

Model : Setup - II

- ▶ φ_{it} is the abatement technology evolving as:

$$\varphi_{it+1} = (1 - \delta_\varphi)\varphi_{it} + f(x_{it}) \quad (3)$$

- ▶ φ_{i0} is given and equal φ_0 for all firm.
- ▶ x_{it} is the (in final good terms) R&D spending on improving abatement technology.
- ▶ Firm i borrows capital $b_{it} = k_{it} - a_{it}$, s.t borrowing constraint $k_{it} \leq \gamma(e_{it}) a_{it}$
- ▶ $e_{it} = \frac{E_{it}}{y_{it}}$ is the emission per unit of output of firm i at time t .
- ▶ Leverage ratio is endogenously linked to the emission per unit of output of firm.
- ▶ In addition firm faces a carbon tax p_c per unit of emission.