# e fare Econ ics hen Price erves as Invest ent

- **In many interesting settings, sacrificing current profit by charging low prices to generate volume can serve as an investment to build dynamic resources at the core of a competitive advantage:**
  - **Learning curve**
  - **Network externalities**
  - **Switching costs and lock-in**
  - **Habit formation**

- **These settings can give rise to interesting policy questions:**
  - **Competition policy (e.g., proscriptions on below-cost pricing)**
  - **Industrial policy (e.g., subsidies to facilitate industry take-o )**

- **A well-formed understanding of the welfare economics of competition for the market when price serves as an investment should be an important foundation for policy discussion:**
  - **For example, if unfettered dynamic price competition is fairly e cient perhaps the downside from subsidization would be problematic**

# Nothing to ee Here Move A ong

- **Welfare economics of price as an investment seem fairly clear**
- **Jostle for advantage $\rightarrow$ low prices (at least in short run)$\rightarrow$good for consumers and society**
- **Unlike rent-seeking (Posner 1975), value is transferred to consumers through low prices, so competition for advantage not socially wasteful**

# Research Agenda and Ob ectives of this a

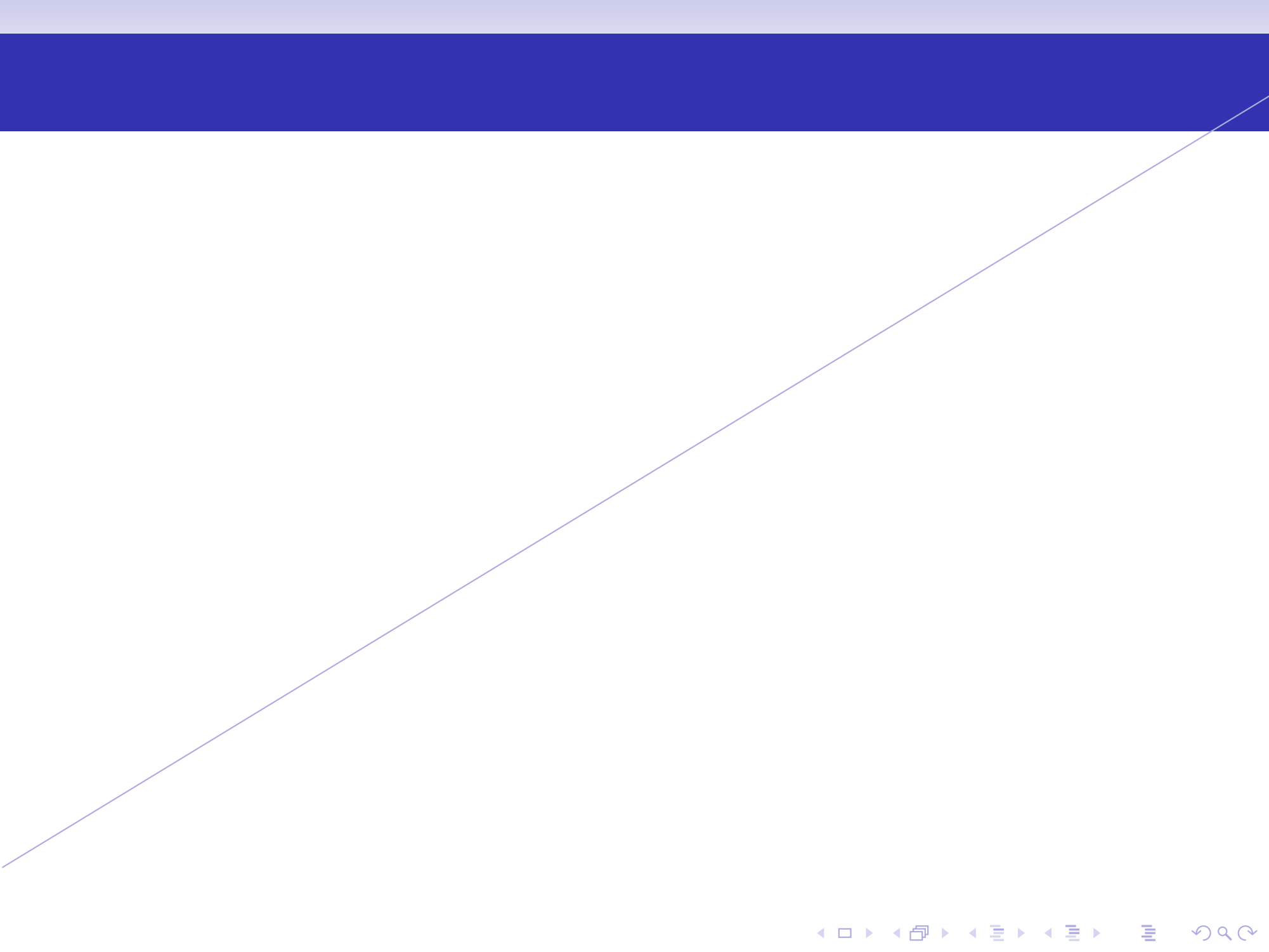
- **We use quantitative theory in Ericson & Pakes (1995) tradition to assess how e□cient dynamic competition is when price serves as an investment:**
  - **Analyze discrete-time stochastic game**
  - **Compute equilibria over wide swath of parameter space and highlight implications for industry dynamics**
  - **Assess deadweight loss against interesting benchmarks**
  - **Anatomize DWL to explain what drives it when price serves as investment**

- **Objectives of talk:**
  - **To say something (I hope) interesting about the welfare economics of dynamic price competition**
  - **To illustrate a research question for which quantitative theory is well suited:**
    - **Dynamic Markovian models in stylized settings (e.g., in spirit of Maskin & Tirole 1988) suggest that "almost anything can happen"**
    - **Quantitative theory useful when, in the face of this, we want to understand magnitudes and patterns**

# Out ine of the Mode

- **Discrete-time, infinite-horizon stochastic game:**
  - **Action within a time period: (1) Price-setting phase; (2) Exit-entry phase**

- **State** $e_n \in \{\mathbf{1}, \ldots, M$



# Deadweight Loss A Parameterizations

# d e entative Observations

- **Best equilibria—usually accommodative—are reasonably e□cient**
- **Worst equilibria—usually aggressive—are not great ...**
  - **... but they are still more e□cient than if firms ignored the investment motive for pricing**
  - **... and somewhat more e□cient than if firms colluded**
- **Faster learning—lower progress ratio $\rho$—often, though not always, entails lower relative DWL**

# Anatomizing the Deadweight Loss

- **Expected NPV of total surplus:** $TS_\beta = \sum_{t=0}$