Are Trade Agreements Good for You?

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Motivation

- With tariffs at a historical low, trade agreements increasingly focus on deep integration, which means that they impose disciplines on domestic policies
- There is much controversy surrounding such deep integration agreements. See for example the massive protests in Europe against TTIP and CETA
- The overarching concern is that trade agreements get hijacked by special interests, thus benefitting businesses at the expense of society at large
- Some economists such as Rodrik (JEP, 2018) share this concern, arguing that modern trade agreements may empower the "wrong" special interests

This paper

- Main question: When governments are influenced by producer lobbies, how do trade agreements affect welfare?

- We take a formal look at this question, considering both shallow agreements, which deal only with trade policies, and deep agreements, which also cover domestic policies

- Our reference point is the canonical "trade wars and trade talks" model by Grossman and Helpman (1995), in which there is no political-economy rationale for trade agreements

- We put lobbying at the center of our analysis, ask if trade agreements are good for you, and show that it is crucial to distinguish between different types of deep integration

Main message

- International negotiations are good for you if they *dilute* the influence of lobbies, and bad for you if they *intensify* the influence of lobbies, relative to the non-cooperative equilibrium

- This depends on whether the interests of lobbies are in conflict or aligned internationally, because this determines whether negotiations induce *counter-lobbying* or *co-lobbying*

- And this, in turn, depends on the nature of the policy in question and the underlying economic structure:
    - Tariffs: Counter-lobbying between producers in exporting and import-competing countries
    - Product standards: Co-lobbying since all producers prefer looser standards
    - Process standards: Counter-lobbying since producers want loose domestic but tight foreign standards

Related literature

- On shallow agreements:
  - Grossman and Helpman (1995a), Bagwell and Staiger (1999): export subsidies are used to help exporter lobbies, so the common counter-lobbying intuition does not apply
  - Levy (1999), Ludema and Mayda (2016), Nicita et al. (2018), Lazarevski (2018): absent export subsidies, exporters' lobbying affects cooperative tariff cuts
  - Grossman and Helpman (1995b), Ornelas (2005, 2008): welfare implications of regional agreements negotiated under political pressures
  - Domestic-commitment theory of Maggi and Rodriguez-Clare (1998, 2007), Maggi (2019): lobbying is key, but focus on different questions
- On deep agreements:
  - Not much has been said on the welfare impact of politically-pressured agreements
  - Canonical model: Bagwell-Staiger (2001) argue that deep agreements are not needed, it suffices to have a shallow agreement plus a trade-volume-preservation rule (e.g. GATT's "Non-Violation" rule)

    → Does not go very far in explaining real-world importance of deep agreements

Roadmap

- Shallow integration - tariffs only, no domestic distortions
- Deep integration - product standards only, local consumption externalities
- Deep integration - process standards only, local production externalities
- Extensions

Shallow integration - Setup

- Continuum of countries, $\mathcal{G}+1$ goods, labor and $\mathcal{G}$ specific factors, perfect competition, import tariffs but no export subsidies
- Consumers have quasi-linear preferences $U_i = c_{i0} + \sum_{g\in\mathcal{G}} u_g\left(c_{ig}\right)$ so that welfare can be written as $V_i = Y_i + \sum_{g\in\mathcal{G}} S_{ig}$
- Each good is produced from labor and one specific factor which earns returns π_{ig}. We normalize $p_{i0} = w_i \equiv 1$
- Tariff choices are distorted by lobbying pressures so we distinguish between a *positive* and a *normative* objective:

$$
\begin{aligned}
\Omega_i &= \sum_{g\in\mathcal{G}} \left[\left(1+\gamma_{ig}\right)\pi_{ig} + S_{ig} + R_{ig}\right] \\
W_i &= \sum_{g\in\mathcal{G}} \left(\pi_{ig} + S_{ig} + R_{ig}\right)
\end{aligned}
$$

Microfoundation

Proposition 1: *The equilibrium trade agreement lowers all import tariffs relative to noncooperative levels, provided the aggregate political power of exporters is strictly positive.*

- Import-competing interests push for tariffs in the non-cooperative equilibrium

$$\tau^N_{ig} = \frac{\gamma_{ig} y_{ig}}{-m'_{ig}}, \quad i \in \mathcal{M}_g$$

- They get counter-lobbied by export-oriented interests in the cooperative equilibrium

$$\tau^A_{ig} = \frac{\gamma_{ig} y_{ig}}{-m'_{ig}} - \frac{\int_{j\in\mathcal{X}_g} \gamma_{jg} y_{jg}}{\int_{j\in\mathcal{X}_g} x'_{jg}}, \quad i \in \mathcal{M}_g$$

- The aggregate world price externality is

$$\frac{\partial\Omega_g}{\partial p_g} = \underbrace{\int_{j\in\mathcal{M}_g} (\gamma_{jg} y_{jg} + \tau_{jg} m'_{jg})}_{=0 \text{ at } \tau^N_{jg}} + \int_{j\in\mathcal{X}_g} \gamma_{jg} y_{jg}$$

Export subsidies
Assumption 1

Shallow integration - Is it good for you?

Proposition 2: *The equilibrium trade agreement improves global welfare relative to the noncooperative equilibrium, provided the agreement does not entail large import subsidies.*

- A shallow agreement is good for you because it dilutes the influence of lobbies relative to the non-cooperative equilibrium
- Import-competing and export-oriented industries have opposing interests so that the agreement induces counter-lobbying
- This provides a realist perspective on the historic achievements of the GATT, which emphasizes special interest politics

- For each good, there is a continuum of varieties $e_g \in \mathbb{R}_+$ causing local consumption externalities $-a_{ig} e_g d_{ig}$. For concreteness, think of local pollution generated by cars
- Governments impose non-discriminatory product standards $e_{ig} \in \mathbb{R}_+$ in response to these externalities in the sense of only permitting the consumption of varieties $e_g \leq e_{ig}$
- Producers have to incur a unit abatement cost $\frac{1}{e_g}$ to produce variety e_g. Consumers view all varieties as perfect substitutes. As a result, standards are always binding in equilibrium
- To make our point as clearly as possible, we take shallow integration as given, so that world prices are determined by

$$\int_i y_{ig}(p_g) = \int_i d_{ig}\left(p_g + \frac{1}{e_{ig}}\right)$$

Proposition 3: *The equilibrium agreement loosens all product standards.*

- Producer lobbies have no influence on non-cooperative standards

$$e_{ig}^{N}=-\frac{\sigma_{ig}}{2}+\sqrt{\left(\frac{\sigma_{ig}}{2}\right)^{2}+\frac{1}{a_{ig}}}$$

- They jointly push for looser standards in the cooperative equilibrium

$$e_{ig}^{A}=-\frac{\sigma_{ig}}{2}+\sqrt{\left(\frac{\sigma_{ig}}{2}\right)^{2}+\frac{1}{a_{ig}}+\frac{\int_{j}\left(\gamma_{jg}y_{jg}-a_{jg}e_{jg}^{A}d'_{jg}\right)}{\int_{j}\left(y'_{jg}-d'_{jg}\right)}\frac{\sigma_{ig}}{a_{ig}}}$$

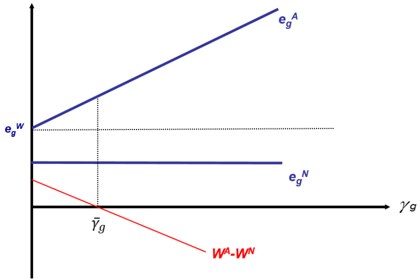
- The aggregate world price externality is

$$\frac{\partial\Omega_{g}}{\partial p_{g}}=\int_{j}\left(\gamma_{jg}y_{jg}-a_{jg}e_{jg}d'_{jg}\right)>0$$

Assumption 2

Deep integration - Product standards - Is it good for you?

Proposition 4: *Cooperation on product standards increases global welfare if γ_g is sufficiently low, and decreases global welfare if γ_g is sufficiently high.*



Intuition: Producers have a common interest in loosening product standards to drive up the world price. At the same time, Nash standards are too tight since countries ignore the environmental world price externality

Consumption taxes

Deep integration - Production regulation - Setup

- There is a continuum of production technologies $z_g \in \mathbb{R}_+$ causing local production externalities $-b_{ig} z_g y_{ig}$. For concreteness, think of local pollution generated by a factory
- Governments impose process standards $z_{ig} \in \mathbb{R}_+$ in response to these externalities in the sense of only permitting the production of varieties $z_g \leq z_{ig}$
- Producers have to incur a unit abatement cost $\frac{1}{z_g}$ to produce variety z_g. Consumers view all varieties as perfect substitutes. As a result, standards are always binding in equilibrium
- We again take shallow integration as given and return to the case without consumption externalities so that world prices are determined by

$$\int_i y_{ig} \left(p_g - \frac{1}{z_{ig}} \right) = \int_i d_{ig} \left(p_g \right)$$

Deep integration - Production regulation - Trade agreement

Proposition 5: *The equilibrium agreement loosens all process standards if the political power of producers is sufficiently weak and tightens all process standards if the political power of producers is sufficiently strong.*

- Domestic producer interests push for loose standards in the non-cooperative equilibrium

$$z_{ig}^N = -\frac{\varepsilon_{ig}}{2} + \sqrt{\left(\frac{\varepsilon_{ig}}{2}\right)^2 + \frac{1+\gamma_{ig}}{b_{ig}}}$$

- They get counterbalanced by foreign producer interests in the cooperative equilibrium

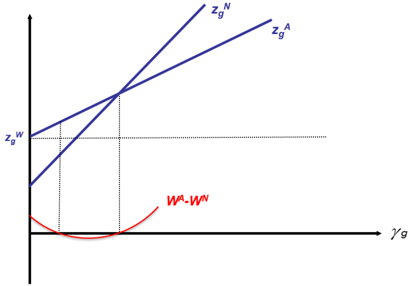
$$z_{ig}^A = -\frac{\varepsilon_{ig}}{2} + \sqrt{\left(\frac{\varepsilon_{ig}}{2}\right)^2 + \frac{1+\gamma_{ig}}{b_{ig}} - \frac{\int_j \left(\gamma_{jg} y_{jg} - b_{jg} z_{jg}^A y'_{jg}\right)}{\int_j \left(y'_{jg} - d'_{jg}\right)} \frac{\varepsilon_{ig}}{b_{ig}}}$$

- The aggregate world price externality is

$$\frac{\partial \Omega_g}{\partial p_g} = \int_j \left(\gamma_{jg} y_{jg} - b_{jg} z_{jg} y'_{jg}\right) \lesseqgtr 0$$

Assumption 3

Proposition 6: *Cooperation on process standards increases global welfare if γ_g is sufficiently low or sufficiently high, and may decrease global welfare for intermediate values of γ_g.*



Intuition: Producers have conflicting interests regarding process standards, wanting a loosening of domestic standards (to reduce costs) but a tightening of foreign standards (to increase the world price). At the same time, Nash standards are too tight since countries ignore the environmental world price externality

▸ Production taxes

Deep integration - Integrated model - Setup

- We now consider an integrated model of deep integration featuring simultaneous negotiations over product standards and process standards
- This integrated model simply merges the setups of the previous two models, allowing for a continuum of varieties and a continuum of technologies
- Our main objective is to explore the robustness of our earlier findings, which were derived in special cases of this more comprehensive environment
- Our main point is that taking into account the interaction between product and process standards does not change the essence of our earlier results

Deep integration - Integrated model - Trade agreement

Proposition 7: *Suppose the political power of producers is sufficiently strong. Then the equilibrium agreement loosens all product standards and tightens all process standards.*

- The formulas for non-cooperative standards are completely unchanged

$$e_{ig}^{N} = -\frac{\sigma_{ig}}{2} + \sqrt{\left(\frac{\sigma_{ig}}{2}\right)^2 + \frac{1}{a_{ig}}}$$

$$z_{ig}^{N} = -\frac{\varepsilon_{ig}}{2} + \sqrt{\left(\frac{\varepsilon_{ig}}{2}\right)^2 + \frac{1+\gamma_{ig}}{b_{ig}}}$$

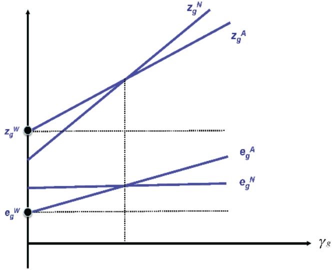
- The formulas for cooperative standards now have a common multiplier

$$e_{ig}^{A} = -\frac{\sigma_{ig}}{2} + \sqrt{\left(\frac{\sigma_{ig}}{2}\right)^2 + \frac{1}{a_{ig}} + \frac{\int_j \left(\gamma_{jg} y_{jg} - a_{jg} e_{jg}^{A} d'_{jg} - b_{jg} z_{jg}^{A} y'_{jg}\right)}{\int_j \left(y'_{jg} - d'_{jg}\right)} \frac{\sigma_{ig}}{a_{ig}}}$$

$$z_{ig}^{A} = -\frac{\varepsilon_{ig}}{2} + \sqrt{\left(\frac{\varepsilon_{ig}}{2}\right)^2 + \frac{1+\gamma_{ig}}{b_{ig}} - \frac{\int_j \left(\gamma_{jg} y_{jg} - a_{jg} e_{jg}^{A} d'_{jg} - b_{jg} z_{jg}^{A} y'_{jg}\right)}{\int_j \left(y'_{jg} - d'_{jg}\right)} \frac{\varepsilon_{ig}}{b_{ig}}}$$

→ The only difference is that the agreement may now tighten product standards or not loosen process standards for low γ_g due to the common multiplier

Proposition 8. *Suppose the political power of producers is sufficiently strong. Then a deep agreement on product and process standards increases global welfare if the local consumption externality is sufficiently small, and decreases global welfare if the local production externality is sufficiently small.*



Note: The left interval of γ_g is non-empty (the e and z schedules cross for some $\gamma_g > 0$) if a_g is sufficiently small

Extension - Foreign ownership

- Our framework can be easily extended to analyze the co-lobbying and counter-lobbying arising in richer economic environments
- As an illustrative example, we now consider the case of international ownership linkages (brought about, for example, through FDI)
- We assume that country i owns a share θ_{ijg} of the good-g specific factor in country j so that a share θ_{ijg} of country j's producer surplus π_{jg} accrues to country i
- We develop this extension in the context of our integrated model of deep integration to avoid a large taxonomy of cases

Extension - Foreign ownership - Results

- The non-cooperative standards are

$$e_{ig}^{N} = -\frac{\sigma_{ig}}{2} + \sqrt{\left(\frac{\sigma_{ig}}{2}\right)^2 + \frac{1}{a_{ig}}}$$

$$z_{ig}^{N} = -\frac{\varepsilon_{ig}}{2} + \sqrt{\left(\frac{\varepsilon_{ig}}{2}\right)^2 + \frac{\theta_{iig}\left(1+\gamma_{ig}\right)}{b_{ig}}}$$

- The cooperative standards are

$$e_{ig}^{A} = -\frac{\sigma_{ig}}{2} + \sqrt{\left(\frac{\sigma_{ig}}{2}\right)^2 + \frac{1}{a_{ig}} + \frac{\int_j \left(\int_i \gamma_{ig}\theta_{ijg} y_{jg} - a_{jg} e_{jg}^{A} d'_{jg} - b_{jg} z_{jg}^{A} y'_{jg}\right)}{\int_j \left(y'_{jg} - d'_{jg}\right)} \frac{\sigma_{ig}}{a_{ig}}}$$

$$z_{ig}^{A} = -\frac{\varepsilon_{ig}}{2} + \sqrt{\left(\frac{\varepsilon_{ig}}{2}\right)^2 + \frac{\int_j \left(1+\gamma_{jg}\right)\theta_{jig}}{b_{ig}} - \frac{\int_j \left(\int_i \gamma_{ig}\theta_{ijg} y_{jg} - a_{jg} e_{jg}^{A} d'_{jg} - b_{jg} z_{jg}^{A} y'_{jg}\right)}{\int_j \left(y'_{jg} - d'_{jg}\right)} \frac{\varepsilon_{ig}}{b_{ig}}}$$

→ If $\gamma_{ig} = \gamma_g$ for all i, the only effect of foreign ownership is to reduce the effect of producer lobbies on z_{ig}^{N}. Similar to Blanchard (2010).

Concluding remarks

- International negotiations are good for you if they dilute the influence of lobbies, and bad for you if they intensify the influence of lobbies, relative to the non-cooperative equilibrium
- This depends on whether the interests of lobbies are in conflict or aligned internationally, because this determines whether negotiations induce counter-lobbying or co-lobbying
- And this, in turn, depends on the nature of the policy in question and the underlying economic structure. Shallow integration is good for you but deep integration can be bad for you

Thank you!

Grossman-Helpman "Protection for Sale"

- Recall that welfare is given by $V_i = L_i + \sum_{g \in \mathcal{G}} (\pi_{ig} + S_{ig} + R_{ig})$ and assume the objectives of the government and the lobbies are given by:

$$\begin{aligned} U_i^G &= a_i V_i + C_i \\ U_{ig}^L &= \pi_{ig} + \alpha_{ig} \left[L_i + \sum_{g \in \mathcal{G}} (S_{ig} + R_{ig}) \right] - C_{ig} \end{aligned}$$

- Assuming efficient bargaining between government and lobbies, trade policy choices are made according to the following objective function:

$$\begin{aligned} \Omega_i &= U_i^G + \sum_{g \in \mathcal{G}} I_{ig} U_{ig}^L \\ \Omega_i &= (a_i + \alpha_i) \left[L_i + \sum_{g \in \mathcal{G}} \left(\frac{a_i + I_{ig}}{a_i + \alpha_i} \pi_{ig} + S_{ig} + R_{ig} \right) \right] \\ \Omega_i &\propto \sum_{g \in \mathcal{G}} \left(\frac{a_i + I_{ig}}{a_i + \alpha_i} \pi_{ig} + S_{ig} + R_{ig} \right) \end{aligned}$$

- This yields our positive objective upon defining $\gamma_{ig} \equiv \frac{I_{ig} - \alpha_i^L}{a_i + \alpha_i^L}$

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Shallow integration - Export subsidies

Proposition: *If governments had costless access to a complete set of trade policy instruments, the non-cooperative policies would be efficient, so there would be no scope for a trade agreement.*

- The non-cooperative policies are

$$\begin{aligned} \tau_{ig}^N &= \frac{\gamma_{ig} y_{ig}}{-m'_{ig}}, \quad i \in \mathcal{M}_g \\ \tau_{ig}^N &= \frac{\gamma_{ig} y_{ig}}{x'_{ig}}, \quad i \in \mathcal{X}_g \end{aligned}$$

- The aggregate world price externality is

$$\frac{\partial \Omega_g}{\partial p_g} = \underbrace{\int_{j \in \mathcal{M}_g} (\gamma_{jg} y_{jg} + \tau_{jg} m'_{jg})}_{=0 \text{ at } \tau_{jg}^N} + \underbrace{\int_{j \in \mathcal{X}_g} (\gamma_{jg} y_{jg} - \tau_{jg} x'_{jg})}_{=0 \text{ at } \tau_{jg}^N}$$

▸ Back

Proposition: *(i) If product standards are supplemented with consumption taxes, the non-cooperative equilibrium replicates the Pigouvian optimum. (ii) The equilibrium trade agreement then reduces global welfare relative to the non-cooperative equilibrium, regardless of the governments' political motivations.*

- The non-cooperative policies are

$$
\begin{aligned}
t_{ig}^{c,N} &= \sqrt{a_{ig}} \\
e_{ig}^{N} &= \frac{1}{\sqrt{a_{ig}}}
\end{aligned}
$$

- The cooperative policies are

$$
\begin{aligned}
t_{ig}^{c,A} &= \sqrt{a_{ig}} - \frac{\int_j \gamma_{jg} y_{jg}}{\int_j y'_{jg}} \\
e_{ig}^{A} &= \frac{1}{\sqrt{a_{ig}}}
\end{aligned}
$$

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Proposition: (i) *If process standards are supplemented with production taxes, the equilibrium trade agreement weakly tightens production regulations and weakly increases production taxes relative to the non-cooperative equilibrium. (ii) The equilibrium trade agreement weakly increases global welfare if the political power of producers is sufficiently similar across countries.*

- The non-cooperative policies are

$$
\begin{aligned}
t_{ig}^{p,N} &= \left(\sqrt{b_{ig}} - \frac{\gamma_{ig} y_{ig}}{y'_{ig}}\right)^{+} \\
z_{ig}^{N} &= \left(\sqrt{b_{ig}}\right)^{-1}, \quad i \notin \mathcal{C}_g \\
z_{ig}^{N} &> \left(\sqrt{b_{ig}}\right)^{-1}, \quad i \in \mathcal{C}_g
\end{aligned}
$$

- The cooperative policies are

$$
\begin{aligned}
t_{ig}^{p,A} &= \left(\sqrt{b_{ig}} - \frac{\gamma_{ig} y_{ig}}{y'_{ig}} + \frac{\int_{j\in\mathcal{C}_g} y'_{jg}\left(\frac{\gamma_{jg} y_{jg}}{y'_{jg}} - b_{jg} e_{jg}\right)}{\int_{j\in\mathcal{C}_g} y'_{jg} - \int_j d'_g}\right)^{+} \\
z_{ig}^{A} &= \left(\sqrt{b_{ig}}\right)^{-1}, \quad i \notin \mathcal{C}_g \\
z_{ig}^{A} &> \left(\sqrt{b_{ig}}\right)^{-1}, \quad i \in \mathcal{C}_g
\end{aligned}
$$

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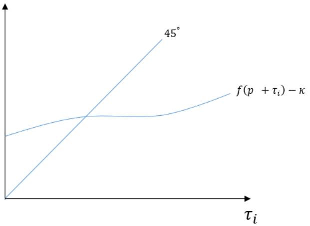
Assumption 1: There exists a unique solution in $\{\tau_{ig}\}_{i\in\mathcal{M}_g}$ and p_g to the system (1) and (2) for any $\kappa_g \in \left[0, \lambda_g^A\right]$, where:

$$\tau_{ig} = f_{ig}\left(p_g + \tau_{ig}\right) - \kappa_g, \quad i \in \mathcal{M}_g \tag{1}$$

$$\int_{i\in\mathcal{M}_g} m_{ig}\left(p_g + \tau_{ig}\right) = \int_{i\in\mathcal{X}_g} x_{ig}\left(p_g\right) \tag{2}$$

$$f_{ig}\left(.\right) \equiv \frac{\gamma_{ig} y_{ig}\left(.\right)}{-m'_{ig}\left(.\right)}$$



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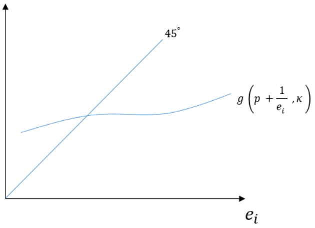
Assumption 2

Assumption 2: There exists a unique solution in $\{e_{ig}\}$ and p_g to the system (3) and (4) for any $\kappa_g \in \left[0, \lambda_g^A\right]$, where

$$e_{ig} = g_{ig}\left(p_g + \frac{1}{e_{ig}}, \kappa_g\right) \tag{3}$$

$$\int_i y_{ig}\left(p_g\right) = \int_i d_{ig}\left(p_g + \frac{1}{e_{ig}}\right) \tag{4}$$



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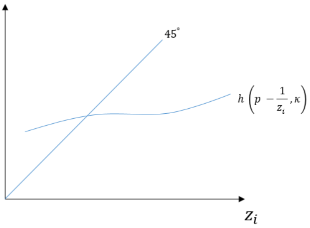
Assumption 3

Assumption 3: There exists a unique solution in $\{z_{ig}\}$ and p_g to the system (5) and (6) for any $\kappa_g \in \left[0, \lambda_g^A\right]$, where

$$z_{ig} = h_{ig}\left(p_g - \frac{1}{z_{ig}}, \kappa_g\right) \quad \text{for all } i \tag{5}$$

$$\int_i y_{ig}\left(p_g - \frac{1}{z_{ig}}\right) = \int_i d_{ig}\left(p_g\right) \tag{6}$$

$$h_{ig}\left(., \kappa_g\right) \equiv -\frac{\varepsilon_{ig}\left(.\right)}{2} + \sqrt{\left[\frac{\varepsilon_{ig}\left(.\right)}{2}\right]^2 + \frac{1}{b_{ig}}\left[1 + \gamma_{ig} - \kappa_g \varepsilon_{ig}\left(.\right)\right]}$$



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