Results of the 2009 Survey of Innovation Activities (SIA)

Jose Ramon Albert, Rafaelita Aldaba, Francis Quimba & Donald Yasay
Philippine Institute for Development Studies
Agenda

• Introduction: Innovation, 2009 Survey on Innovation Activities

• Main Results
  – Key Statistics, Public Support, Innovation Expenditures, Innovation Across Areas
  – Determinants of Innovation
  – Barriers to Innovation
  – Effects of Innovation
  – Sources of Information & Cooperation

• Policy Issues & Summary of Findings
1. Innovation

• major driver of economic output, productivity and competitiveness

• often connoted with R&D, and thus, traditionally its measurement focused on scientific or technological outputs.

• wider sense: “the **application of (new) knowledge in production to increase value (customer or producer sense)**”
  – implementation of new or significantly improved products or processes, or new marketing or organizational methods
1.1. Measuring Innovation

- The first Innovation survey in PH conducted in 1998 for selected number of industries located in Metro Manila
  - Results published by the Philippine Institute of Development Studies (PIDS) in 1999
  - “PRIVATE SECTOR RESEARCH AND DEVELOPMENT ACTIVITIES” written by Dr. Tristan Macapanpan
  - Survey questionnaire adopted from 1994 Malaysian Survey of Innovation in Industry conducted by MASTIC.
1.2. 2009 Survey of Innovation Activities

- Conducted by the Department of Science & Technology (DOST), the National Statistics Office (NSO) with support from International Development Research Centre (IDRC)
- Analysis of survey results by PIDS & local experts
- Objectives of 2009 SIA:
  - Describe innovation (and establish benchmark)
    - Processes involved
    - Expenditures
    - Types of firms perform innovation
  - Describe barriers and bottlenecks to Innovation
    - Enabling environment
  - Characterize support given to innovation
1.2. 2009 Survey of Innovation Activities


• Three items from the survey instrument designed under the New Partnership for Africa’s Development (NEPAD) also included

• Contextualized to the Philippine setting and used the reference period, January 2009 to June 2010.
1.2. 2009 Survey of Innovation Activities

Selected Pilot Survey Areas
(500 sample respondents)

- Quezon City
- Cavite and Laguna Area
- Cebu Area
- Davao City
1.3. Profile of Establishments

- 474 responding establishments (effective response rate of 94%)

<table>
<thead>
<tr>
<th>AREA</th>
<th>MAJOR SECTOR</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Food Manufacturing</td>
<td>Electronics Manufacturing</td>
<td>IT</td>
<td>All Sectors</td>
<td></td>
</tr>
<tr>
<td>Cebu</td>
<td>71</td>
<td>6</td>
<td>52</td>
<td>129</td>
<td></td>
</tr>
<tr>
<td>Davao</td>
<td>35</td>
<td>0</td>
<td>10</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>Quezon City</td>
<td>75</td>
<td>6</td>
<td>82</td>
<td>163</td>
<td></td>
</tr>
<tr>
<td>PEZA</td>
<td>10</td>
<td>30</td>
<td>97</td>
<td>137</td>
<td></td>
</tr>
<tr>
<td>All Areas</td>
<td>191</td>
<td>42</td>
<td>241</td>
<td>474</td>
<td></td>
</tr>
</tbody>
</table>
1.3.1. Profile of Establishments: Size

- About 2 in 5 firms are large firms; the rest are nearly uniformly micro, small, and medium firms.
1.3.2. Profile of Establishments: Markets

About half of firms have local markets, a third have national markets, nearly 15% have markets in other ASEAN countries; a third have markets in countries outside ASEAN.
1.4. Innovation: Operational Definition

1. **Product innovation**: new or significantly improved good/service: wireless connectivity in laptop, cameras in cellphones, hybrid engines in autos, flatscreen plasma displays

2. **Process innovation**: production process, distribution method or support activity for goods/service: Toyota’s Kanban manufacturing process; booking tickets online; using barcodes, scanners & internet in logistics

3. Expenditure on Innovation Activity

4. Engaged in Abandoned or Ongoing Innovation Activities

Wider Forms of Innovation

- Organizational innovation
- Marketing innovation
2.1. Key Statistics on Innovation

• More than half (54%) of firms are innovation active
  – About 2/3 of medium and large establishments are innovation active, as compared to a third for micro-establishments, and half for small establishments.
  – About 2 in 5 establishments were product innovators; Similar rate (44 per cent) of process innovators
2.1.1. Public Support for Innovation

• Only one in twenty firms mentioned public support for their innovations (the rate highest among medium-sized firms).

• For wider forms of innovation, that include marketing innovation, about one in five had some form of government support.
  – A bigger share of medium sized firms report government support for marketing innovation than small and micro establishments.
2.1.2. Innovation Expenditure

• Average annual expenditures in innovation rise with the size of establishments.
  – Micro firms 50 K PHP
  – Small and Medium establishments 3 M PHP
  – Large firms 30 M PHP

• Average expenditures in innovation activities are highest for electronics manufacturing at 25 M PHP, in contrast to food manufacturing (2.7 M PHP)
2.1.2.1. Innovation Expenditure by Firm Size

- Most investment in training, hard & software
2.1.3. Innovation in Study Areas

• Establishments in the PEZA zone lead in innovation activity, with an average expenditures in innovation activities at 25.6 million pesos.

• Quezon City & Davao firms have the least innovation activities, with average innovation expenses at 5.7 million pesos and 47 thousand pesos, respectively.
  – Davao though leads in innovation cooperation.
  – None of the establishments in QC are provided public financial support in innovation, although one out of ten received government support or assistance to wider forms of innovation.
2.2. Determinants of Innovation

With a probit model, we found:

• Having knowledge management practices is a good determinant of product innovation, process innovation and being an innovator, in general.

• Employment size matters, rather significantly for process innovation: The larger the firm, the more likely it is a process innovator.

• Location matters: firms in PEZA, all other things equal, are more likely to be innovators than firms in other areas.
  – evidence is strongest for product innovation, and innovation activity, in general, when comparing PEZA with Cebu firms
2.3. Barriers to Innovation

• Cost factors were commonly identified by the firms as significant barriers to innovation.
  – Direct costs of innovation were regarded as being too high (one out of four responding firms associated a high degree of importance to this, especially among 30% of micro firms and 28% of small establishments).

• About one in ten establishments also reported knowledge and market factors as significant barriers to innovation.
2.3. Barriers to Innovation

- Non-innovators in both IT and food manufacturing cite market conditions more as the reason for no innovations, but in electronics manufacturing, the trend is reversed.
  - About half (47%) of responding non-innovative firms felt they did not need to innovate due to market conditions, a slightly smaller proportion felt they did not need to innovate due to prior innovations.
  - Difference in rates is most evident among large firms
2.4. Effects of Innovation

- Product related effects were more often cited than process (cost) effects, especially among large firms.
  - About three fifths (60 per cent) of innovation active firms rated improving the quality of goods or services as highly important.
  - Increasing the range of goods or services was also widely reported product-related effect particularly in the food manufacturing industry.
  - The least commonly reported effect was reducing materials and energy per unit output.
2.4. Effects of Innovation

• Even for organizationally innovative firms, quality ranked highest across size and industries.
  – Across firms, the least commonly reported effect of organizational innovation appears to be improved employee satisfaction and/or lower employee turnover.

• As far as firms that engaged in marketing innovations, the most highly ranked effect is customer-related, i.e. improved customer satisfaction or strengthened customer relationship.
2.5. Sources of Info & Coop

• Firms reported internal (70%) and market sources, especially clients (67%) as most important for information on innovation.
  – This suggests that establishments tend to rely on their own experience and knowledge coupled with information from suppliers, customers and clients.
• The institutional sources, especially government or public research institutes, were considered to be of lowest importance.
3. Policy Issues & Key Findings

- Only about one in five (20%) of firms availed of gov’t support in its innovation activities, with the rate highest among large firms in the Food Manuf Ind

- As regards govt programs
  - Micro and small firms value technical support and training
  - Medium & large firms value training, tax rebates and infra support
  - Least imp R&D funding, subsidies, and loans and grants

- Legislative efforts by Sen. Angara for more R & D spending thru support of selected innovation cluster welcome
3. Policy Issues & Key Findings

• Major determinants to innovative behavior, include knowledge management, firm size of the firm and location.

• Effects of innovation are also largely customer-driven.

• Cost factors are most important barriers to innovation.

• Government support is found to be limited, particularly for product innovations, to medium-sized firms.
3. Policy Issues & Key Findings

• Knowledge networks are rather weak.
  – Firms do not access technical assistance from the govt and research insts. Coop is also low between the firms and academe. Firms tend to coop more with establishments within their enterprise, their customers and suppliers (firms tend to rely more on those they have easy access and long term relations with).
  – Legislation of Sen. Angara important, but DOST, CHEd, DA, etc., need to have (a) blueprint for govt support of the selected innovation clusters; (b) system for M&E of clusters
3. Policy Issues & Key Findings

• Survey results suggest the need to further strengthen the policy framework for innovation and aggressively pursue *Filipinnovation*, and to articulate the innovation strategy to firms, who seem to be generally of the view that government and research institutions are not key partners in their innovative practices.
  
  – Information dissemination on programs available to assist firms may need to be improved.
3. Policy Issues & Key Findings

• Firm size is a determinant of innovation.
  – Strategies and programs to assist firms in engaging in innovative practices will have to be customized. With limited resources, prioritization for assistance will also be needed

• Innovation varies across the study areas.
  – Investment climate in PEZA may be providing firms the incentive to innovate
3. Policy Issues & Key Findings

• Knowledge and cooperation networks, especially at the local areas, will have to be developed and when they exist, strengthened. Scope for partnerships to promote innovation is wide.
  – Cooperation and knowledge sharing among firms
  – NG and LGUs working in tandem with sectors
  – Information dissemination on programs
3. Policy Issues & Key Findings

• Innovation Path is one that evolves:
  – Requires flexibility and adaptation;
  – Involves pragmatism and stakeholder participation;
    and,
  – Importance of regularly monitoring innovation
    • Innovation management cannot be effectively done if we do not measure what we manage
Salamat po!
End of Presentation