SESSION 1. INNOVATION IN THE SERVICES SECTOR: CONCEPTS, MEASUREMENTS AND POLICY CHALLENGES

Service innovation and innovation policies: key challenges and implications

Luis Rubalcaba
Professor of Economic Policy
University of Alcalá, RESER and Rooter

Geneva, March 25th 2010
Context

- Research line at the University of Alcalá, (Madrid, Spain) on "Services, Innovation and Competitiveness" and Rooter. Member of the European Association for Service Research (RESER)

- Participation in national and EU Research Projects related to innovation in services:
  - ServPPIN 7th EU FP project on "services, competitiveness and welfare and the role public-private service innovation networks" (Coordinated by UAH)
  - Europe-Innova: Sectoral innovation watch. Tasks on services and innovation policies (Coordinated by TNO)
The challenges for service innovation

- Recognition and importance
- Specificities and conceptualisation
- Measurement
- Impacts

The case of:
Service innovation impacts
The challenges for service innovation policies

- Justification and rationale
- Integration in innovation policies
- Synergies with other policies

The case for:
A menu approach depending on national specificities and priorities
The challenges for service innovation

- Recognition and importance
Why services innovation is a policy challenge?

- The role of services in knowledge-based economies and **impacts on economic growth and welfare**
- The **competitiveness challenge** and opportunities coming from globalisation
- The **under-development of service innovation policies**
Still the old myth about non-productive services

The old challenge coming from Adam Smith’s 1776 times

“The labour of some of the most respectable orders in the society is, like that of menial servants, unproductive of any value, and does not fix or realize itself in any permanent subject; or vendible commodity, which endures after that labour is past, and for which an equal quantity of labour could afterwards be procured. The sovereign, for example, with all the officers both of justice and war who serve under him, the whole army and navy, are unproductive labourers. They are the servants of the public, and are maintained by a part of the annual produce of the industry of other people. Their service, how honourable, how useful, or how necessary soever, produces nothing for which an equal quantity of service can afterwards be procured.... In the same class must be ranked, some both of the gravest and most important, and some of the most frivolous professions: churchmen, lawyers, physicians, men of letters of all kinds; players, buffoons, musicians, opera-singers, opera-dancers, etc.... Like the declamation of the actor, the harangue of the orator, or the tune of the musician, the work of all of them perishes in the very instant of its production.” (The Wealth of Nations, 1776)
The survival of the old myths

Services are a problem:

- They make economies grow at a slower pace
- They are less productive
- They are less innovative
- They are less tradable
A major contradiction of the myths

But services such as KIBS contradict the traditional assumptions about services

- They create productivity growth in clients
- They help all productive systems to be more innovative
- They are active players in the globalisation edge
- Some of them strongly contribute to market integration
The Challenges for services and services innovation

Obstacles

Lower participation of services in total business R&D

Market of systemic failures hampering services innovation growth

Over-regulation burden

Fragmented and protected markets

Lost of potential growth for innovation in services

Consequences

Lower productivity growth

Lower innovative and competitive profiles

Lower capacity to face the global sourcing challenge
The way towards the recognition of services and service innovation in Europe

Lack of EU competition in services
Low productivity gains in services

Horizontal view of economic policy
Room for business support services
Focus on transport, health

Services offshoring to low-wages countries


Strategy for innovation in services
Services in industrial policy

Services in most EU policies?

Internal market for services

Business-related services

ICT-related services

Services of general interest

Lisbon
The challenges for service innovation

- Concepts and measurement
### The challenges for service innovation

- **Specificities and conceptualisation**

**Distinctiveness coefficient in some key policy related indicators: services versus goods, Europe-16**

<table>
<thead>
<tr>
<th></th>
<th>Total goods industries</th>
<th>Manufacturing</th>
<th>Total services</th>
<th>Distributive trades</th>
<th>Transport and communications</th>
<th>Financial services</th>
<th>Business services</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of innovative firms</td>
<td>1.00</td>
<td>1.004</td>
<td>0.773</td>
<td>0.699</td>
<td>0.625</td>
<td>1.204</td>
<td>1.070</td>
</tr>
<tr>
<td>Intramural R&amp;D</td>
<td>1.00</td>
<td>1.060</td>
<td>0.791</td>
<td>0.601</td>
<td>0.627</td>
<td>0.815</td>
<td>1.213</td>
</tr>
<tr>
<td>Extramural R&amp;D</td>
<td>1.00</td>
<td>1.017</td>
<td>0.964</td>
<td>0.932</td>
<td>0.873</td>
<td>1.142</td>
<td>1.112</td>
</tr>
<tr>
<td>Impacts on costs</td>
<td>1.00</td>
<td>1.005</td>
<td>0.677</td>
<td>0.656</td>
<td>0.841</td>
<td>0.888</td>
<td>0.576</td>
</tr>
<tr>
<td>Impacts on quality</td>
<td>1.00</td>
<td>1.010</td>
<td>1.033</td>
<td>0.907</td>
<td>1.063</td>
<td>1.118</td>
<td>1.170</td>
</tr>
<tr>
<td>Impacts on respond time</td>
<td>1.00</td>
<td>1.007</td>
<td>1.227</td>
<td>1.250</td>
<td>1.330</td>
<td>1.307</td>
<td>1.113</td>
</tr>
<tr>
<td>Patents</td>
<td>1.00</td>
<td>1.033</td>
<td>0.517</td>
<td>0.575</td>
<td>0.254</td>
<td>0.125</td>
<td>0.825</td>
</tr>
<tr>
<td>Copyright</td>
<td>1.00</td>
<td>1.014</td>
<td>1.598</td>
<td>1.065</td>
<td>0.531</td>
<td>0.764</td>
<td>3.632</td>
</tr>
<tr>
<td>Obstacles</td>
<td>1.00</td>
<td>1.005</td>
<td>0.901</td>
<td>0.878</td>
<td>0.799</td>
<td>1.004</td>
<td>0.989</td>
</tr>
<tr>
<td>Total public funding</td>
<td>1.00</td>
<td>1.005</td>
<td>0.574</td>
<td>0.470</td>
<td>0.463</td>
<td>0.239</td>
<td>0.944</td>
</tr>
</tbody>
</table>

*Note: Europe-16 refers to Belgium, Czech Republic, Denmark, Spain, France, Italy, Cyprus, Lithuania, Luxembourg, Hungary, Netherlands, Poland, Portugal, Romania, Slovakia and Norway*

*Note: In boxes those coefficient for which service stand 20% below or above the total goods average*

*Source: CIS4 database, Eurostat*
How to measure service innovation? Some challenges:

- Types: Product/process distinction, Organisational and marketing role, new types such as interfaces, combination, fragmentation, ad hoc.
- Measurement of other service-related indicators: service employment, service productivity, service quality, service prices
- Impacts on productivity and other economic and social variables.
- Data availability, data reliability and data comparability
Services and organisational innovation

Figure 11. Share of innovative firms reporting highly important effects of organizational innovation

Source: CIS4 database
Note: Data refer to median values for the following 15 EU countries: Belgium, Bulgaria, Czech Republic, Denmark, Germany, Estonia, Greece, Spain, France, Italy, Cyprus, Lithuania, Luxembourg, Hungary, Malta, Netherlands, Portugal, Romania, Slovakia and Norway

Geneva, March 25th 2010
The challenges for service innovation

The case of:
Service innovation impacts
The data

- EU Commission data: CIS. Grouping by country, sector and size

- Many limitations: no way to measure many impacts, but some indicators are given. Methodological and comparability problems. No time series: static analysis (this is a problem to measure impacts of services innovation)

- Two main issues to take into account with respect to the database:
  
  - Available CIS4 data refer to EU19 (Belgium, Bulgaria, Cyprus, Czech Republic, Germany, Denmark, Estonia, Spain, France, Greece, Hungary, Italy, Lithuania, Luxembourg, Netherlands, Poland, Portugal, Romania and Slovakia) + Norway
  
  - Differences in CIS3 and CIS4 survey methodology limit possible comparisons between both databases.

  - Still not enough data for CIS5
The hypothesis

[1] Interactions with clients may produce significant effects in innovation performance

[2] In services, KIBS in particular, interactions should be higher
Explanatory factors: list of independent variables

Drivers
- Clients as innovation source +
- Competitors as innovation source + / ?
- Providers as innovation source +

Inputs
- Acquisition of machinery (ICT incl.) +
- Engagement in intramural R&D +
- Engagement in training +

Micro context: scale
- Enterprise size + / ?

Macro context: system
- The innovation atmosphere (SII) + / - / ?
Results of the ordered probit regression: quality, flexibility, labour costs, range of products and new markets dimensions

<table>
<thead>
<tr>
<th></th>
<th>Quality</th>
<th>Industry (N=79)</th>
<th>KIS (N=126)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Size</strong></td>
<td></td>
<td>-0.014</td>
<td>0.022</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.934)</td>
<td>(0.838)</td>
</tr>
<tr>
<td><strong>Innovative atmosphere</strong></td>
<td></td>
<td>-0.016</td>
<td>0.057</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.920)</td>
<td>(0.656)</td>
</tr>
<tr>
<td><strong>Intramural R&amp;D</strong></td>
<td></td>
<td>0.293</td>
<td><strong>0.340</strong>**</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.187)</td>
<td>(0.020)</td>
</tr>
<tr>
<td><strong>Training</strong></td>
<td></td>
<td>-0.324**</td>
<td>0.057</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.037)</td>
<td>(0.609)</td>
</tr>
<tr>
<td><strong>Acquisition of equipment</strong></td>
<td></td>
<td><strong>0.376</strong>**</td>
<td><strong>0.313</strong>*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.015)</td>
<td>(0.008)</td>
</tr>
<tr>
<td><strong>Suppliers</strong></td>
<td></td>
<td><strong>0.719</strong>*</td>
<td><strong>0.440</strong>*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.000)</td>
<td>(0.006)</td>
</tr>
<tr>
<td><strong>Clients</strong></td>
<td></td>
<td>0.226</td>
<td><strong>0.423</strong>*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.241)</td>
<td>(0.003)</td>
</tr>
<tr>
<td><strong>Competitors</strong></td>
<td></td>
<td>-0.343***</td>
<td>-0.327**</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.020)</td>
<td>(0.023)</td>
</tr>
<tr>
<td><strong>LR Index (Pseudo R2)</strong></td>
<td></td>
<td>0.120</td>
<td>0.116</td>
</tr>
</tbody>
</table>

Note: (***) Statistically significant at 1% level; (**) Statistically significant at 5% level; (*) Statistically significant at 10% level.
The challenges for service innovation policies

- Justification and rationale
- Integration in innovation policies
- Synergies with other policies

The case for:
A menu approach depending on national specificities and priorities
The challenges for service innovation policies

- Justification and rationale
The bias for manufacturing in innovation funding and the role of EU programmes

Innovative manufacturing and services companies using public funding (%)

Source: Based on CIS4, Eurostat.

Geneva, March 25th 2010
The bias for manufacturing in innovation funding and the role of EU programmes

Source: Based on CIS4, Eurostat.

Geneva, March 25th 2010
The rationale for a service innovation policy

Services in R&D programmes. Need of better integration of services in innovation systems. IPR. Entrepreneurship. Intangible assets. Improvement of institutional recognition. Coping with the lack of service "culture".
The challenges for service innovation policies

- Integration in innovation policies
- Synergies with other policies
Innovation policies and other service-related policies: synergies and complementary effects

- International trade and regional integration market policies
- Competition policies
- Better regulation policies
- Employment, education and training policies
- Service innovation policies
- Education and training policies
- Quality and standards
- Regional policies
- Sectoral policies

Mainly regulatory policies

Geneva, March 25th 2010
A case study: *EC Instruments supporting innovation in services*

- Screening project to obtain a clear picture of current instruments (including programmes, initiatives, and support measures) that support innovation in services - EU level.

- All relevant Community innovation-related instruments that affect or may affect services, covering fields like policy analysis/monitoring, policy learning and networking, capacity building in terms of infrastructure/equipment and R&D capacity, among others.
Policy framework for service innovation

1. IMPROVING KNOWLEDGE ON SERVICE INNOVATION
   - Concepts, definitions, statistics
   - Key facts and sectoral developments
   - New trends and challenges
   - Working groups and stakeholders

2. IMPROVING HUMAN, TECHNICAL AND FINANCIAL CAPACITIES
   - New service disciplines
   - New service skills
   - Infrastructure and ICT equipment
   - Financial facilities & SME

3. IMPROVING R&D FOR SERVICE INNOVATION
   - R&D in service firms
   - R&D on services and service innovation
   - R&D for services and service innovation

4. IMPROVING SUPPORT SERVICES AND NETWORKS
   - Platforms
   - Support to techno-related services
   - Transnational cooperation
   - Clusters and knowledge communities
   - Business-support services

5. IMPROVING FRAMEWORK CONDITIONS
   - Internal market for services
   - Competition policy for services
   - Regulatory framework

Policy analysis and design
Implementation
Policy learning

IMPROVING KNOWLEDGE ON SERVICE INNOVATION
ENTREPRISES NEEDS
IMPACTS ON EMPLOYMENT, PERFORMANCE AND COMPETITIVENESS

POLICY AREAS
Towards coordinated efforts in services innovation policies: placing major services-related initiatives
Identification of synergies related to EC Instruments supporting innovation in services

**POLICY MAKING**

- **Implementation**
  - Policy learning

**IMPROVING KNOWLEDGE ON SERVICE INNOVATION**

- Concepts, definitions, statistics
- Key facts and sectoral developments
- Working groups and stakeholders
- New trends and challenges

**IMPROVING HUMAN, TECHNICAL AND FINANCIAL CAPACITIES**

- New service disciplines
- New service skills
- Infrastructure and ICT equipment
- Financial facilities & SME

**IMPROVING R&D FOR SERVICE INNOVATION**

- R&D in service firms
- R&D on services and service innovation
- R&D for services and service innovation

**IMPROVING SUPPORT SERVICES AND NETWORKS**

- Platforms
- Support to technological-related services
- Transnational cooperation
- Clusters and knowledge communities
- Business-support services

**IMPROVING FRAMEWORK CONDITIONS**

- Internal market for services
- Competition policy for services
- Regulatory framework
The challenges for service innovation policies

The case for:
A menu approach depending on national specificities and priorities
Synthesis vs Demarcation vs Assimilation approaches

**Synthesis approach**
- Dominance of service-type innovations
- Services receivers and promoters of innovation
- High integration and similarities between goods and services
- No need of service-oriented policies (not exclusive)

**Demarcation approach**
- Dominance of goods-type innovations
- High differences between services and goods innovation
- Services as receivers of innovation

**Assimilation approach**
- Need of service-oriented policies (not exclusive)
Service innovation and innovation policies: key challenges and implications

Alternatives for innovation policies regarding services

Horizontal innovation policies (all sectors)

- All sectors, including services
- Innovation policies for all sectors, including service innovation based policies

- Extension to services sectors
- Service innovation as a systemic dimension

- No need of specific services policy
- Specific service innovation policy

- Goods-related innovation policies
- Moving to services sectors

Manufacturing sectors

Vertical policies (selected sectors)

Services sectors

Geneva, March 25th 2010
Conclusions and final remarks (I)

- Most developed economies are service economies. Services innovation is necessary for improving growth, competitiveness and welfare.
- There are remarkable service innovation challenges.
  - Obstacles hampering service innovation growth: market and systemic failures, over-regulation, market fragmentation,
  - Consequences of slow progress in productivity and global competition.
  - Policies for service innovation are under-developed
Conclusions and final remarks (II)

- A horizontal framework for service innovation policies is needed. Systemic policy approaches are needed on top of specific actions towards services: convergence with industrial policies and other cross-sector policies.

- A reinforcement of synergies between innovation policies and other policies is necessary to avoid contradictory effects and reinforce complementarities.

- Many countries are still out of the service innovation policy development. This field can be an opportunity to reinforce innovation systems in many places.
Background material


Thank you for your attention!

[luis.rubalcaba@uah.es](mailto:luis.rubalcaba@uah.es)