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Can Licensing Induce Productivity?  
Exploring the IPR Effect

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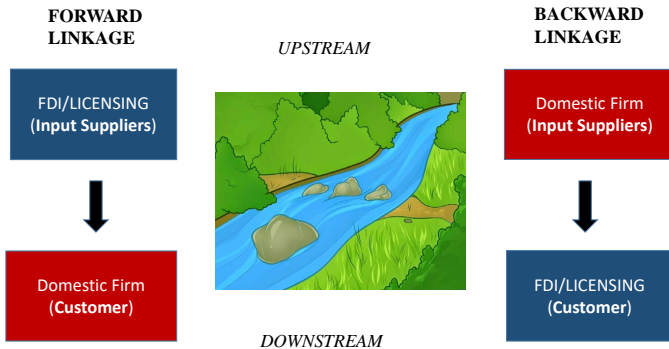
### **Spillovers** from Technology Transfers

Builds on:

- ▶ Work on FDI (e.g., Javorcik 2004, ...)
- ▶ Work on Licensing (e.g., Lopez 2008, ...)

### Niche

Intellectual Property Rights as mediator, using Chilean Firm Level Data



- ① IPR can *facilitate* spillovers via forward linkages
- ② IPR can *reduce* spillovers through backward linkages
  - ▶ Especially for firms with lower productivity

### Prior concerns:

- Licensing activity small relative to FDI, Trade
- Role of Exclusive Licensing
- Linkages need not imply spillovers, nor do licensing (compensated) transactions imply no (uncompensated) spillovers
- Effect of IPR x Licensing interaction on TFP
  - ▶ vs. Indirect effect of IPR on TFP via Licensing

Focus on **firm i** in **sector j**, and spillovers from licensing activities in **sectors k ≠ j**

$$\begin{aligned}\log(TFP_{ijrt}) = & \beta_1 H_{jt} + \beta_4 (H_{jt} \times IPR_t) + \\ & \beta_2 B_{jt} + \beta_5 (B_{jt} \times IPR_t) + \\ & \beta_3 F_{jt} + \beta_6 (F_{jt} \times IPR_t) + \dots\end{aligned}$$

where  $H_{jt} = \frac{\sum_{i \in j} L_{ijt}}{\sum_{i \in j} S_{ijt}}$ ,  $B_{jt} = \sum_{k, k \neq j} \alpha_{jk} H_{kt}$ , and  $F_{jt} = \sum_{k, k \neq j} \sigma_{jk} H_{kt}$

- ▶ *IPR* acts as a *toll* or *gatekeeper* in this specification
- ▶  $L_{ijt}$ ,  $L_{ikt}$  – and hence  $H_{jt}$ ,  $B_{jt}$ , and  $F_{jt}$  – may be functions of  $IPR_t$
- ▶ What is impact of licensing on productivity? i.e.,  
 $\log(TFP_{ijrt}) = \phi \log(L_{ijt}) + \dots$
- ▶ Why deflate by sales,  $S$ ?

- ▶ Need to learn more about  $L$ . Payment for? Use of intangible asset in production? Right to sell and distribute output? Input-output coefficients  $\alpha_{jk}$  and  $\sigma_{jk}$  do not provide that information.  $H_{kt}$  measures the volume licensing payments in sector  $k$ .
- ▶ IP rights could facilitate technology diffusion (create trade that would not otherwise occur) – unless what was once a (legitimate) free use becomes one which requires permission or a contract.
- ▶ Lesson seems to indicate that incentives differ whether the licensor provides **inputs** or **outputs**.
- ▶ More anecdotes needed ...