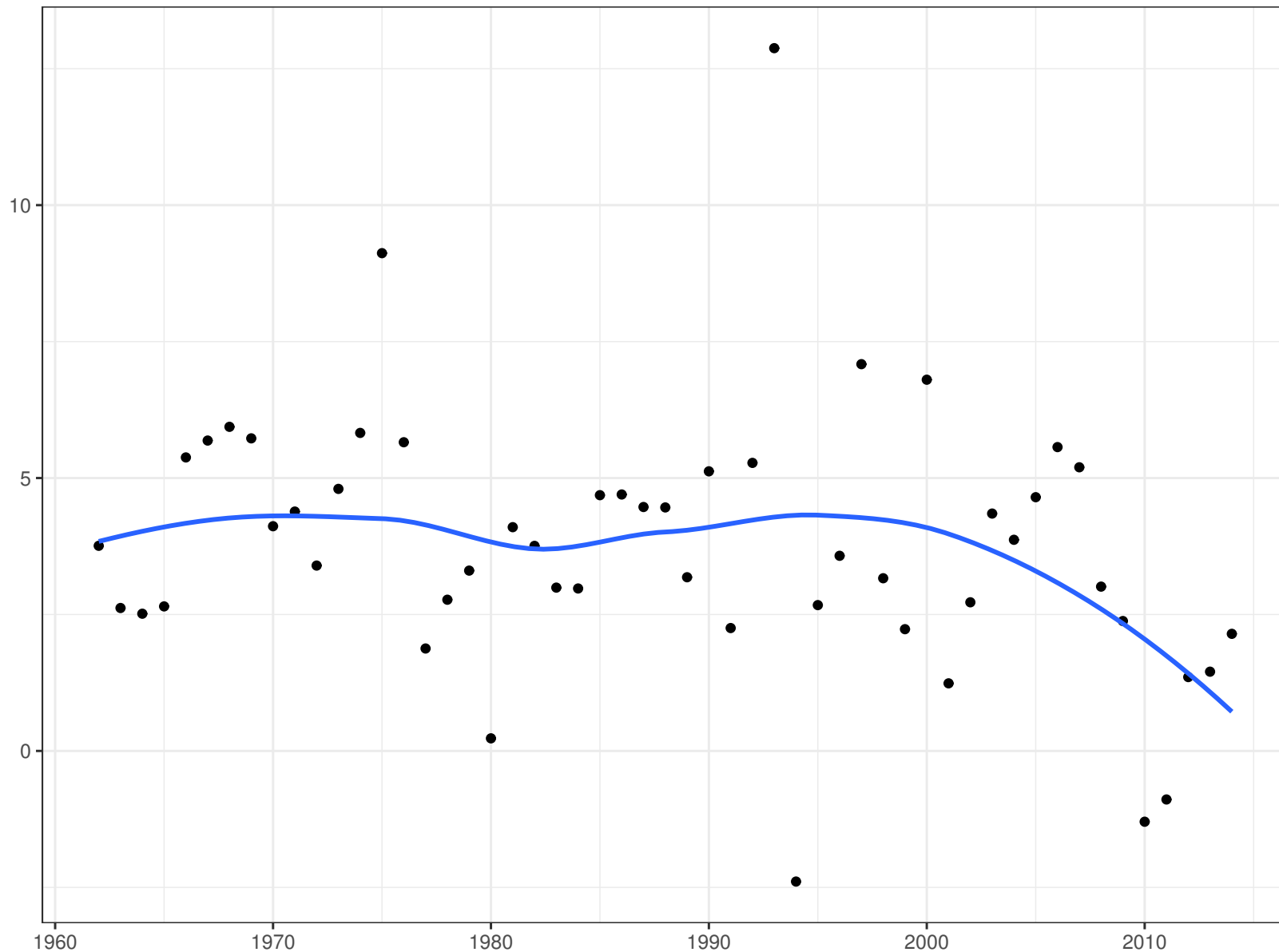


Figure: Employment to Working Age Population Ratio

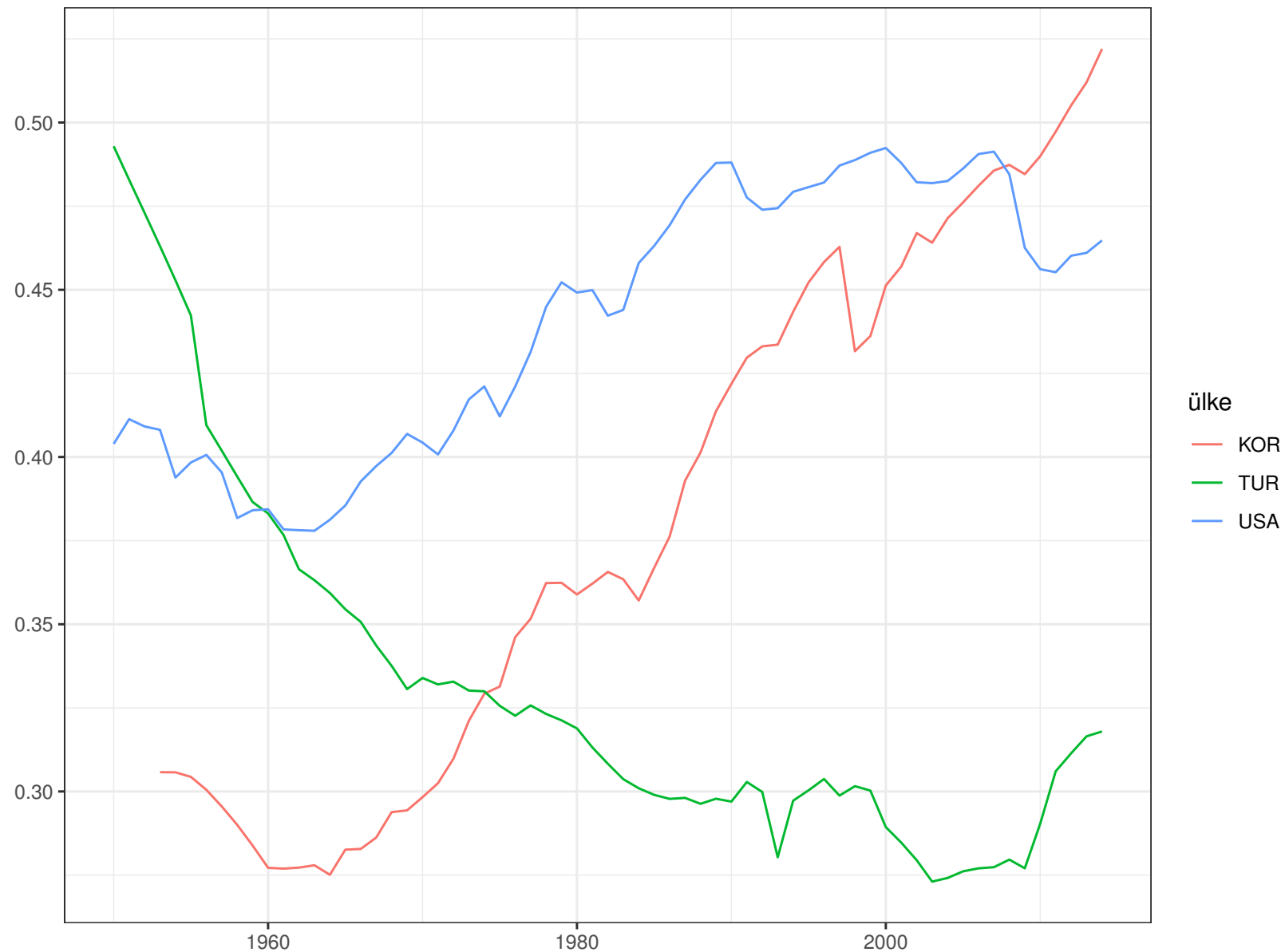


Figure: Human Capital Index -Barro and Lee

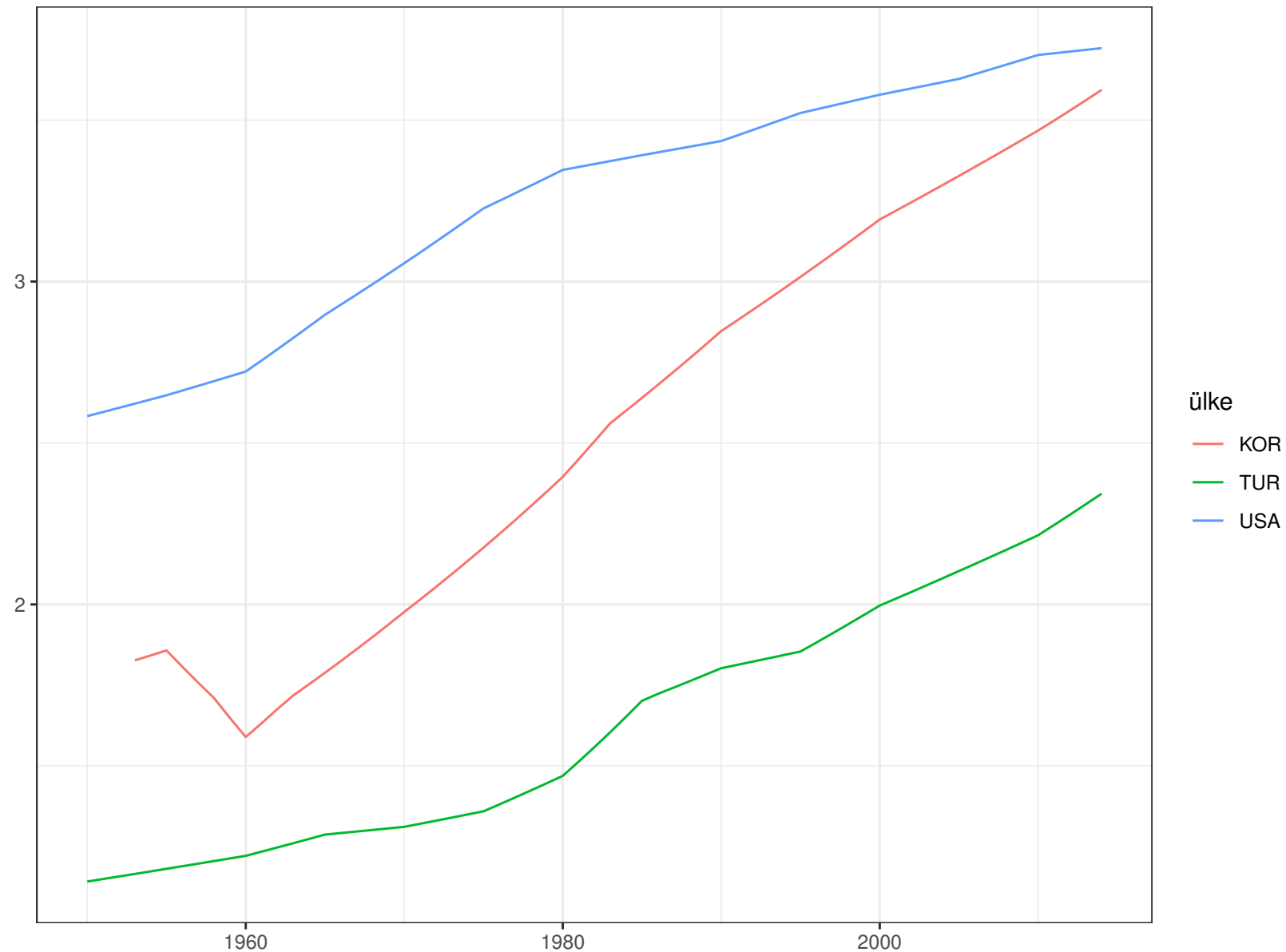
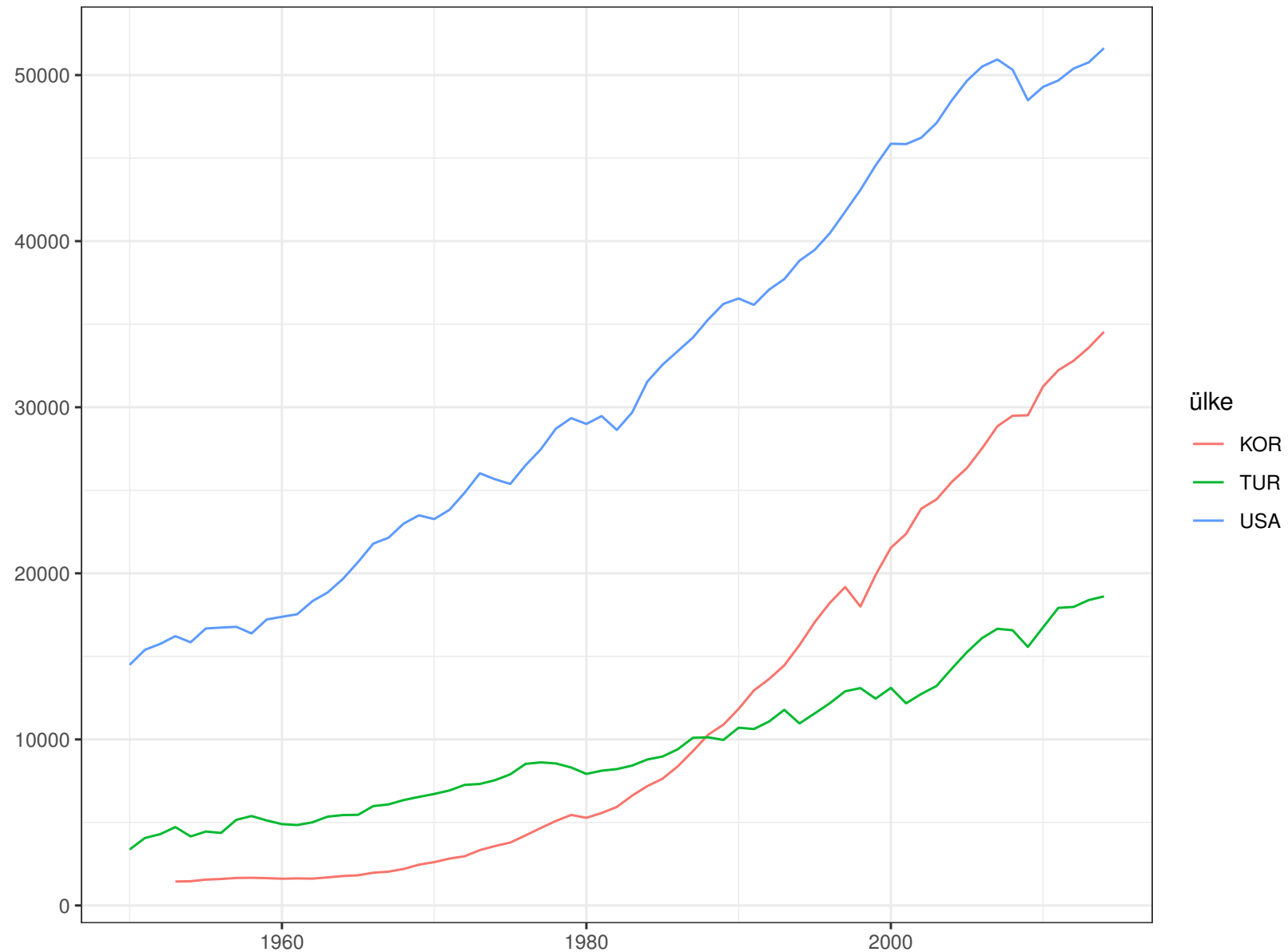


Figure: GDP per Capita in PPP

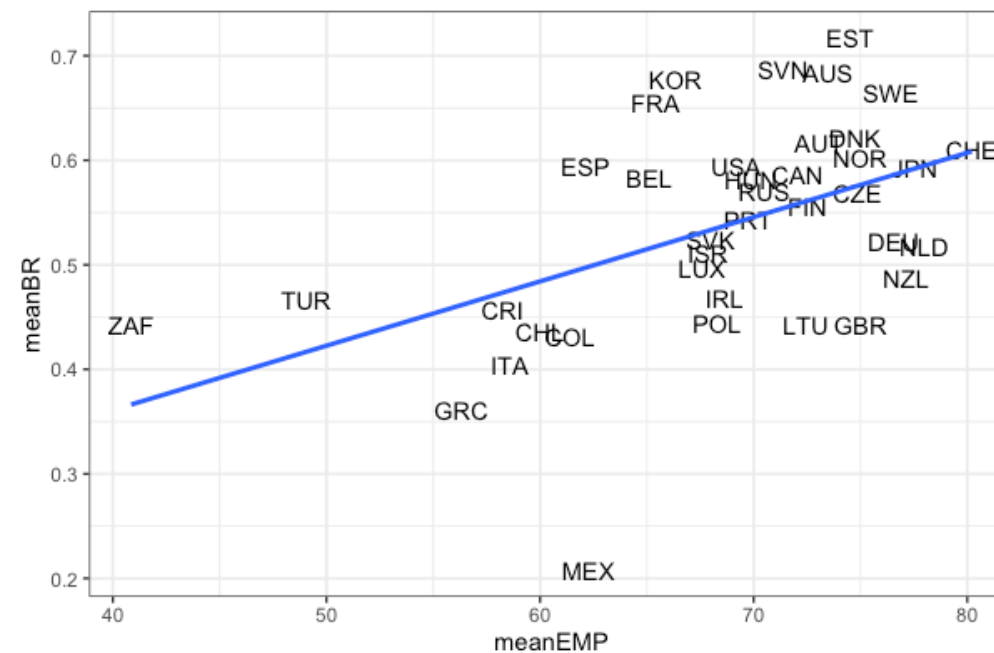


- GDP of Turkey is currently around 1 trillion dollars
- Total housing wealth in Turkey is around 4 trillion dollars
- Add the wealth in land with zoned and un-zoned status; that figure may be as high as 6-8 trillion dollars
- Remember the sale of Charlize Theron's mansion in Florida; the equivalent is a flat in Şişli :)

- Annual capital goods imports are 35 billion dollars; including transportation vehicles
- Firms' balance sheets show that they are under capitalized in terms machinery and equipment
- There is only one refinery in Turkey
- Total Fixed Assets were 2.3 trillion TL in 2020 (the last year that we have data on EIS)

- For the years after 1998 we have data on operating surplus in national accounts
- We use this data and Gross Fixed Capital Formation to estimate the Baran ratio
- The average for the period 1998-2020 is %45
- In South Korea that is %65.
- The gap is enormous.
- Surplus, not invested in capital accumulation, is allocated in wealth accumulation, main in land (real estate)

Figure: Baran Ratio and Employment Rate



- Enterprise Information System (Girişimci Bilgi Sistemi) reports balance sheets of firms in Turkey.
- In large firms, machinery and equipment constitutes %45 of constant fixed assets
- In micro firms, that ratio is merely %12.
- In aggregate total value of machinery and equipment was around 180 billion dollars in 2020.
- This is far less than off-shore wealth of Turkish citizens

We follow Hirano and Stiglitz (2022) model and modify the model for the Turkish Economy. The basic model is assumed in simple format. In the model, "In each period young agents are born and live for two periods. Each young person is endowed with one unit of labor when young, and supplies it inelastically, receiving wage income, ω_t . Each young person also has e units of endowment, and saves a fraction s_t of the total income $W_t = \omega_t + e$. The savings of each young person at date t finances land holdings and capital investment at date t . Capital investment at date t becomes capital stock at date $t + 1$, which determines the rate of return on capital and wages that period.

$$Y_t = A \text{Min}[K_t/\omega_1, L_t/\omega_2] + DT_t$$

The return to land is fixed and does not depend on the amount of labor and capital. Land and Labor is normalized to unity. Output, also the only consumption good, acts as a numeraire.

The well known optimal solution is $\frac{c_{1t}}{c_{2t}} = \frac{a_1}{a_2}$

So

$$\frac{(1 - s_t)y_{1t}}{(1 + r_{t+1})s_t y_{1t}} = \frac{a_1}{a_2}$$

Thus, the saving rate is

$$s_t = \frac{1}{1 + a_1/a_2(1 + r_{t+1})}$$

Given the Leontieff types of both utility and production functions (in the latter we also add a term with a return to land) we get these two dynamic equations; first the capital accumulation / saving equation

$$k_{t+1} + P_t = \frac{w_t + e}{1 + a_1/a_2(1 + r_{t+1})}$$

and second, the arbitrage equation

$$\frac{D}{P_t} + \frac{P_{t+1}}{P_t} = 1 + r_t = \frac{A}{\omega_1} + 1 - \delta$$

where ω_1 is capital productivity and δ is the depreciation rate.

The model entails five parameters and six endogenous variables with two dynamical variables k_t and P_t .

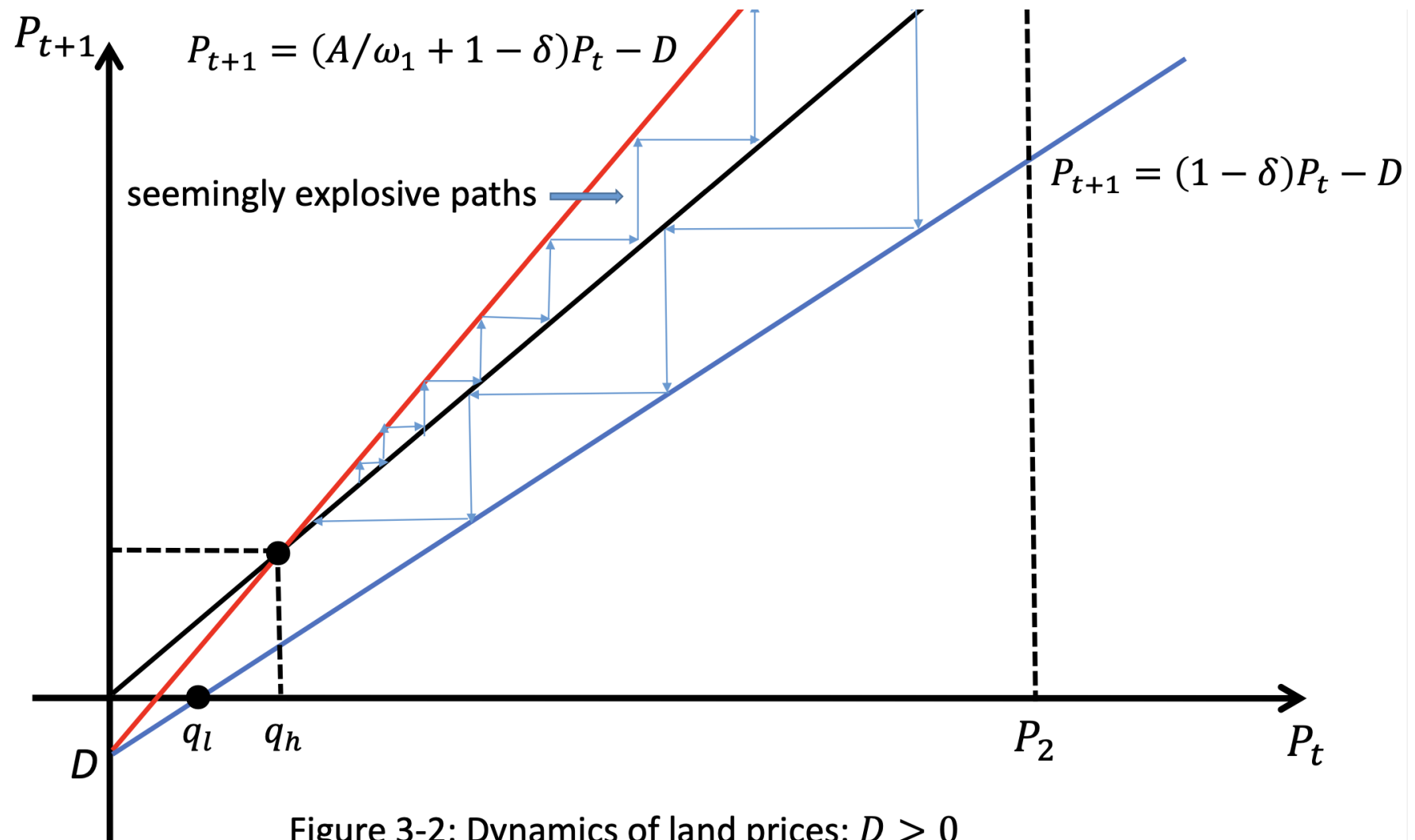
Full employment is achieved at.

$$k^f = \frac{\omega_1}{\omega_2}$$

The Turkish economy has capital shortage, implying $k_t < k^f$. Net return to investment is $\frac{A}{\omega_1} - \delta$ in a capital shortage economy.

- In this model, multiple endogenous equilibria exist
- Depending on initial k and P_t land wealth bubbles emerge.
- Assume that P_t is greater than the critical threshold value, agents expect that in order satisfy the arbitrage equation returns to land should be higher and thus cut down their capital accumulation derive which ensures that the return to capital is high

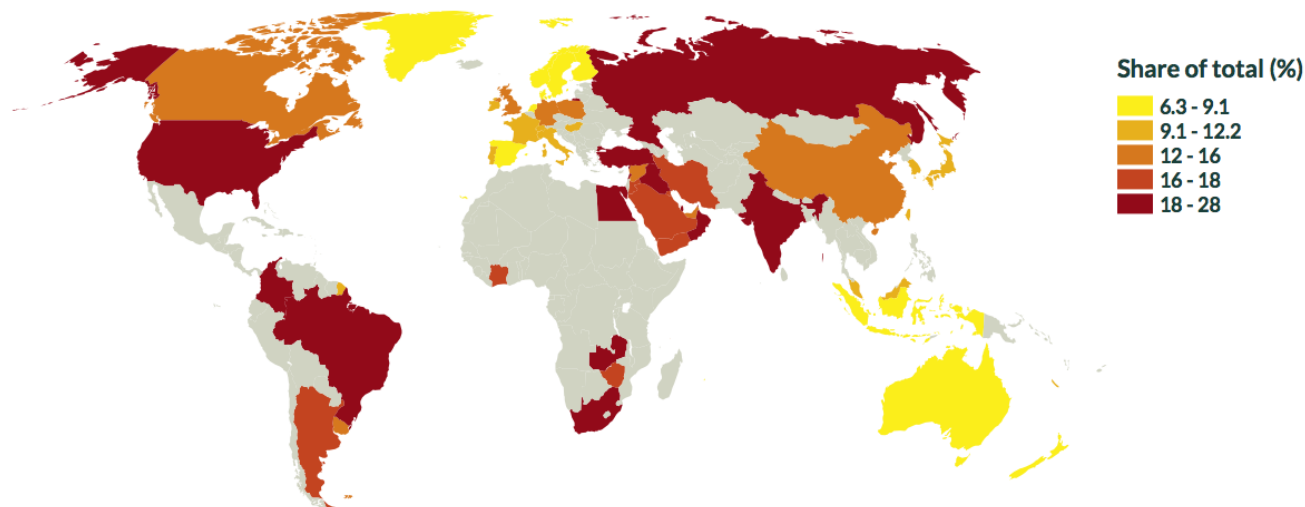
Figure: Explosive Land Prices



- Very low levels of real estate taxation
- High levels of land (real estate) wealth inequality (Turgut Altınok may be a minor figure)
- Concentration of population and urbanization (half of the population lives in the % 2 of the total land area)

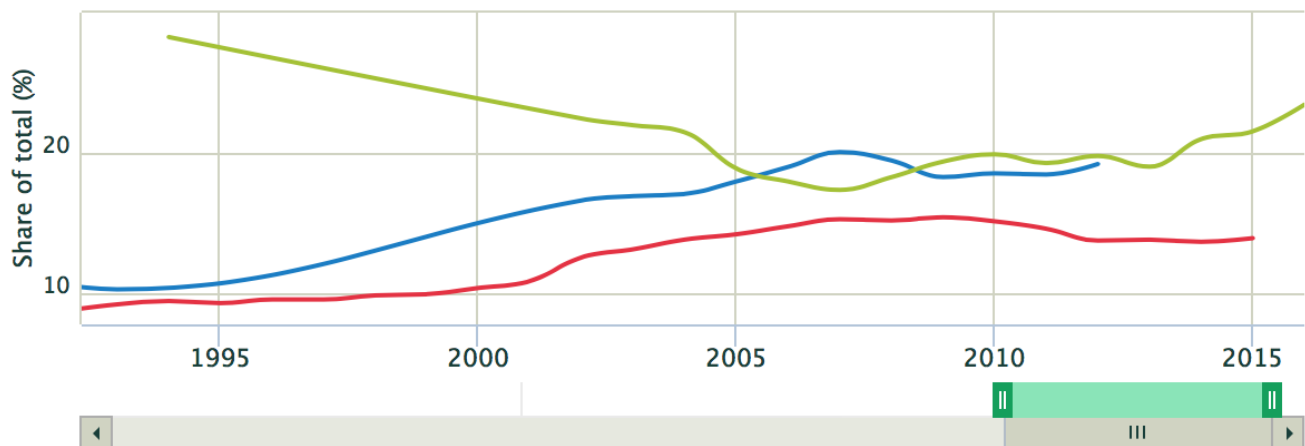
Figure: Wealth Inequality

Top 1% national income share



Share (%) ▼

Share (%) ▼



- Bank (credit) based corporate finance system
- Credit cost and volume based on the value of collateral
- Collateral is overwhelmingly land (real estate)
- Credit is used to accumulate land wealth

- Endowment effect
- Foreigners
- Urban transformation (kentsel dönüşüm)

- Kaldor's complaint
- The 10-20 fold gap between land based tax values (emlak vergisi rayiç bedelleri) and market prices
- Digital and satellite technology helping

- Two and a half cheers :)
- Increase land value tax rates (you pay more tax on your car than your house/land)
- Decrease the value added and luxury tax; boost aggregate demand and capital accumulation
- Change the structure of local politics