



COMMENT ON:
DELOITTE REPORT ON THE FUTURE OF
PRODUCTIVITY

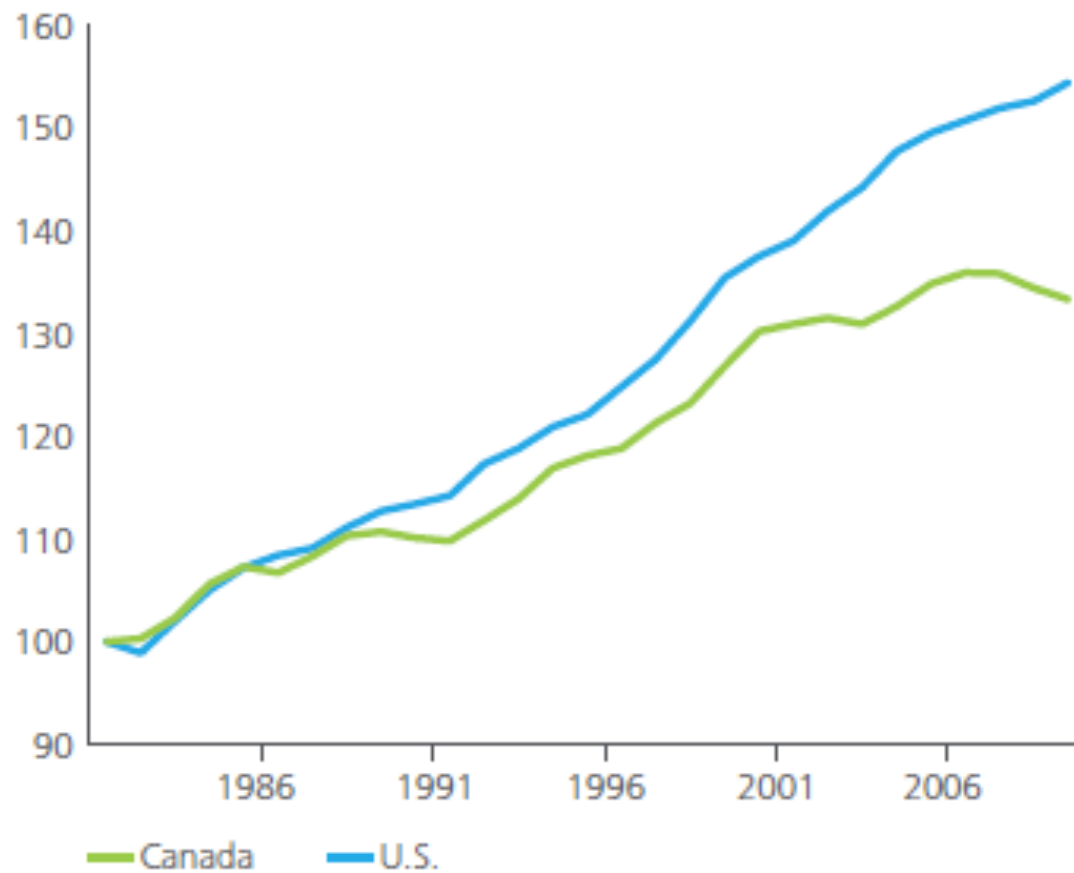
Ajay Agrawal
University of Toronto and NBER
November 1, 2012, Ottawa

MOTIVATION



FIGURE 38

Canada and U.S. GDP per worker,
indexed to 1981



1-2 PUNCH

- #1. Rule out two common explanations
 - Not the size distribution
 - Not the sector composition
- #2. Propose alternate explanation
 - Productivity = $f(\text{growth})$
 - “Growth: the deceptively simple solution”

PRODUCTIVITY=F(GROWTH)

- “A detailed survey of US firms from 1998 to 2008 explored characteristics of companies showing rapid growth in both revenue and employment. The study concluded that these firms demonstrated extremely strong growth in revenue per employee - a proxy for firm level productivity - when compared to all other firms. In other words, intuitive recognition that successful, rapidly growing firms drive high productivity is supported by the data.”

SKewed DISTRIBUTION

- “From 2001 to 2006, 43% of all new private sector jobs came from the 5% of firms with the fastest employment growth rates.”

COMPOSITION

- High growth firms seem reasonably evenly distributed across sectors
- However, disproportionate fraction of high growth in early years and then less in later years

REFLECTION

- How confident can we be that growth drives productivity?
- How does this view advance our understanding?

REVERSE CAUSALITY?

- Perhaps firms are high growth because they are highly productive; in other words, high productivity causes high growth, rather than the other way around

UNDERLYING MECHANISMS?

- Unobservables cause both productivity and growth:
 - Management quality
 - Bloom and Van Reenen (QJE, 2007); Bertrand, Marianne, Schoar (QJE, 2003)
 - Investment in IT
 - Hubbard (AER, 2003); Bartel, Ichniowski, and Shaw (QJE, 2007)
 - Learning by Doing
 - Benkard (AER, 2000); Thornton and Thompson (AER, 2001)
 - Innovation
 - Letnz, Mortensen (Econometrica, 2008); Balasubramanian, Sivadasan (ReStat, 2011)
 - Firm Structure
 - Forbes and Lederman (Rand, 2011); Maksimovic and Phillips (JoF, 2002)

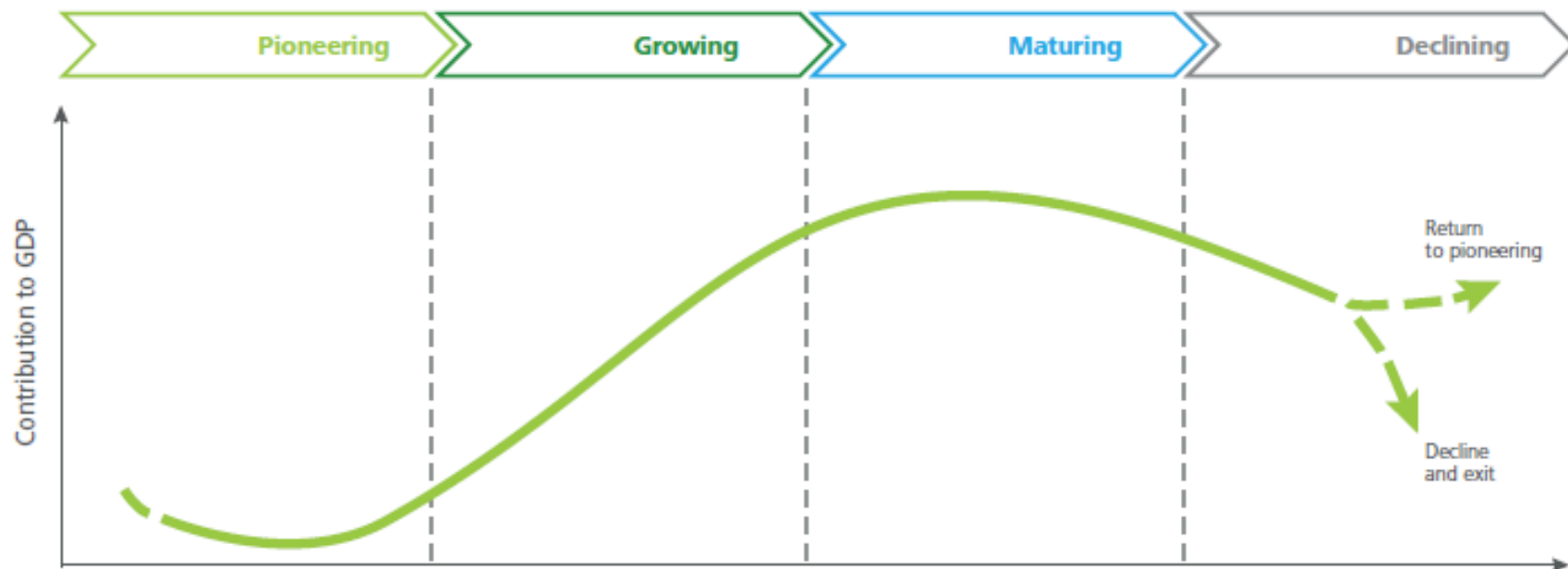
EXAMINE THE GROWTH HYPOTHESIS

- Thought experiment
 - Large sample of firms, randomly “treat” subsample with growth, measure productivity difference between treated and untreated firms before and after treatment
- Initial step
 - Is the distribution of firm growth rates in the US changing relative to those in Canada? (e.g., ratio of high to low growth rates increasing faster in the US)
 - If the distribution of firm growth rates in the US has not changed relative to that in Canada over the period 1981-2011, then should we reject the growth hypothesis?

INSIGHT

- How does the growth hypothesis advance our understanding?
- Are policy implications more obvious if productivity is indeed driven by growth?

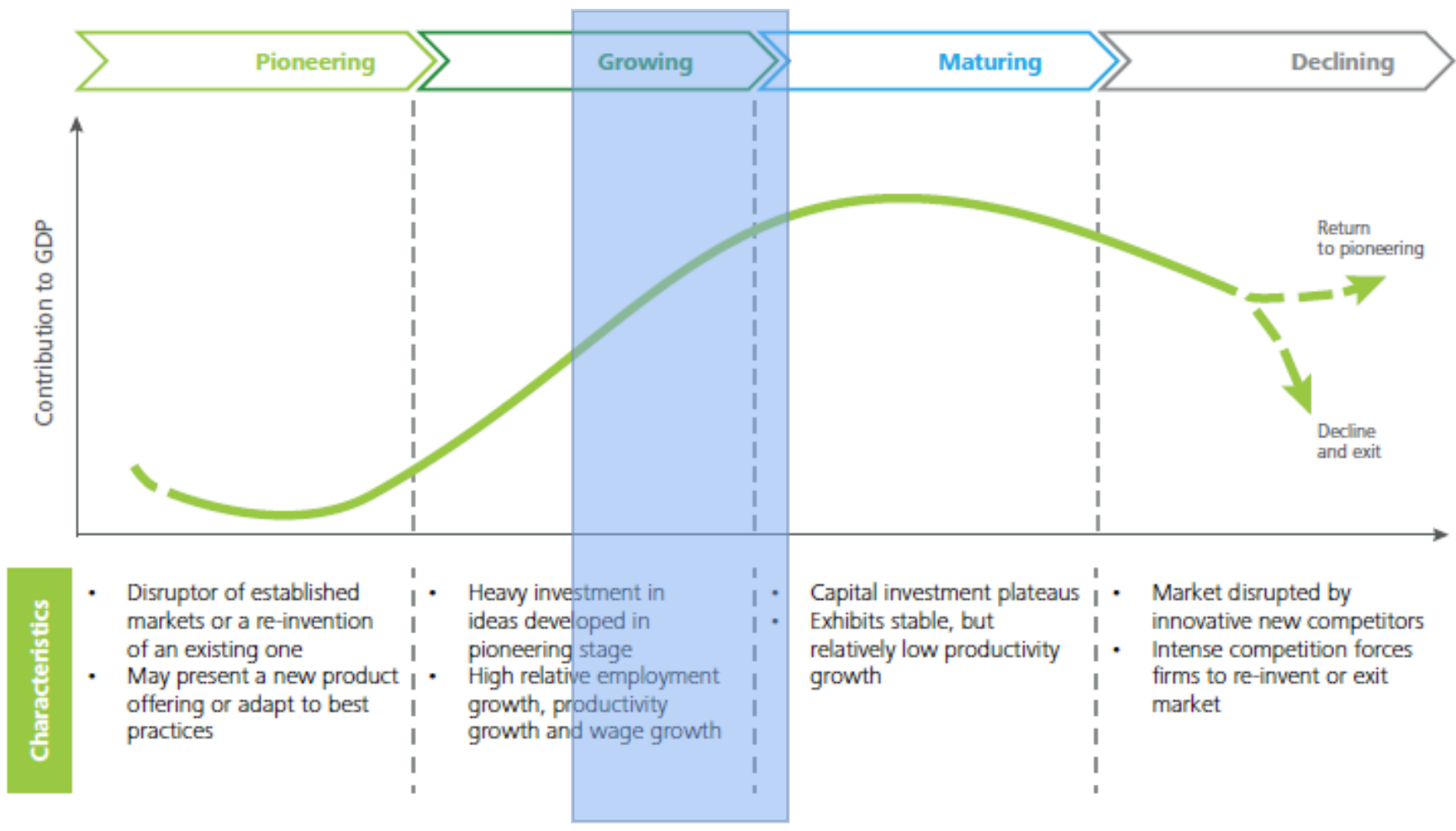
Figure 36 Traditional business lifecycle



Characteristics

- | | | | |
|--|---|--|--|
| <ul style="list-style-type: none"> • Disruptor of established markets or a re-invention of an existing one • May present a new product offering or adapt to best practices | <ul style="list-style-type: none"> • Heavy investment in ideas developed in pioneering stage • High relative employment growth, productivity growth and wage growth | <ul style="list-style-type: none"> • Capital investment plateaus • Exhibits stable, but relatively low productivity growth | <ul style="list-style-type: none"> • Market disrupted by innovative new competitors • Intense competition forces firms to re-invent or exit market |
|--|---|--|--|

Figure 36 Traditional business lifecycle



HYPOTHESIS

- Management skills and learning-by-doing:
 - Canada has a disproportionate shortage of a particular type of management skills: CEO/managers who “know how to scale”
 - This skill is acquired by learning-by-doing; CEOs/managers scale a company and then some fraction move to other firms and carry that skill with them
 - Path dependence: countries that fall behind, in terms of ratio of companies that scale to those that don't, have fewer managers who learn how to scale, which leads to an increasing deficit in companies that scale
- E.g., RIM=>Desire2Learn, Workbrain=>Rypple, D-Wave

DELOITTE'S THREE HYPOTHESES

- “Before we introduce our recommendations, we’ll explore three hypotheses that attempt to explain why these businesses lose their momentum.”
- Risk aversion
 - Survey of 450 Canadian and 452 US business leaders from small, medium, and large firms; Canadian business leaders are more risk adverse
- Low R&D spending
 - Canadian firms invest less in R&D as a percentage of GDP relative to other OECD countries; more pronounced among established firms
- Low propensity to export
 - OECD data shows that Canadian firms have very poor export intensity compared to their counterparts in advanced economies
 - Greater export intensity => greater exposure to competition

GROWTH CAPITAL

- “Early stage businesses in Canada can [did] secure only 35% of the funding available [?] to American startups (as a percentage of GDP) and 17% of the funding allocated to Israeli start-ups.”
- Supply or demand?
 - CIBC survey => 57% Canadian small business owners interested in lifestyle
 - Kauffman survey => 75% American entrepreneurs interested in wealth creation
 - “Interviews... suggest that while the lifestyle effect has put some downward pressure on demand for capital, there are also significant number of underserved [?] firms.”

RECOMMENDATIONS FOR BUSINESS

- Recommendations:
 - Build national and international businesses
 - Leverage new capital equipment
 - Invest in meeting talent needs
 - Create more clusters
 - Invest and reinvent
- Evidence of significant variation in productivity across firms within industries
- Why aren't profit-maximizing businesses doing the optimal level of these activities already?
 - Managers: 1) don't know they should do this, 2) know they should, but don't know how, 3) know they should and know how, but don't have the incentive to do this

RECOMMENDATIONS FOR GOVERNMENT

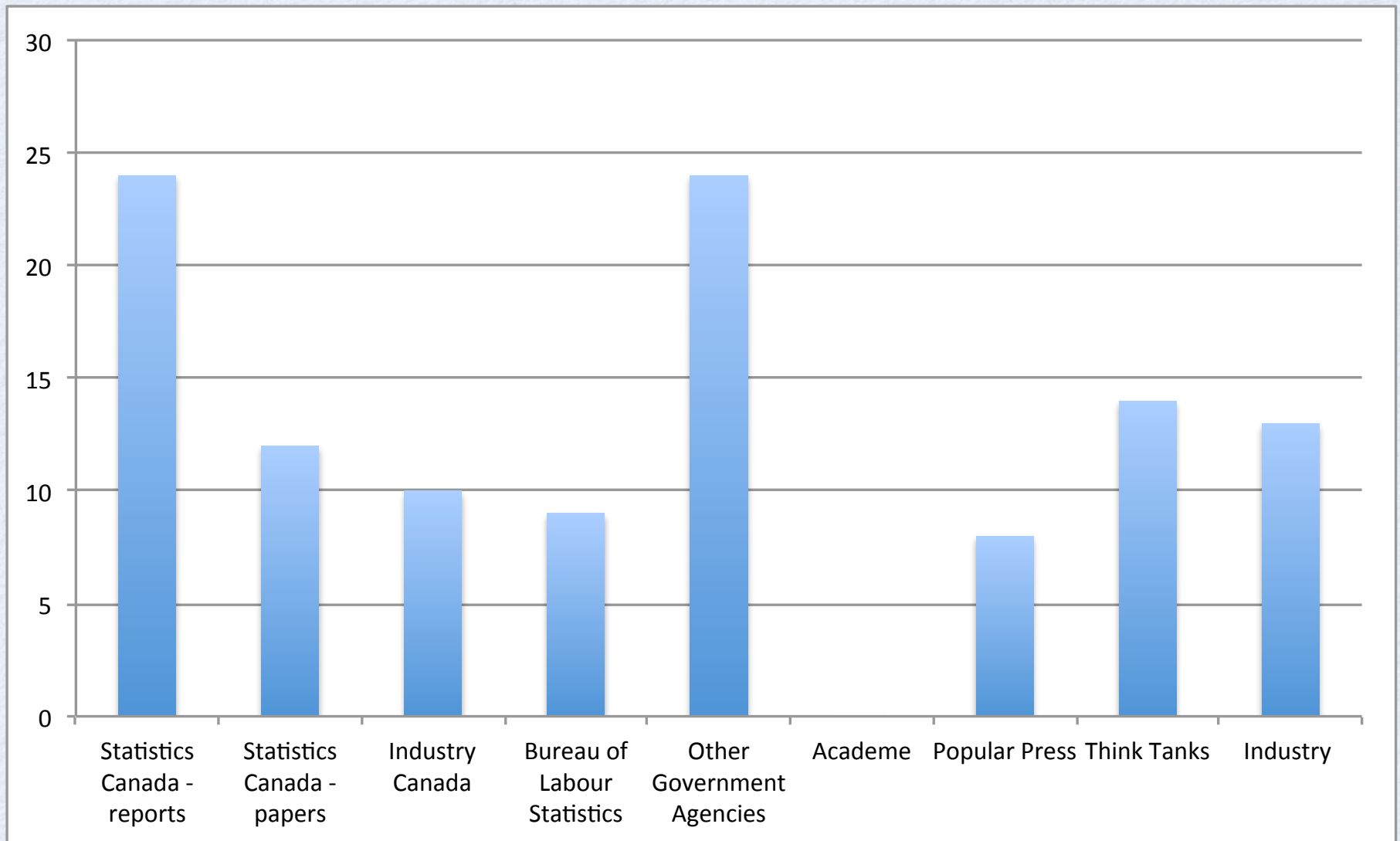
- Encourage foreign direct investment
- Continue to improve Canada's immigration system
- Provide incentives for growing, rather than being small
- Expand trade inflows and outflows
- Foster fact-based decision making***

RECOMMENDATIONS FOR ACADEMIA

- Technology transfer
 - TLOs should build relationships with academics, particularly in the applied sciences
 - Rapidly pursue patents and IP rights
 - TLOs should act as a guide and first point of collaboration for interactions between universities and business
- Curriculum to support productivity
 - Programs tailored to address specific labour market needs
 - Interdisciplinary programs

ACADEME'S COMMUNICATION FAILURE?

Citation Count



BRIDGE FORWARD

- Data
 - Common data, such as the recent Statistics Canada initiative, may help bridge the interests of government agencies, think tanks, and academe
- Social, incentives
 - Events and publications to bridge between “relevant” versus “right”
 - e.g., NBER Innovation Policy and the Economy volumes (National Press Club in Washington)
 - This event today



THANKYOU