



# LABOR MARKETS IN *TRANSITION*:

Demographics, Productivity and Macroeconomic Policy

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# **DISCUSSION OF CLAUDIA GOLDIN'S “THE DOWNSIDE OF FERTILITY”**

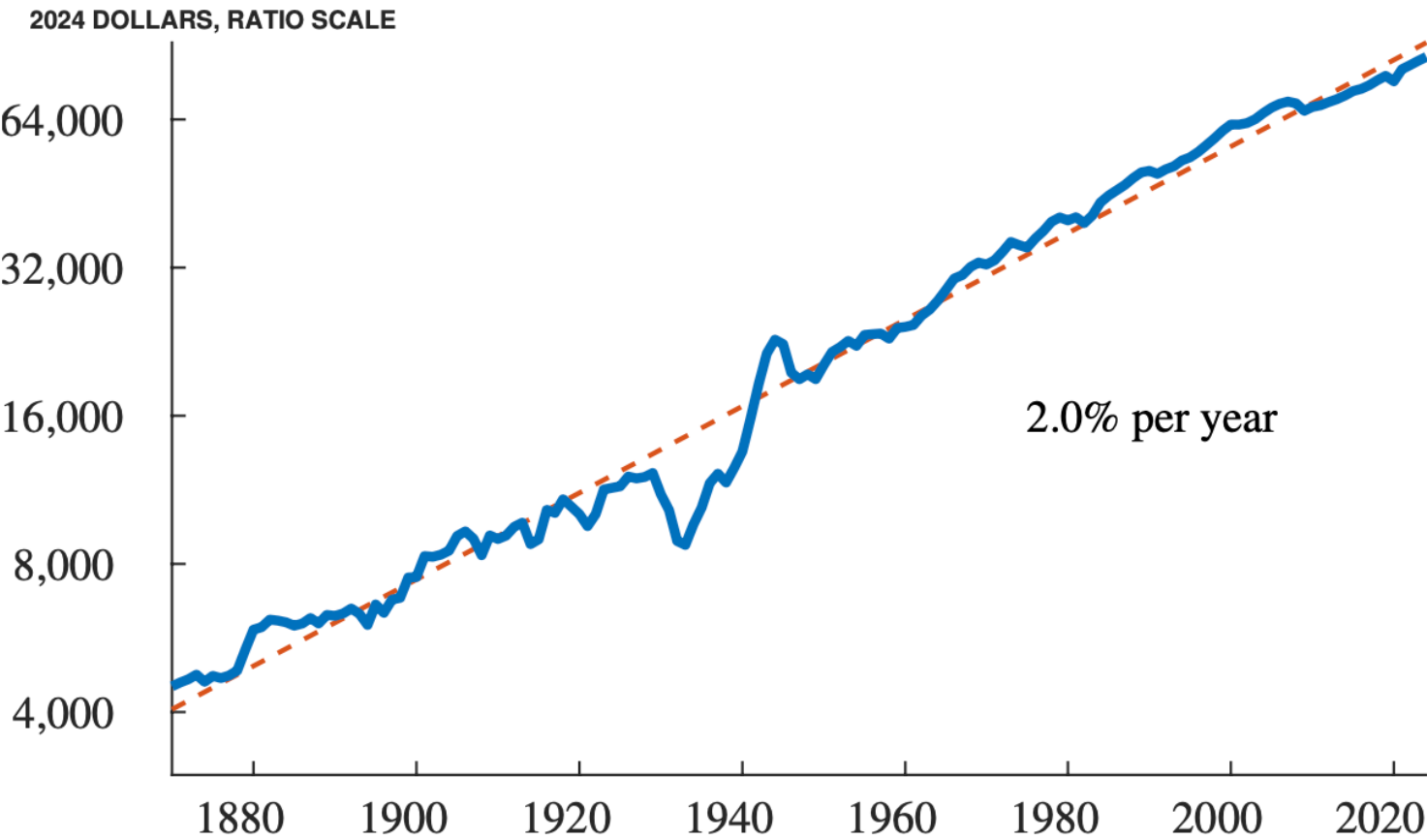
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## The Goldin Model of Fertility

- Two prongs:
  - Fertility declines due to improvements in **women's agency**: education, employment, status, the pill.
  - **Matching problem**: Men benefit from traditional patriarchal system. Leads women to have even \*fewer\* kids.
- Intriguing possibility:
  - $\uparrow p$  (men share in child rearing), both inherently good and could raise fertility.
  - Low  $p$  countries have even **lower** fertility than US: Korea, Mexico, Italy
  - Would equal split of child-rearing raise long-run fertility **above 2.1**?

*Better fit of the facts than the Q-Q theory alone*

Average income per person in the U.S.



## The Theory of Economic Growth

- Ideas are special (Paul Romer, 2018 Nobel Laureate)
  - Standard goods: laptop computer, hour of a surgeon's time
  - Ideas: design of the Covid vaccine, ChatGPT-5

*Ideas are infinitely usable: invent once, use many times*

- Researchers, entrepreneurs, and inventors produce ideas

Key Insight:

Income per person  $\leftarrow$  Ideas  $\leftarrow$  People

*Growth in living standards  $\leftarrow$  growth in people finding ideas*

## The Ultimate Resource

- But what is the future of world population?
  - Conventional wisdom 10 years ago: level off at 10 or 12 billion
  - Modern view: negative population growth!

## Two Different Futures

- Positive population growth  $\Rightarrow$  **Expanding Cosmos**
  - Growing population  $\Rightarrow$  growing research  $\Rightarrow$  rising living standards
  - Exponential growth in both living standards and population

*Optimistic future – fill the cosmos with ever richer people*

- Negative population growth  $\Rightarrow$  **Empty Planet** (the end of humanity)
  - Number of researchers declines  $\Rightarrow$  economic growth ceases

*Living standards stagnate for a population that vanishes*

- Profound difference between a world of 2.2 kids per family vs 1.9 kids per family!

## Long time horizon?

- Suppose each family has 1 child on average
  - Population halves every generation
  - 8 billion → 1 billion in 3 generations (75 years)
  - 8 billion → 125 million in 6 generations (150 years)
  - 8 billion → 8 million in 10 generations (250 years)

*Fertility + growth dynamics play out over centuries not decades*



## Demographic Dividend

- Transitory force over 50 years
  - Ratio of **working age** population to **total** population
  - Like the classic cartoon of a rabbit being swallowed / digested by a python
- As fertility falls
  - Initial demographic dividend: +0.3pp of  $Y/N$  growth for a few decades
  - Followed by demographic “tax”: -0.3pp of  $Y/N$  growth for a few decades
  - Important for a generation or two
- But **zero sum** in the long run

## Implications for GDP

- U.S. circa 2000:

$$\underbrace{3\%}_{\text{GDP growth}} = \underbrace{2\%}_{\text{per capita growth}} + \underbrace{1\%}_{\text{pop growth}}$$

- U.S. circa 2050:

$$\underbrace{1\%}_{\text{GDP growth}} = \underbrace{2\%}_{\text{per capita growth}} + \underbrace{-1\%}_{\text{pop growth}}$$

- “Per capita” matters for many things, but debt service, social security, etc. depend on aggregate GDP

*Jesus Fernandez-Villaverde “The Demographic Future of Humanity” (2025)*

## What is the optimal long-run population size? (Eden/Jones/Klenow in progress))

- Important factors to consider:
  - **Empty Planet:** We have kids because we love them. Evidently  $\Rightarrow$  empty planet!
  - **Ideas:** More people  $\Rightarrow$  more ideas  $\Rightarrow$  everyone richer
  - **Total Utilitarian view:** Happy, flourishing people are socially desirable independent of how parents feel.
  - **Sustainability:** Resource depletion, climate change, diversity loss, physical space per person. Finite planet  $\Rightarrow$  no long-run growth!
  - **Individual freedom:** To what extent is it morally acceptable for the government to tax / subsidize to push people away from their privately optimal choices?

## Policy and Fertility

- We already have enormous fertility subsidies
  - 13+ years of free public education
  - Social safety net, public goods (highways, defense, physical safety)
  - Total value could be around **\$500k per child**, but costs are even higher
- **Missing market:** unborn kids impose costs on parents but cannot pay ahead of time
  - Complete this market? What if each kid owes their parents \$1 million?
  - I suspect people would have a lot more kids!
  - But such a policy would be highly coercive. How to balance with **individual freedom**?

## Conclusion: Thought provoking paper — it matters!

- Our current path = **Empty Planet**
  - Living standards stagnate for a population that vanishes
  - The end of humanity
  - This is a **choice**, and we could make a different one
- We value lives very highly — presumably new people would as well
- Because **people produce ideas**, more people  $\Rightarrow$  richer not poorer (at least until very high levels of population)
  - So not facing a trade-off!
- Artificial intelligence