E-Business Adoption Research: Analysis and Structure

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E-Business Adoption Research: Analysis and Structure

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ABSTRACT
Hundreds of articles on e-business adoption were published from 2006 to 2010. What are the primary and new messages they convey? Going forward, an answer to this question is necessary and valuable to facilitate systematic advances in e-business adoption research. As a way to bring sense to this complicated landscape, this paper analyzes what has been accomplished. The resultant profile gives, not only a unifying picture of the past, but a guiding structure within which future e-business adoption research can be framed and positioned. Simultaneously, it points out some changes and deficiencies in e-business adoption research. We reveal that e-business adoption research is a multidisciplinary issue. Particularly, e-business adoption in organizations is moving toward an advanced stage in the evolution continuum. However, little research has been done regarding the adoption of online supply chain integration and of specialized online technologies. Finally, we identify some future research avenues and offer a research agenda.

Keywords
E-business, e-business adoption, e-commerce, electronic business, literature review, supply chains

INTRODUCTION
Electronic business\(^1\) (e-business) has become a vital part of life and business in the 21st century. Increasingly, consumers and organizations resort to the Internet for conducting purchasing, selling, exchange, and other transactions. Some countries, such as Singapore, have devised a national e-business infrastructure strategy (Sarkar and El Sawy, 2003). Accordingly, e-business has been attracting a lot of attention from industry players and researchers. After the bursting of the Internet bubble in 2000, the e-business market improved and stabilized. Thus, research into the issue of e-business continues to grow. Figure 1 shows the trends of publications whose titles include “e-commerce” or “e-business.” Although the number of publications here is only a part of e-business research, obviously, it does demonstrate that e-business research continues to receive relatively stable attention from academics.

Even though e-business may manifest as a fine tool, application, or strategy, the adoption rate of e-business is still not as high as expected, especially in developing countries (Wei, Osman, Zakaria and Bo, 2010; Qi and McGilligan, 2007). Holsapple and Sasidharan (2009) summarize e-business success parameters, among which adoption and acceptance are two critical ones. After reviewing hundreds of publications, both Urbaczewski, Jessup and Wheeler (2002) and Wareham, Zheng and Straub (2005) draw the conclusion that e-business adoption is an important research topic. This is consistent with the fact that publications on e-business adoption have increased greatly over the past decade. Figure 2 indicates that the percentage of adoption research has increased from 1% to about 5% of total e-business research. This trend could be partly explained by the fact that after the Internet bubble burst in 2000, more and more research has attempted to find what factors (facilitators or inhibitors) influence the adoption of e-business. Moreover, in the past decade, the advent of new e-business concepts (e.g., social media, Web 2.0) and of online specialized technologies (e.g., try-on technology, product virtualization technology) contributes to the growing rate of e-business adoption publications.

Hundreds of studies on e-business adoption have been published from 2006 to 2010. What are the primary and new messages they convey? Therefore, an answer to this question is necessary and valuable to facilitate systematic advances in e-business adoption research. In practice, without a full view of the e-business landscape, researchers have to review hundreds of articles to find research most relevant to their own projects when they plan to study e-business adoption. Individually, this is a very time-consuming job and, collectively, it can mean that the “wheel is reinvented” many times. As a way to bring sense to such

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\(^1\) This study does not distinguish between the two terms, e-commerce and e-business, but we only use e-business for consistency and readability.
a complicated landscape, this paper analyzes what has been accomplished and provides a comprehensive picture on e-business adoption research. Given such a full view, researchers can clearly understand what issues have been studied intensively and what issues have not yet been studied, suggesting where they may want to invest their resources. Motivated by these considerations above, this study starts with a review of 1,233 articles, and then focuses on 563 journal articles. They are used to describe the overall landscape of e-business adoption in terms of three dimensions, including journal type, scope of analysis, and research perspective. Later, this study selects more than one hundred articles on the adoption of e-business at the organizational level and analyzes them along several dimensions. Overall, this study provides a structured profile of e-business adoption research, highlights some interesting observations drawn from extant research, and gives some future research directions along with research findings.

Along with the mini-track “IT-Enabled Supply Chain Management” in AMCIS 2012, our comprehensive literature survey suggests that the adoption of online supply chain integration and of specialized online technologies such as Web 2.0, social media, and crowdsourcing are promising areas for future research. In addition, most studies only discuss organizational e-business adoption (i.e., e-business is adopted by business or non-business organizations, rather than individual consumers,
and we also call it e-business adoption at the organizational level) using individual firms as their samples, while few articles study e-business adoption at the inter-organizational level (e.g., supply chains). Therefore, inter-organizational e-business adoption is another promising area.

BACKGROUND

E-Business and Its Elements

Various definitions of e-business have been offered. To provide a comprehensive characterization of e-business, Holsapple and Singh (2000) introduce a five-cluster taxonomy of e-business definitions based on an extensive review of relevant literature. The five clusters are: the trading view, the information exchange view, the activity view, the effects view, and the value-chain view. Based on the analysis of the five views, they synthesize an integrated definition of e-business. Urbaczewski et al. (2002) mention that online and exchange of value are two main requirements (or elements) which should be met when a business could be classified as an e-business. The first element indicates that e-business must use “networked, computer-based information technology” (p. 264), and the second element demonstrates that e-business exchanges involve “goods, services, information, money, time, and convenience” (p. 265).

Combing the two studies above, this study adopts the definition raised by Holsapple and Singh (2000) and makes a minor change based on the two elements recognized by Urbaczewski et al. (2002):

E-business is an approach to achieving business goals, in which networked, computer-based technology for information exchange enables or facilitates execution of activities in and across value chains, as well as supporting decision making which underlies those activities.

E-Business Adoption and Evolution

A host of technology adoption theories such as TAM (Technology Acceptance Model) and UTAUT (Unified Theory of Acceptance and Use of Technology) have been applied in the context of e-business. Hong and Zhu (2006) summarize some literature on e-business adoption and find that more than ten theories have been employed. After summarizing 43 articles on the adoption of online purchasing, Cao and Mokhtarian (2005) find about ten theories used in their sample of articles.

From the customer perspective, Hernandez, Jimenez and Martin (2009) argue that adoption and acceptance are two different decisions. They point out that adoption of e-business is online purchase intention of potential purchasers, while acceptance is the re-purchase decision for experienced e-customers. Therefore, in their view, acceptance is a post-adoption behavior of experienced users. However, most researchers have not strictly distinguished between adoption and acceptance. A strong instance is that the two theories including the term “acceptance,” TAM and UTAUT, have actually been used in the technology adoption. In this study we will not distinguish them.

Research on the adoption of e-business is an evolving process or progression (Akkeren and Cavaye, 1999), rather than having a standstill status. Earl (2000) explores a six-stage model for e-enterprise evolution, including external communications, internal communications, e-commerce, e-business, e-enterprise, and transformation. Similarly, Martin and Matlay (2001) propose an e-commerce adoption ladder, which divides e-business into five stairs (e-mail, website, e-commerce, e-business, and transformed organizations). Later, based on two similar dimensions (investment requirement and level of sophistication, potential benefits), McKay and Marshall (2004) propose e-business stages of growth, including no presence, static online presence, interactive online, electronic commerce, internal integration, and external integration. All of them suggest that at the same time period, organizations may have different attitudes towards the levels of e-business. For instance, firm A intends to set up its website, while firm B has already conducted some online transaction on its website and intends to integrate its supply chains. Cloete, Courtney, and Fintz (2002) assert that it is necessary to recognize that e-business activities range from entry-level activities such as having website and e-mail to sophisticated activities such as making purchases online. Therefore, it is worthwhile to define which e-business stage our units of analysis persist before we study e-business adoption determinants or outcomes.

METHODOLOGY

This study adopts a literature review method. We obtain research articles, published from 2006 to 2010, in which e-business adoption is the primary focus. We start with searches via Google Scholar, and then use other online databases, such as ABI/Inform and EBSCOhost to double check and supplement some missing or indeterminate articles.
Article Search and Selection

In order to get a comprehensive list of relevant articles, our search words include two groups: variable search words and fixed search words\(^2\). The first ones are commonly-used terms in the e-business field, such as “e-commerce” and “e-business.” The second ones are related to an adoption behavior, including “adoption,” “adopt,” “acceptance,” and “accept.” We use Google Scholar to look up all the relevant articles.

According to variable terms, we divide our pool of articles into five clusters (clusters here are mainly used to organize and sum up our literature search conveniently, rather than to classify the literature), and give an order and an abbreviated name to each cluster (see Table 1). In order to avoid putting one article in more than one cluster when it includes two or more variable search words, each article is assigned to its cluster by the cluster order: if an article is assigned to the first cluster, it will not be assigned to any remaining cluster. After conducting such a comprehensive search, we find 1,233 articles.

<table>
<thead>
<tr>
<th>Cluster</th>
<th>Variable Search Words</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>Total</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. EC</td>
<td>“e-commerce,” “electronic commerce,” “ecommerce”</td>
<td>61</td>
<td>49</td>
<td>51</td>
<td>52</td>
<td>39</td>
<td>252</td>
<td>20.4%</td>
</tr>
<tr>
<td>2. EB</td>
<td>“e-business,” “electronic business,” “ebusiness”</td>
<td>28</td>
<td>20</td>
<td>18</td>
<td>24</td>
<td>18</td>
<td>108</td>
<td>8.8%</td>
</tr>
<tr>
<td>3. ON</td>
<td>“online”</td>
<td>44</td>
<td>46</td>
<td>61</td>
<td>61</td>
<td>63</td>
<td>275</td>
<td>22.3%</td>
</tr>
<tr>
<td>4. WE</td>
<td>“web,” “website”</td>
<td>34</td>
<td>36</td>
<td>42</td>
<td>47</td>
<td>47</td>
<td>206</td>
<td>16.7%</td>
</tr>
<tr>
<td>5. IN</td>
<td>“internet”</td>
<td>83</td>
<td>72</td>
<td>75</td>
<td>75</td>
<td>87</td>
<td>392</td>
<td>31.8%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>250</td>
<td>223</td>
<td>247</td>
<td>259</td>
<td>254</td>
<td>1,233</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 1. The Number of Articles in Each Cluster by Year

We examine our pool of articles mainly from their title. If the title fails to give sufficient information, then we check the abstract or even full text. Meanwhile, we double-check some indeterminate articles using other databases such as ABI/Inform and EBSCOhost. Doing so, we remove those articles not published from 2006 to 2010 (about 1%), not written in English (about 8%), or totally irrelevant with our topic (about 10%). Moreover, when an article has more than one version with the same title and outlet, we keep one formal version. This effort removes close to 2% of articles. In total, around 21% (259) articles are eliminated.

Classification and Coding

The remaining 974 articles are classified by their outlets (journal, conference, book chapter, dissertation or thesis, working paper, and others). Table 2 clearly depicts that e-business adoption research involves diverse outlets, indicating that different levels of scholars have interest in this topic. Interestingly, more than 10% of articles are written as dissertations or master theses, demonstrating that this topic could be studied in depth or detail. Overall, journals comprise the dominant outlet for each cluster.

Only those articles published in journals are analyzed in detail for the following reasons. First, articles published in journals are considered as being relatively high quality research due to strict peer review and multiple revisions before published. Second, some papers published in other outlets later appear as journal articles (Urbaczewski et al., 2002); therefore, it is necessary to choose journal articles to avoid such a repetition. Third, it is common for researchers (e.g., Ngai and Wat, 2002) to focus on journal articles when using a literature review method. Last, as seen in Table 2, journals are the dominant outlet in each cluster, demonstrating that it is reasonable to use the majority to represent the whole. In total, we are left with 563 journal articles.

Each article is classified and coded by a list of dimensions: journal type, scope of analysis, research perspective, geographic focus, and economic focus. Journals are classified according to their discipline focus and publication duration. Scope of analysis refers to the target audience for an article. This type of information is typically evident from the title, methodology.

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\(^2\) Some articles may use the terms such as e-adoption and e-acceptance, which combine the variable and fixed search words together. However, only few (less than 10) articles are found to use such terms, and thus we ignore these articles in our literature research.
and/or conclusion sections in an article. Research perspective is the role that the object of research plays in the adoption behavior discussed in the article (i.e., either provider or receiver). For instance, the article studying how firms adopt an internet technology to provide service for its customer will be coded as “provider” in the research perspective; On the contrary, the article studying how customers adopt an online shopping interface given by others will be coded as “receiver” in the research perspective. Both geographic focus and economic focus involve the source of subjects used in the article. The former is based on geographic area, while the latter is based on economic level. The list issued by the International Monetary Fund (IMF) in 2010 is used to code economic levels across countries.

<table>
<thead>
<tr>
<th>Cluster Name</th>
<th>Journal</th>
<th>Conference</th>
<th>Book Chapter</th>
<th>Dissertation or Thesis</th>
<th>Working Paper</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. EC</td>
<td>50.3%</td>
<td>24.6%</td>
<td>12.0%</td>
<td>8.2%</td>
<td>3.8%</td>
<td>1.1%</td>
</tr>
<tr>
<td>2. EB</td>
<td>50.6%</td>
<td>19.5%</td>
<td>6.5%</td>
<td>10.4%</td>
<td>11.7%</td>
<td>1.3%</td>
</tr>
<tr>
<td>3. ON</td>
<td>55.0%</td>
<td>20.8%</td>
<td>5.4%</td>
<td>14.8%</td>
<td>3.4%</td>
<td>0.7%</td>
</tr>
<tr>
<td>4. WE</td>
<td>61.2%</td>
<td>14.3%</td>
<td>8.2%</td>
<td>10.2%</td>
<td>4.1%</td>
<td>2.0%</td>
</tr>
<tr>
<td>5. IN</td>
<td>64.8%</td>
<td>9.3%</td>
<td>3.7%</td>
<td>10.2%</td>
<td>10.2%</td>
<td>1.9%</td>
</tr>
</tbody>
</table>

Table 2. The Outlet Distribution of Articles in Each Cluster

PRELIMINARY FINDINGS

In this section, we first introduce an overview of e-business adoption research for three basic dimensions: journal distribution, scope of analysis, and research perspective. Then, we focus on e-business adoption at the organizational level and sketch its profile based on research themes, sector focus, geographic focus, and economic focus.

Overview of E-Business Adoption Research

Journal Distribution

Five hundred and sixty-three journal papers are published in more than one hundred journals which cover diverse disciplines. This finding further supports the contention that e-business adoption research is a multidisciplinary issue. About one-fifth of the journals have an e-business focus. In addition, after classifying all journals according to their publication history, we find that e-business adoption research has been accepted by both long-standing and new-coming journals. Among the journals, one quarter are more than 25 years old, while about 45% are less than 10 years old.

Scope of Analysis

Five hundred and sixty-three journal articles are classified by their scope of analysis into three types: organizational, individual, and others (see Table 3). Interestingly, the first, second, and fourth clusters of articles are more focused on e-business adoption at the organizational level, while the third and fifth clusters are more focused on e-business adoption at the individual level, indicating that the five clusters of key words apply to different contexts. Therefore, when we study e-business adoption at the individual level, we might pay more attention to reviewing the articles in the third and fifth clusters.

Research Perspective

Another feature of current organizational and individual e-business adoption research is that more than 95% of articles hold either a provider perspective for organizational e-business adoption or receiver perspective for individual e-business adoption. However, few articles use the opposite approach. For example, Osmoñbekov (2010) discusses resellers’ adoption of manufacturers’ e-business tools (i.e., organizational adoption with a receiver perspective). However, as C2C e-business has been developing rapidly and C2B e-business is emerging, individuals could sell or exchange products, service, or information online, demonstrating that individual customers can play the role of provider. According to Cullen and Webster (2007) and Holsapple and Sasidharan (2009), in B2B e-business, organizations could play dual roles: provider (i.e., selling) and receiver
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(i.e., buying). To sum up, it is promising to study individual adoption from a provider perspective or organizational adoption from a receiver perspective.

<table>
<thead>
<tr>
<th>Cluster Name</th>
<th>Number of Articles</th>
<th>Scope of Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Organizational</td>
</tr>
<tr>
<td>1. EC</td>
<td>101</td>
<td>84.2%</td>
</tr>
<tr>
<td>2. EB</td>
<td>43</td>
<td>100%</td>
</tr>
<tr>
<td>3. ON</td>
<td>119</td>
<td>5.0%</td>
</tr>
<tr>
<td>4. WE</td>
<td>99</td>
<td>66.7%</td>
</tr>
<tr>
<td>5. IN</td>
<td>201</td>
<td>32.3%</td>
</tr>
<tr>
<td>Total</td>
<td>563</td>
<td>47.1%</td>
</tr>
</tbody>
</table>

Table 3. Scopes of Analysis in Five Clusters

Profile of Organizational E-Business Adoption Research

Research Themes

Two hundred and sixty-five articles on organizational e-business adoption reveal five themes: website, internet, specialized online technologies, online transactions, and supply chain integration. According to Earl (2000) and Martin and Matlay (2001), the first two themes and the other three themes could be considered as primary and advanced e-business adoption, respectively. Among the five main themes, online transactions hold the largest percentage. Clearly, website, as a primary stage of e-business evolution, has been less studied than the internet and online transactions. This situation demonstrates that the development of e-business has progressed, compared with what was studied at the beginning of this century (e.g., Earl, 2000; Martin and Matlay, 2001). Moreover, most website adoption research focuses on emerging contexts such as developing countries, SMEs (Small and Medium Enterprises), or rural areas.

<table>
<thead>
<tr>
<th>Adoption Themes</th>
<th>Examples</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Website</td>
<td>Webpage, website, homepage</td>
<td>20.8%</td>
</tr>
<tr>
<td>Internet</td>
<td>Internet, online training, online marketing, mobile internet, website database</td>
<td>27.9%</td>
</tr>
<tr>
<td>Online transactions</td>
<td>Online business, online auction, Internet-EDI</td>
<td>41.5%</td>
</tr>
<tr>
<td>Supply chain integration</td>
<td>Online Supply chain integration</td>
<td>1.1%</td>
</tr>
<tr>
<td>Specialized online technologies</td>
<td>Web 2.0, internet technology, mobile internet technology, social media, crowdsourcing</td>
<td>8.7%</td>
</tr>
</tbody>
</table>

Table 4. Research Themes on Organizational E-Business Adoption

In contrast, the advanced stage of e-business, online supply chain integration, has a very small percentage, indicating that this area is still emerging. However, as the description of mini-track IT-Enabled Supply Chain Management in AMCIS 2012, “supply chain members should therefore face greater strain as they will be expected to manage not only their own activities in relation to those products and services, but also the integration of upstream and downstream core business processes and inter- and intra-organizational information systems” (Wamba, Bendavid and Lim, 2011). As supply chain members use information technologies to collaborate with each other, therefore, in the future, this research theme might attract more attention from academics. Another interesting finding is that the adoption of specialized online technologies involves only 8.7% of publications at the organizational e-business adoption research, indicating that this is a promising theme at the organizational level.
In order to show the new profile of organization e-business adoption, we focus on the advanced stage. However, the adoption of specialized online technologies is based more on the technology view, while the adoption of online transactions and supply chain integration is based more on the business view. Therefore, we only choose online transactions (the main theme) and supply chain integration (the emerging theme) to describe the profile of e-business adoption research. Accordingly, 112 of 265 articles are selected for the remainder of this section.

**Sector Focus**

One hundred and six articles focus on business organizations, three articles focus on non-business organizations, and the other three include both types of organizations. This finding reveals that e-business, either technologies or business models, is now being used in non-business organizations. Ndubisi (2007) uses the term “non-business e-commerce adoption” to refer to the use of e-commerce by non-profit organizations such as religious organizations, government agencies, and academic institutions.

Among those 106 articles, 102 study e-business adoption in individual firms whereas only four in supply chains (i.e., involving at least both suppliers and buying firms), indicating that little research has been done pertaining to e-business adoption in a supply chain context. Recently, supply chains have been growing into a new research subject, although difficulties in attaining and analyzing data constrain the research for this subject. We expect that, in the future, there will be more and more research on e-business adoption for supply chains, as data are becoming more readily available. Among the four articles focusing on supply chains, Bakker and his colleagues collect data from the UK healthcare supply chains and provide a better understanding of the impact of context on e-business adoption in supply chains (Bakker, Zheng, Knight and Harland, 2008; Zheng, Bakker, Knight, Gilhespy, Harland and Walker, 2006). The other two articles discuss the e-business adoption in supply chain integration.

Interestingly, 58.7% of the 102 articles focusing on individual firms use SMEs as their sample, demonstrating that SMEs have already grown to be an important research object for e-business adoption study. This finding challenges the common stereotype that little research has been done for SMEs still exists in some recent studies. Apparently, this stereotype might change because our findings reveal that e-business adoption for SMEs has been studied intensively in the past five years.

**Geographic Focus**

As expected, e-business adoption research has become a worldwide topic. In the past five years, Asia has made great research progress in the area of e-business adoption. However, Africa and South America are progressing slowly. Mainland China, Australia, and United States are the most cited countries. Due to a rapid technologic and economic development, mainland China has put forth more efforts in e-business research.

<table>
<thead>
<tr>
<th>Region</th>
<th>Count</th>
<th>Percentage</th>
<th>Typical Countries /Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa</td>
<td>8</td>
<td>7.5%</td>
<td>Botswana (4), Kenya (2)</td>
</tr>
<tr>
<td>Asia</td>
<td>41</td>
<td>38.7%</td>
<td>Mainland China (14), Hong Kong (4), Taiwan (2), South Korea (2), Singapore (2), Malaysia (5), India (2), Iran (4), Indonesia (3), Brunei Darussalam (3), Japan (1)</td>
</tr>
<tr>
<td>Europe</td>
<td>36</td>
<td>34.0%</td>
<td>UK (8), Sweden (8), Spain (6), Italy (4), Greek (3), Finland (3), European Union (3)</td>
</tr>
<tr>
<td>North America</td>
<td>15</td>
<td>14.2%</td>
<td>United States (14), Canada (1)</td>
</tr>
<tr>
<td>Oceania</td>
<td>19</td>
<td>17.9%</td>
<td>Australia (14), New Zealand (5)</td>
</tr>
<tr>
<td>South America</td>
<td>1</td>
<td>.9%</td>
<td>Chile (1)</td>
</tr>
<tr>
<td>Comparison</td>
<td>17</td>
<td>16.0%</td>
<td>Australia vs. Indonesia, Malaysia vs. UK, United States vs. Italy, Australia vs. Singapore</td>
</tr>
</tbody>
</table>

Table 5. Geographic Focus
Economic Focus

When we structure these countries according to economic level, we find that progress in e-business adoption research is relatively widespread among advanced countries as compared to developing countries. We agree with the development trend raised by Chowdhury (2003), who anticipates that there has been a significant growth of e-business in developed countries in the last two decades and more recently in developing countries. Cross-country comparisons are either within advanced countries or between advanced countries and developing countries. Although the cost of conducting a comparative study is considerable, it is an area of considerable interest to further explore (Mohamad and Ismail 2009).

<table>
<thead>
<tr>
<th>Economic Level</th>
<th>Count</th>
<th>Percentage</th>
<th>Typical Countries / Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced countries</td>
<td>71</td>
<td>66.4%</td>
<td>Australia (14), United States (14), UK (8), Sweden (8), Spain (6), Hong Kong (4)</td>
</tr>
<tr>
<td>Developing countries</td>
<td>45</td>
<td>42.1%</td>
<td>Mainland China (14), Malaysia (5), Botswana (4), Iran (4), Indonesia (3)</td>
</tr>
<tr>
<td>Comparison within advanced countries</td>
<td>8</td>
<td>7.5%</td>
<td>United States vs. Italy, Australia vs. Singapore</td>
</tr>
<tr>
<td>Comparison across advanced and developing countries</td>
<td>9</td>
<td>8.4%</td>
<td>Australia vs. Indonesia, Malaysia vs. UK</td>
</tr>
<tr>
<td>Comparison within developing countries</td>
<td>0</td>
<td>0%</td>
<td>-</td>
</tr>
</tbody>
</table>

Table 6. Economic Focus

DISCUSSIONS

Due to an increasing number of publications on e-business adoption research, it is helpful to review current studies and develop a profile of e-business adoption research. Overall, this study provides a comprehensive review of e-business adoption research. Reviewing hundreds of current articles, we draw several insightful conclusions. First of all, e-business adoption research is a multidisciplinary issue: various publication outlets, hundreds of journals across disciplines, several evolution stages, many research themes, and dozens of studied countries. The two main scopes of analysis, organizational and individual, involve different key terms. Second, compared with two prior studies, Wareham et al. (2005) and Mohamad and Ismail (2009), which also use the literature review method, we find some new trends and progress in the e-business adoption research. We note that the adoption at the organizational level is moving toward an advanced stage in the evolution continuum. In addition, we find more and more organizational e-business adoption research focusing on SMEs, developing countries, and Asian countries, all of which have been previously thought of as minority issues in e-business adoption research. Finally, our findings demonstrate that e-business adoption in supply chains has been rarely studied. In particular, the adoption of online supply chain integration and of specialized online technologies such as Web 2.0, social media, and crowdsourcing have been rarely studied in current studies.

Based on the findings described here, our study suggests a variety of research avenues. Consider three examples here. E-business adoption in the context of supply chains, such as the adoption online supply chain integration and the adoption of specialized online technologies in supply chains, is a promising direction. Moreover, it is valuable to investigate organizational adoption from a receiver perspective. Finally, the comparative studies across countries, especially among developing countries, are rarely conducted, but deserving of greater attention as these transitions unfold. In addition, our study of E-Business adoption research is capable of extension and refinement going forward. For instance, we can review how technology adoption theories such as TAM and UTAUT have been used in different adoption themes. Moreover, we can further summarize adoption determinants and adoption outcomes, and then conduct a meta-analysis to examine the relationships among them and explore how those coding dimensions such as research themes, geographic focus, and economic focus moderate these relationships.

This study has several limitations. First, it covers only those articles published from 2006 through 2010, while neglecting those articles published before 2006 or after 2010. However, compared with prior studies using a literature review method (Ngai and Wat, 2002; Wareham et al., 2005), an interval of five years is appropriate. Second, we consider only the publication year (the year in which the study was published), while ignoring the research year (i.e., the year in which the
study was conducted). Nevertheless, such a problem has yet to be addressed for this type of research method. Third, we use five clusters of variable search terms to identify related research. However, we may miss some articles that are strongly related to e-business adoption, even though these terms do not appear in their titles.

REFERENCES