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Innovation and Commoditization: Prioritizing and Profiling Asian Managers' Cross-Border Sourcing Practices

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The paper investigates several sourcing practices and argues that two main behavioral constructs, supply commoditization and supply innovation, underlie many of these practices. It then develops hypotheses involving these constructs and company profiling ratios such as revenue per employee. The paper reports on survey research with a subset of ASEAN country based purchasing managers; on new scales. The results contribute to a growing literature on dynamic customer value in business markets and sourcing competencies. The paper also discusses managerial implications for sales targeting and sales approaches arising from the model.

INTRODUCTION

Sourcing technologies and products from global markets is a process that evolves significantly from an initial outsourcing decision. Two key issues that have emerged as motivations for outsourcing in the first place are cost reduction and innovation from the sourcing relationship (Devinney & Perm-Ajchariyawong 2008). However, expected benefits from an outsourcing decision may not follow readily as appropriate managerial practices in subsequent sourcing processes are not easily developed. Purchasing managers engage in a variety of practices in their sourcing function, and the degree of their focus on these initiatives is a behavioral approach to uncovering their priorities. We address two main questions: What sourcing practices do managers engage in that indicate these cost-reduction and value innovation priorities? How may sales managers use this knowledge to better target buyers and adjust their sales approaches? To answer these questions we propose the constructs of supply commoditization and supply innovation and develop their scales based on managerial perceptions of sourcing practices. In addition, we explore several firm profiling variables and provide a description of how these practices are affected by company ratios, such as revenue per employee, spend densities, and sourcing yield.

There is recent recognition that purchasing managers must drive the alignment between supplier facing and customer facing processes to help deliver firm performance (Piercy 2009; Esper, Ellinger, Stank, Flint & Moon 2010). The business marketing literature suggests successful companies are those that are becoming market driving (proactive business logic, changing the rules of the market) instead of market driven (reactive business logic, customer-led) (Berghman, Matthyssens, and Vandenbempt 2006). The need to lower costs in a competitive environment, especially in recessionary times, is a high-priority objective aimed at efficiencies.

Sourcing activity we focus on is in south-east Asia. Association of Southeast Asian Nations or ASEAN consists of ten member countries. Taken as a single economy, it would rank as the ninth largest in the world. The WTO notes that especially in Asia, there are significant re-exports or imports for re-

exports of goods, constituting second tier cross-border sourcing. For instance, Singapore had domestic exports of $138 b and re-exports of $132 b in 2009 (World Trade Organization 2010). ASEAN has free trade agreements in place with APAC countries, and rapid growth in APAC's emerging economies such as China, India and Indonesia is creating new demand for sourcing through ASEAN, including both re-exports from and into these countries. Suppliers in diverse locations around the globe are increasingly seeking to build strategic relationships with firms in a variety of intermediate markets in the region. Due to the effects of re-exporting and free trade relationships ASEAN purchasing managers with global suppliers could engage in practices that may differ from their counterparts in domestic sourcing relationships.

The next sections review the related literature on managerial practices in sourcing; define our constructs and develop their scale items; formulate hypotheses and a model; describe our survey methods and sample; and report on the results of empirical analyses. We next discuss the implications for research and practice, highlight limitations and elaborate on further research directions. The final section concludes the paper.

LITERATURE REVIEW: COMMODITIZATION AND INNOVATION

Sourcing practices have been discussed in a variety of theoretical frameworks. But what are "practices"? Hult, Hurley, Giunipero & Nichols (2007) argue that purchasing managers require entrepreneurial skills. They define flexibility as the overlap of purchasing and supply management skills with entrepreneurial skills. They use Adaptive and Resilient as key descriptions, and propose greater attention to response that is quick and efficient. Our definition is that *practices are behaviorally codified skills that mediate skills and outcomes.* Two key sets of managerial practices are capabilities or competencies in commoditizing supply, such as removing non value-adding costs from the supply chain, and innovating supply, such as improving value-delivering design and performance, that yield desirable business outcomes.

Supply Commoditization

We define *Supply Commoditization as buyer practices that catalyze cost-reducing activity from suppliers.* Over time, non-value adding costs get eliminated with cost adjustments whenever possible, with frequent renegotiations, and with supplier learning curves. The literature is supportive of this set of practices and drives its operational measure, as we see next.

Cost Adjustment

Acquisition costs in major programs follow a trajectory of cost increases and decreases. Costs may be driven up or down by market conditions or operational issues. One major driver of cost revisions is product or service redesign. However, the ability to track costs by suitable indexing with commodity prices or otherwise frequently adjusting prices will help buyers share the burdens of financial uncertainty. Brewer & Carter (2010) argue that commoditization builds on the concept of the product life cycle and on asset specificity. They propose that the main purpose of procurement activities is usually to reduce the cost of purchased goods, and a significant portion of firms outsource solely to reduce costs. Bharadwaj & Matsuno (2006) argue that cost reduction occurs when buyers eliminate overhead, intermediate operational expenses, and transaction costs, and that the order management cycle of vendors can aid reduction in transaction costs for the buyer. Bharadwaj et al (2009) also discusses commoditization and standardization as alternate solutions for buyers. Practices that alter prices in the course of the agreement are directed at more rapid commoditization. An operational dimension of our measure is therefore the manager's degree of agreement or disagreement with:

Cost adjustments almost always occur during the term of the contract [CstAdj]

Renegotiations

When products are standard and of low value, the transaction costs associated with frequent negotiations are to be avoided. Blanket Purchase Orders (BPO) are long term agreements that serve to restrict the need for recurring negotiations on price and other terms, over periods of months or years. Usually a cumulative quantity is the trigger to end a BPO. In a high inflation environment, BPO agreements typically build in hedges against increase in supplier costs for such products, stabilize price structures and minimize the need for renegotiation. In other situations, buyers face annual renegotiations of sourcing contracts that could make acquisition costs rise sharply as competition decreases in re-procurements. Sourcing from multiple suppliers can limit such tendencies when volumes and prices can be renegotiated in the supply base. Another reason is that design adaptations and changing specifications become necessary in complex projects often due to technological advances, and renegotiations are unavoidable. Brewer & Carter (2010) argue that central to outsourcing are specification stability, and rates of technological change. These renegotiations have associated costs, and may be fractious. When sourcing managers handle these renegotiations well they may be quite frequent and a matter of routine. The level of commitment to a supplier or buyer is crucial in situations of long-term contractual incompleteness, a situation that arises when renegotiation–proof contracts cannot be written. Renegotiation of the contracts is always a strategic possibility as unforeseen events unfold. Devinney & Perm-Ajchariyawong (2008) discuss the frequent use of incomplete contracts in the context of unforeseeable contingencies. This is operationalized as:

> *Renegotiation with our suppliers due to design changes is frequent [RenegFreq]*

Learning Curves

The existence of learning curves has been well known in practice for a very long time, and sourcing managers use learning curve arguments to negotiate down prices (Dobler, Burt and Lee 1990). Buyers may balance share of business among suppliers to maintain competitive supply that may decrease otherwise due to learning handicaps (Lee 2000). Learning curves are a prime reason for commoditization. Berghman, Matthyssens & Vandenbempt (2006) argue that companies should build three types of competences: marketing practices for external knowledge absorption, general organizational competences and supply chain/network competences. They suggest that becoming **market driving** requires an integrated and balanced view on marketing **practices** [emphasis added]. Bharadwaj and Matsuno (2006) examines how a vendor's order management cycle performance can affect a customer firm's transaction costs, which in turn, affect such customer-related outcomes as customer satisfaction and future purchase intentions. Brewer & Carter (2010) argue that management practices can help streamline the global supply chain in contract manufacturing situations. *Learning curves* are used to calibrate improvements in technology. Suppliers become more efficient when producing more units in a manufacturing plant. A model of learning explained technological change derived from experiences of learning-by-doing from accumulated production. The *experience curve* is a more generalized formulation of the concept including not just labor but all manufacturing costs, and including entire industries rather than single plant (Nemet 2006). Whether specific to individual plants or across all industries, and regardless of the source, buyers with commoditizing practices will seek to extract cost reductions from learning. We therefore operationalize the practice as:

> *Learning or experience curves exist for our suppliers, and so we expect them to pass on cost reductions every re-procurement [LrnCrvRed]*

These operational measures are supported by grounded research. Ulaga (2003) reports on interviews with purchasing managers that support such practices. We next examine literature that supports supply innovation practices.

Supply Innovation

We define *Supply Innovation as the buyer competence that catalyzes value-adding activity from suppliers.* Innovation through sourcing arises from representative practices such as supplier product cycle support, productivity gains, and specification development support.

Product Cycle Support

Product policy in sourcing includes obsolescence planning – phasing out of materials and designs from the past and introducing new features and processes that raise performance standards. Careful planning by suppliers is necessary for coordination of investments and re-engineering of processes. Matthyssens & Vandenbempt (2008) argue that the product cycle leads eventually to loss of competitive differentiation and a resulting profit squeeze. Buyers need to plan the transition in order to regain competitiveness. Devinney & Perm-Ajchariyawong (2008) note that design engineers had often "off loaded" planning to early involvement suppliers. Sometimes documentation was inadequate and systems were in the minds of suppliers. Flint, Woodruff & Gardial (2002) identified suppliers who asked to design components rather than just "build to print." Therefore, we operationalize product cycle support as a dimension of supply innovation:

> *Our suppliers understand the technology cycles and planned obsolescence routine for our product-market [ProdCycSup]*

Productivity

Eggert, Ulaga & Schultz (2006) identify supplier's know-how and its ability to improve a customer's time to market as important differentiators. The dynamic nature of value makes it important to adapt faster than others, thereby obtaining a preferred supplier status. Flint et al (2002) argue that customers quite rapidly change what they value, and suppliers need to anticipate this and react, faster than competitors. They note that while the importance to business practice of customer value is clear, there is less clarity on the ability to deliver on future requirements. They suggest that management of tension in sourcing is tied to practices that make b2b relationships evolve their learning, improvement, and controls, while trying to motivate suppliers and trying to keep up with customer desires. Screening for suppliers who routinely deliver high productivity gains delivers innovation through sourcing. Devinney & Perm-Ajchariyawong (2008) discuss an empirical utility approach to gains focusing on value creation and capture. They suggest that task specialization and innovation scale allows suppliers to achieve productivity gains. Flint et al (2002) notes that suppliers competent in one area are asked to improve competencies in others, as "evolutionary" change. We operationalize this as:

> *Productivity gains of our suppliers in recent years has been huge [ProdGnsSup]*

Specification Development

The role of early supplier involvement (ESI) is well known. Due to long lead times in excess of a year being the norm on engineered-to-order procurement, value gains to the firm's product from outsourcing engineering are often difficult to trace, but there is widespread recognition of the value suppliers can bring to the specification development process. Clearly, it is strategically important for suppliers to be closely involved with any specification development or modification in the buyer's RFQ. This is obvious for modified rebuys, or new buys. But even straight rebuys from incumbent suppliers offer potential for re-specification. Sourcing managers are interested in quality enhancing and process cost reducing improvements in re-specification of procured items. Bringing external learning into the specifications for a product is strategically important to the firm. Especially important is "supplier input into new product or process design and supplier involvement in quality and in continuous improvement practices and routines "(Schroeder, Bates and Juntilla 2002). We operationalize this practice as:

> *Suppliers are deeply involved in our specification development [SpecDevSup]*

The literature argues that the same managers may engage in both commoditization practices and innovation practices. Ulaga (2003) provides examples of these practices from his interviews.

Other Sourcing Practices

While much research examines relationship value at a single point in time. However, an emerging literature in Customer Value and Relationships has taken a dynamic perspective of value and more closely relates to managerial practices. Piercy (2009) argues that organizational evolution is driven by market change and requires advancing capabilities in innovation. He calls for greater collaboration between internal and external groups in both marketing and sourcing functions. Flint, Woodruff & Gardial (2002) develop the dynamic concept of Customer Desired Value Change (CDVC), which requires design changes. The viability of the process of design change cannot be taken for granted. While current production processes become obsolete and technologies change, suppliers may not change and grow in the right directions. Several sourcing practices may impact these directions, and we develop items that identify these practices later in the paper.

Our research builds upon the cited literature. In the next section we formulate hypotheses, drawing on support from the literature that relates these measures and other profiling variables in a structural model.

MODEL & HYPOTHESES

We next develop several hypotheses and link them though a path analytic model. Our model aims to establish mediating effects, and link company ratios to sourcing competencies. This approach will allow recommendations for prioritizing sales strategies and better sales targeting.

The literature assumes commoditization is a pre-condition for innovation, as value addition and differentiation is a supplier reaction to industry commoditization. Matthyssens & Vandenbempt (2008) suggest innovation activities follow industry commoditization, but there are barriers. The authors suggest migration paths to overcome the barriers. However, with the dynamic value perspective (Flint et al 2002), customer desired value change requiring innovation may precede cost reduction in non-value adding activities. This claim is also supported by Calantone & Stanko (2007). Supply innovation dimensions could create value for both buyer and supplier firms, and may be possible to immediately implement. Supply commoditization dimensions may take longer to play out. Therefore, while the prime reason for outsourcing is cost reduction it is not clear which set of practice takes precedence in the ongoing sourcing relationship. We use the null hypothesis:

H1: Supply Innovation is positively associated with Supply Commoditization.

Employees and Revenue

The ratio of company revenue to the number of its employees is readily available. These figures are available in quarterly or annual filings such as the SEC's Form 10-K, and Form 10-Q. This is one of several ratios that may directly affect commoditization and innovation. Calantone & Stanko (2007) define Employee Sales Efficiency as the ratio of sales revenue to number of employees in the firm; and the Propensity to Outsource Innovation activities as the degree of intensity of managerial practices aimed at supplier innovation. They infer from their findings that the decision to reduce number of employees by outsourcing may result in external innovation in the short run, but innovation may be in-sourced when successful and thereby lead to subsequent growth in the number of employees. A cyclical relationship would ensue, for which they find evidence. Cyclical in-sourcing is more likely when managerial practices to maintain and further supplier commoditization and innovation are poorly developed. They call for further research on revenue per employee and flexibility; moreover, while their study is at industry-level, they call for firm level studies.

Revenue Per Employee (RPE) is the ratio of annual revenue to number of employees, and very similar to Employee Sales Efficiency. It is a measure of the firm's ability to leverage its employee for higher revenue yields. Firms outsource to reduce labor costs, and an outsourcing decision immediately

raises their RPE ratio. Human Resource practices in recessionary times are known to increase the job footprint, and the more productive employees are usually retained. Several studies that use a cross-industry approach, rather than a within industry one, show evidence that focus on employee skills and motivation improve revenue per employee and financial performance outcome measures. Huselid (1995) uses natural logarithm of sales revenue to employee ratio as a widely used metric of organizational productivity (we adopt this transformation as well for RPE). In a large cross industry sample he found the average revenue per employee (RPE) to be $171,099 at the time (the natural logarithm of this average was 12.05). He finds one standard deviation increase in the measure of high performance work practices systems raises RPE by approximately $27,044 per employee. Other covariates of the analysis that *increased* RPE were capital intensity, and sales growth, while those that *reduced* RPE were total employment, concentration ratio, R&D/Sales ratio, and employee turnover. These covariates explained close to 50% of the variation in RPE. The correlation between Tobin's q (a measure of financial performance) and RPE was very small at 0.07 (ibid.). A profile that leads to lowered RPE, but not necessarily a lower financial performance, based on the covariates studied by Huselid is lower capital intensity, sales growth, work performance systems, and higher concentration ratios. While it is not obvious, this could also match the profile of a firm with greater sourcing activity and managerial practice in commoditization. Hence:

H2: Revenue Per Employee is negatively associated with Supply Commoditization.

Global Spend and Locations

Global Spend Density is the ratio of Global Spend to number of supplier Locations for the firm. Global Spend is derived from the product of Global Proportion of spend and Procurement Spend for the firm, two separate items in the survey. The number of locations is an indication of the degree that sourcing activity of the firm is diversified in non-domestic locations. Global Spend Density measures dollar volume of international sourcing spend per location. The ratio is not easily observed as it is not usually reported in annual statements, or surveyed by industry associations or supply chain research centers. Growth in outsourcing for capital intensive industries, where a limited number of locations receive the investment, would increase Global Spend Density; and Revenue Per Employee is also likely to be higher in capital intensive industries, *ceteris paribus,* as reviewed above (ibid.). Hence:

H3: Global Spend Density is positively associated with Revenue Per Employee.

Revenue and Spend

Spend Yield is the Revenue to Procurement spend ratio. It may be interpreted as the number of revenue dollars generated from each dollar spent on procurement. The inverse ratio is the percent of company revenue that is spent through the procurement organization. This is tracked by CAPS, a supply chain and procurement association, in an annual survey. They found the ratio remained steady in 2007 at an average of 45.55%. Therefore, a Spend Yield average is the inverse of this, approximately 2.195 (this ratio turns out to have a median value of 1.98 in our sample). A retailer would generate revenue based expenses deriving from the amount of products they buy, and locations of their outlets. A manufacturer adds value based on design and processes that may be unique, and therefore generates revenue less likely to be as closely linked to expenses. For further insight, we conducted a cross-industry analysis based on Compustat® dataset of 16,072 public companies, in dozens of industry sectors from Americas, Europe, Asia, Africa, and other regions, using data with three year averages where applicable. The results showed that the median outsourced COGS as a percent of revenue, (the inverse of spend yield) by sector ranges from the low 30's to the low 80's. Further, a cross-industry firm level regression yielded a positive elasticity with asset efficiency, where an increase of ten percent in asset efficiency leads to a decrease in 1.4 percent in COGS as a percent of revenue. As Spend Yield is revenue generated per dollar of procurement spend, it operationalizes the inverse of "COGS as percent of revenue," and higher asset

efficiency is associated with greater Spend Yield. Asset efficiency is higher for capital intensive firms, where Revenue Per Employee is also likely to be higher (Huselid 1995). Hence:

H4: Spend Yield is positively associated with Revenue Per Employee.

Clearly, these cross-industry hypotheses will be moderated in strength by several of the other mentioned covariates that profile the client. In the interests of parsimony in targeting customer firms across industries, we propose a model with Revenue Per Employee as the sole mediating variable, at the risk of under-specifying the explanatory variables. The next section describes the survey research methods, and following sections discuss scale development, model estimation and empirical tests of these hypotheses.

METHOD & DATA

Data collection was done during April 2008 to November 2009, following the internet survey method suggested by Dillman (2000). This survey time frame covers most of the global recession that lasted from end 2007 to mid 2009 and the slow recovery. Therefore, we do not expect the responses to be unduly influenced by short term optimism or pessimism. Many of the non-likert scale items were asked in pairs, with responses being the lower and upper extremes of a range. A sample was generated from the *Business One* online database by selecting Asia-based managers in purchasing management roles from firms based in five ASEAN countries. The countries included Singapore, Indonesia, Malaysia, Thailand, and Philippines, where managers are competent in English as a medium commonly used in cross-border business transactions. Managers contacted in Taiwan, Hong Kong and had negligible language qualified respondents.

Responses indicated 133 respondents visited the site and began the survey, resulting in an initial pre-survey click rate of 84.2%. There were 51 usable responses for the section which contained likert scales on managerial perception of sourcing practices, and represented effective completion of the survey. This indicated a completion rate of 38.3% from respondents who visited the site, and a completion rate of 78% from those who stated they had cross-border suppliers. Those who did not complete all sections have very similar summary statistics to those who completed all sections of the survey. Assuming that those who did not complete all sections were similar to those initial 15.8% who did not visit the site, we may infer that non-response may not have been a serious problem (see Armstrong and Overton 1977 for similar reasoning regarding mail surveys). Table 1 (A) –(E) contains a summary description of the sample from the final section of the survey. The list of practices and their means-variance indicate the range of managerial behavior. Note that "green policies" that encourage suppliers to adopt ecologically sound practices are in the top half of agreement. The next section describes our scale development process, and provides details of model estimation. All hypotheses tests were tested as path effects in the model.

TABLE 1 (A)
DESCRIPTIVE STATISTICS OF SAMPLE

	Annual Rev. (US$ m)	Number of Employees	Firm Age	Manager's Years in Role	Annual Sales Growth Percent	Market Share for Leading Product Percent	Procurement Spend Shrinkage in Last Year Percent	Number of Supply Locations	Proportion of Spend on Global Sources Percent
Mean	563	1,845	38.2	8.16	11.26	27.76	27.19	27	47.66
Median	66	300	34.0	5.50	9.50	23.00	22.50	8	50.00
Minimum	1	14	5.5	1.00	1.00	2.50	1.00	1	2.00
Maximum	7,000	37,500	100.5	24.00	37.50	65.00	85.00	502	100.00

TABLE 1 (B)
DISTRIBUTION IN SAMPLE OF PRIMARY PRODUCT TYPE SOURCED

PRODUCT TYPE	N	Percent
COMPONENTS & MATERIALS	18	35.3%
EQUIPMENT & OEM	24	47.1%
MRO SUPPLIES SPARES	4	7.8%
SERVICES & UTILILTIES	5	9.8%
Total	**51**	**100.0%**

TABLE 1 (C)
DISTRIBUTIONS IN SAMPLE OF CENTRAL PROCUREMENT UNIT LOCATION

Location of Central Procurement Unit	Percent
Singapore	44.2%
Other APAC Australia, China, India, Indonesia, Japan, Malaysia, Maldives, Philippines, Thailand	48.8%
Other Sweden, USA	7.0%
Total	**100.0%**

TABLE 1 (D)
SOURCING PRACTICES & SITUATIONS
ON A STRONGLY AGREE =1 TO STRONGLY DISAGREE =5 SCALE, N=51

Sourcing Practice	Mean	Std. Dev.
Conformance quality to specifications is most important to our purchase criteria	1.29	.502
Our end customer perceived quality is most important to our purchase criteria	1.41	.753
Cost reduction is the most important goal of our procurement process	1.57	.671
A very large percent of our suppliers are long term	1.86	.980
We adjust our share of procurement spend to reward lower cost suppliers with more business	2.06	.881
We use a very high level of competition in sourcing	2.06	1.066
Our suppliers respond rapidly to changes in our requirements	2.08	1.055
Our suppliers are world leaders for their technology or products	2.16	1.084
Learning or experience curves exist for our suppliers, and so we expect them to pass on cost reductions every re-procurement	2.24	.971
Suppliers actively help us to achieve reductions in direct cost	2.31	1.104
Our suppliers are chosen because they are innovative	2.41	.898
We require suppliers to participate in certification and quality awards	2.43	1.237
We second source as an inventory management practice (this reduces the risk of selection and prevents effective monopolies giving flexibility)	2.45	1.205
We apply a Quality Assurance, Six sigma, capability competency, or similar model for our suppliers	2.47	1.391
We have “green procurement” policies in place to encourage suppliers to adopt ecologically sound practices	2.53	1.222
We like to qualify as many suppliers as possible (the resulting competitions provides incentives for effort)	2.55	1.172
Suppliers are deeply involved in our specification development	2.55	1.254
We actively monitor capacity utilization among our suppliers	2.61	1.250

Our suppliers understand the technology cycles and planned obsolescence routine for our product-market	2.63	1.076
Productivity gains of our suppliers in recent years has been huge	2.73	.874
We provide our suppliers with Progress Payments (this allows suppliers to manage their funds better)	2.73	1.537
Renegotiation with our suppliers due to design changes is frequent	2.80	1.096
We encourage suppliers to make dedicated investments for our business	2.88	1.125
Cost adjustments almost always occur during the term of the contract	2.90	1.188
We share resources with our suppliers in order to reduce their costs	3.04	1.600
We use predominantly short term contracts rather than long term contracts	3.16	1.206
Our suppliers' fraction of business with other clients is negligible.	3.22	1.270

TABLE 1 (E)
SOURCING SITUATIONON
ON A STRONGLY AGREE=1 TO A STRONGLY DISAGREE =5 SCALE, N=51

Sourcing Situation	Mean	Std. Dev.
A large proportion of our suppliers serve multiple customers	1.76	1.106
Demand is highly volatile in our product-market	2.18	.932
Cost variances and rate differences are significant in our supplier base	2.55	1.026
Excess capacity is usually available among our suppliers	2.82	.974
Stock outs occur frequently in our inventory	3.47	1.206
Organized labor and unions have a very significant influence on our procurement costs	3.49	1.084

MEASUREMENT SCALES & MODEL ESTIMATION

The items measuring managers' compliance with sourcing practices were five point itemized rating scales anchored with "Strongly agree (1 point)" to "Strongly disagree (5 points)." A high score indicated poorer compliance with the practice. We next discuss items corresponding to our two constructs, supply commoditization and supply innovation.

Scales

Tables 2(A) – (E) summarize scale construction diagnostics, following the process recommended by Gerbing & Anderson (1988) and Fornell & Larker (1981). We operationalized our measurement scales using a process as follows. (1) We developed the items based on conceptual support discussed earlier related to practices in sourcing. All items could be responded to on five point continuous rating Likert scales. The items were grouped into pages of the online survey. (2) On conclusion of the online survey, we conducted an initial exploratory factor analysis on the items related to commoditization and innovation, which yielded a two factor solution as expected. Chronbach alpha levels were all acceptable, and above the 0.60 level recommended as a threshold for new scales in strategy research (Nunnally 1988; Ray et al 2004; in addition, Peter 1979 recommends values of 0.5 and above for fewer than four item scales to be acceptable). (3) Confirmatory Factor Analysis (CFA) was conducted on the items with two latent factors. All retained items had standardized factor loadings from the CFA of more than 0.40 (as recommended by Hulland 1999). See Table 2(A), (D) for the convergent validity and scale reliability statistics and Table 2(B) for the item correlations. Two factors with Eigenvalues exceeding 1.0 resulted with Varimax rotation. EFA loadings, standardized CFA loadings and t values shown. All CFA coefficients were significant at better than .05 level. (4) The six items that passed the previous step were subjected to a discriminant validity test for the two constructs, as recommended by Fornell and Larker (1981). The average variance extracted AVE was over 0.5 See Table 2(E) for the discriminant validity statistics. The square of CFA pair wise (phi) correlations between the two constructs was lower than the

average variance extracted (AVE, in the diagonal cells) which supports discriminant validity. (5) Nomological validity was further supported with subsequent model analyses: CFA for the measurement model showed correlations as expected between the latent constructs. The RMSEA at 0.11 is above the recommended acceptable level of 0.08. However, other fit statistics are all acceptable. (Table 2(D)). A path analysis estimation of the model discussed in the next section supports all hypotheses. Therefore, the scales were acceptable for further analysis. For subsequent analyses, the two scales were reverse coded such that a high score on the measure indicates a higher level of competence with the Supply Innovation or Supply Innovation construct.

TABLE 2 (A)
SCALE ITEMS

Item: 5 point scale 1=Strongly agree: 5=Strongly disagree	**EFA First Factor Loading Eigenvalue =3.463 Variance explained=38.71%**	**EFA Second Factor Loading Eigenvalue =1.595 Variance explained= 34.33%**	**CFA Standard-ized Coeffici-ents**	**CFA t values**
SUPPLY INNOVATION AVE=.67, Chronbach alpha = .822				
Our suppliers understand the technology cycles and planned obsolescence routine for our product-market [ProdCycSup]	**.882**	.099	.83	6.55
Productivity gains of our suppliers in recent years has been huge [ProdgnsSup]	**.754**	.284	.67	5.05
Suppliers are deeply involved in our specification development [SpecDevSup]	**.890**	.112	.87	6.92
SUPPLY COMMODITIZATION AVE =0.53 Chronbach alpha = .773				
Learning or experience curves exist for our suppliers, and so we expect them to pass on cost reductions every re-procurement [LrnCrvRed]	.091	**.833**	.67	4.75
Cost adjustments almost always occur during the term of the contract [CstAdj]	.088	**.830**	.64	4.51
Renegotiation with our suppliers due to design changes is frequent [RenegFreq]	.408	**.758**	.87	6.29

TABLE 2(B)
SCALE ITEM CORRELATIONS

	ProdCycSup	ProdgnsSup	SpecDevSup	LrnCrvRed	CstAdj	RenegFreq
ProdCycSup	1					
ProdgnsSUp	.527**	1				
SpecDevSup	.732**	.578**	1			
LrnCrvRed	.258*	.219	.187	1		
CstAdj	.127	.301*	.252*	.506**	1	
RenegFreq	.412**	.528**	.371**	.570**	.538**	1

TABLE 2(C)
SCALE ITEM DESCRIPTION

	Mean	Std. Deviation
ProdCycSup	2.63	1.076
ProdGnsSup	2.73	.874
SpecDevSup	2.55	1.254
LrnCrvRed	2.24	.971
CstAdj	2.90	1.188
RenegFreq	2.80	1.096

TABLE 2(D)
CFA MEASUREMENT

Degrees of Freedom = 8
Minimum Fit Function Chi-Square = 14.04 (P = 0.081)
Root Mean Square Residual (RMR) = 0.077
Root Mean Square Error of Approximation (RMSEA) = 0.11
Standardized RMR = 0.070
Goodness of Fit Index (GFI) = 0.92
Adjusted Goodness of Fit Index (AGFI) = 0.80
Normed Fit Index (NFI) = 0.90
Non-Normed Fit Index (NNFI) = 0.91
Comparative Fit Index (CFI) = 0.95

TABLE 2(E)
DISCRIMINANT VALIDITY

	SUPPLY INNOVATION	**SUPPLY COMMODITIZATION**
SUPPLY INNOVATION	**0.67**	
SUPPLY COMMODITIZATION	0.2704	**0.53**

AVE is on the diagonal; The squared bivariate correlation from the CFA is off diagonal. These results support discriminant validity.

Ratio Measures

We next turn to the impact of key company ratios elicited in our survey on these two scales for sourcing performance. Three ratios are indicative of the priorities given to these performance dimensions. These are measured by Revenue Per Employee (revenue to employees ratio); Spend Yield (revenue to spend ratio); and Global Spend Density (global spend to locations ratio). These are described in Table 3. As is evident from the large difference between the median and the mean for these ratios, the distributions were skewed. Therefore, the natural logarithms of these ratios that were computed to conform with the literature (Huselid 1995) also served to bring distributions of transformed ratio variables close to normal.

TABLE 3
RATIO MEASURES DESCRIPTIVE STATISTICS

	Revenue Per Employee	Global Spend Density	Spend Yield
N	46	44	46
Mean	2.15	1,399.29	4.43
Median	0.23	100.06	1.98
Std. Deviation	8.86	4,964.58	6.12
Minimum	0.00	0.21	0.07
Maximum	54.55	30,600.00	26.67

Regression Model Estimation

We estimated regression models for Supply Commoditization and Supply Innovation in turn as dependent variables, and the six Sourcing Situation variables in Table 1(e) along with three additional market variables, Annual Sales Growth Percent, Market Share for Leading Product Percent, and Procurement Spend Shrinkage in Last Year Percent as in Table 1(a) as independent variables. The regression models were not significant, and explanatory value was negligible. Of these nine variables, only two variables had coefficients that were significant at the .05 level: "Cost variances and rate differences are significant in our supplier base" and "Excess capacity is usually available among our suppliers." Situation variables were not included in the path analysis model.

Path Analytic Model Estimation

We took a staged approach where the measurement model was first estimated as described above. The path model was estimated in the second stage. This maximizes interpretability of both measurement and path models (Anderson & Gerbing 1988). We estimated the path analytic model (using LISREL 8.52) to test our hypotheses. Tables 4(A)-(D) provide variable descriptions, correlations, model fit statistics, and hypotheses test results. As we see from the path diagram of the model, all hypotheses were supported at the .05 or better level.

Two alternate versions of the model were tested. Model A tests whether Supply Commoditization is causally associated with Supply Innovation, or whether the reverse path is hypothesized. The former model had superior explanatory power ($R^2 = 0.16$ and 0.13) compared to the latter ($R^2 = 0.09$ and 0.16), as were the fit statistics (for instance, NFI, RMR, AGFI) in Table 4(C).

TABE 4 (A)
MODEL DESCRIPTIVE STATISTICS

Measure	Mean	Std. Deviation
Supply Innovation	3.37	0.93
Supply Commoditization	3.35	0.90
Ln (Revenue Per Employee)	-1.37	1.63
Ln(Spend Yield)	0.83	1.17
Ln(Global Spend Density)	4.77	2.23

TABLE 4 (B)
MODEL CORRELATIONS

Measure	Supply Innovation	Supply Commoditization	Ln (Revenue Per Employee)	Ln(Spend Yield)	Ln(Global Spend Density)
Supply Innovation	1				
Supply Commoditization	.403**	1			
Ln (Revenue Per Employee)	-.306*	-.362**	1		
Ln(Spend Yield)	-.049	-.082	.100	1	
Ln(Global Spend Density)	-.099	-.100	.393**	-.330*	1

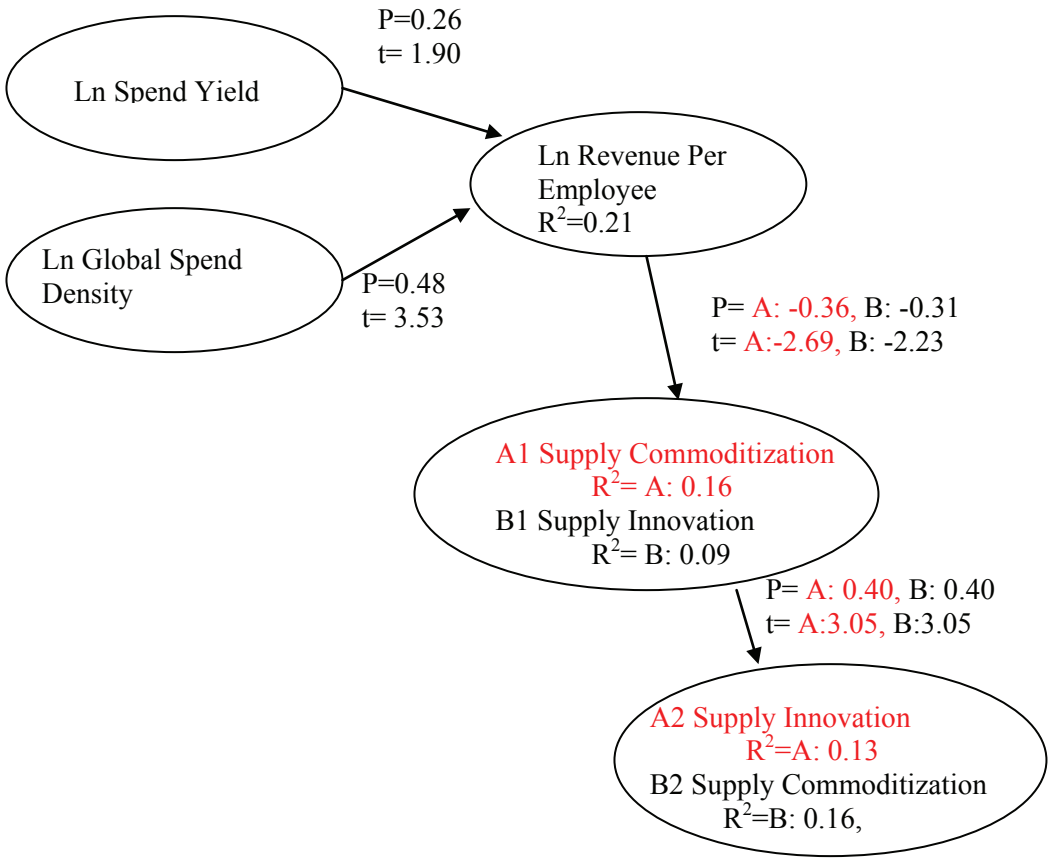
TABLE 4(C)
MODEL GOODNESS OF FIT STATISTICS

Model A tests whether Supply Commoditization precedes Supply Innovation, and Model B reverses the path. Degrees of Freedom = 5; Root Mean Square Error of Approximation (RMSEA) = 0.00

Model	**A**	**B**
Minimum Fit Function Chi-Square = (P = 0.54)	1.94	4.08
Normed Fit Index (NFI) =	0.94	0.88
Root Mean Square Residual (RMR) =	0.072	0.097
Standardized RMR =	0.047	0.066
Goodness of Fit Index (GFI) =	0.98	0.97
Adjusted Goodness of Fit Index (AGFI) =	0.95	0.91

TABLE 4(D)
MODEL A & B HYPOTHESES TESTS

Model A tests whether Supply Commoditization mediates Supply Innovation. This is indicated with the A1 and A2, and A prefix. Model B tests whether Supply Innovation mediates Supply Commoditization. This is indicated by the B1, B2 and B prefix.



Hypothesized Path	Standard-ized Estimate	t-statistic	Conclusions
H1: Supply Commoditization → Supply Innovation	0.40	3.05	Supported
H2: Ln Revenue Per Employee → Supply Commoditization	-0.36	-2.69	Supported
H3: Ln Global Spend Density → Ln Revenue Per Employee	0.48	3.53	Supported
H4: Ln Spend Yield → Ln Revenue Per Employee	0.26	1.90	Supported

Table 4(D) summarizes estimation results for both Models A and B in a schematic diagram, and hypothesis tests results in a table. Our empirical analyses therefore provide evidence of valid and reliable scales, and results that support all path hypotheses. We turn next to a discussion of these findings.

DISCUSSION

Buyers employ diverse practices in developing sourcing strategies. The list of practices is quite extensive, and there is a lot of variation ranging from 1.29 to 3.22 (where Strongly agree = 1 to Strongly disagree =5 with engagement in the practice).

Implications for Research

Practices that relate to the two sets of commoditization and innovation capabilities can be recognized from the measurement model results. Commoditization is usually viewed as an outcome of competitive forces in the economy, rather than as practices. Reimann, Schilke & Thomas provide an industry (rather than practices) definition: "Commoditization is a phenomenon with (i) increasing homogeneity of products (ii) higher price sensitivity among customers (iii) lower switching costs and (iv) greater industry stability." The authors demonstrate how Commoditization at the industry level mediates marketing strategies and competitiveness of the firm. Our results link commoditization to practices that prevail over longer periods of time, providing buyer capabilities to bring about industry commoditization as an outcome. We therefore echo the Bharadwaj and Matsuno (2006) call for examining the phenomenon of commoditization from the perspective of the buyer. They employ Social Exchange Theory (SET) to argue that organizational procurement should focus on removal of non-value adding costs, and suppliers who focus on this enjoy greater customer satisfaction and future purchase intention. Viewed from a sales perspective, the SET approach suggests supplier driven commoditization may pay dividends, since buyers are also seeking these benefits. The high CFA coefficients (.67, .64, and .87) of practices we identify in the measurement model allow a basis to extend this reasoning to sales strategy based on practices.

Innovation is the second key set of practices supported by the measurement model results. These encompass the wider economic relationship between buyer and supplier. Brewer & Carter (2010) trace the economic relationship from commoditization to innovation for contract manufacturing (CM). Initially, OEMs looked to CM as ways to quickly increase capacity at a lower cost as a commoditization practice. Increased global competition has changed their view of CM to partnering for "cradle to grave involvement in new product development, parts procurement, assembly, inventory management, distribution and order fulfillment." The results show that practices that cover multiple processes in innovation are involved, and are support by the CFA coefficients (.83, .67 and .87).

The path analysis results support our main hypothesis supply commoditization is associated with supply innovation, and the path was significant with P= 0.40, and R^2= 0.13. The results indicate sourcing practices such as experience driven cost reductions, cost adjustments and renegotiations will typically be associated with practices such as productivity gains, supplier involvement in specification development, and planning product cycles. Eggert, Ulaga, & Schultz (2006) find that relationship benefits display a stronger potential for differentiation in key supplier relationships than cost considerations. Matthyssens &Vandenbempt (2008) states: "Commoditization erodes the competitive differentiation of companies and often leads to a profit squeeze. Existing literature recommends the transition from basic product offerings to service-based value concepts in order to regain competitiveness in such a context." Devinney & Perm-Ajchariyawong (2008) discuss how innovation benefits can arise from outsourcing. Their results reveal that a significant segment of managers concentrate on value creation and capture, *beyond* fundamental motivations of cost reduction. They call innovation a second order impact on the outsourcing decision, and the tradeoff between cost advantages and organizational liability a first order impact. It is important to distinguish between the outsourcing decision and sourcing practices over time. Our results support these arguments. While they are based on distinct sets of practices, supply commoditization and supply innovation we strongly associated. The model fit statistics indicated that commoditization practices preceded innovation practices (noticeable improvements in Chi-Square, NFI, RMR, AGFI).

The ability to profile commoditization and innovation priorities is highly constrained. Many common sourcing situation and market related characteristics fail. The path analysis found one key ratio, Revenue Per Employee, to be highly significant (P= -0.36 and R^2= 0.16). Huselid (ibid.) notes that a high RPE does not imply low costs, and that a company can go bankrupt maximizing RPE. Conversely, with a

relatively low RPE ($172,470 in 2003 and $194,388 in 2010) Wal-Mart is widely considered to be very cost conscious and very successful (Return on Assets of 8.7 % in 2010). There is no cross-industry evidence, therefore, that firms with higher RPE will be inclined to reduce costs, as they may be characterized by different profiles on the mentioned covariates. In fact, we find evidence that higher RPE decreases commoditization practices.

Implications for Practice

How may salespersons modify their strategies with this knowledge? Suppliers will be more successful when they align their sales strategies with sourcing practices like commoditization and innovation. For buyers, the "middle" focus of commoditization helps the "bottom line", and may result in more immediate benefits than "top line" growth that emerges from innovation. Supply commoditization is the customer's immediate concern, and this priority may be anticipated by the sales strategy. Salespersons should first discuss how they plan on reducing costs for customers. For instance, GE's strategy for their Ecomagination Division is to communicate to clients their twin-criteria approach for Ecomagination branded products: reduced operating expense and best-in-class sustainability, in that order. Communication strategies on learning and experience curves may be valuable as increasing cumulative volume sourced from the supplier will help reduce costs in the long run. Contracts can build in the possibility of shared incentives for cost reduction, such as a percentage split in direct costs savings from reductions in non-value adding cost. Cost adjustments with changes in design and operational processes that save on costs can yield favorable perceptions. The salesperson should show a willingness to renegotiate frequently as the sourcing environment changes, or as cost savings can be shared despite being covered by BPOs. New versions of contractual agreements with verifiable cost savings could be proactively offered to make old agreements redundant.

Productivity gain resulting in lowered operational expense for clients is a main ingredient of commoditization practice and salespersons should emphasize how their productivity improvements can reduce costs. Salespersons should emphasize the ability to internalize design changes and provide prototypes at short notice. Supplier involvement in obsolescence planning in the product life cycle is an important sales strategy in innovation. The product half-life (the time elapsed from when sales revenue hits half way to the peak in the growth phase, to the similar point in the decline phase) should be well understood by sales managers in the supplier firm. Then supplier sales personnel can engage in suitable discussions on strategies to extend the product life cycle and introduce successor products. Supplier salespersons should communicate how their productivity gains can result in better supply strategies. For instance, installation of an ERP system in a supplier firm can speed up order processing and create efficiencies with electronic workflow.

Clearly, managers seek ongoing value creation and capture from outsourcing decisions, and strategic sales opportunities exist because sourcing competencies to accomplish this cannot be taken for granted. Bain & Co come to a similar conclusion, and provide examples that are outstanding because they are so rare, of evolving strategies implemented by 7-Eleven. Facing competition from mini-marts at gas stations, 7-Eleven adopted a strategy of "controlled capability sourcing." The strategy involves dynamic mapping of sourcing goals using metrics of relative capabilities and cost per transaction corresponding to innovation and commoditization practices we describe in this paper (Gottfredson, Puryear & Phillips 2005). The pre-conditions for such strategies are dynamic value based sourcing relationships.

How can salespersons better identify a manager's priorities in sourcing practices and target sales efforts? Suppliers may be able to target buyers better if they can associate observable firm characteristics with hard to identify sourcing competencies. Our analysis screened several firm characteristics, such as company revenue, company age, size of workforce, procurement spend, market share and growth rates. There were no significant associations of innovation or commoditization with these profiling variables. However, key ratios developed from these variables showed strong associations, suggesting targeting strategies. From the standardized effects of the ratios (Table 4), we can assess the level of compliance with the competency. Revenue Per Employee is easily observed, and is the single best mediating variable identified for supply commoditization and supply innovation. Firms across industries increase compliance

with commoditization competencies when Revenue Per Employee is low. A discount retailer may therefore be more compliant with supply commoditization competencies than an application software firm as the latter is likely to have a higher RPE. This single mediating effect will be moderated by many firm characteristics, but allows a parsimonious targeting strategy. Moreover, spend yield and global spend density have positive effects on Revenue Per Employee. The elasticity of Revenue Per Employee is much higher with respect to Spend Density than with Spend Yield. A lowered Revenue Per Employee strongly predicts increased supply commoditization and indirectly, supply innovation. This ratio turns out have a median value of US$0.23 million in our sample (compare with US $0.17 million in 1995 in Huselid's cross industry study). The next section concludes the paper with a summary of the contributions and directions for further research.

Limitations

There are some limitations of this study that should be noted. Firstly, we could not estimate a more elaborate model with moderating effects and other path effects given the modest sample size. This limits our recommendations to the main effects of supply commoditization on supply innovation. Possible moderating and mediating effects to examine in future studies are country base of purchasing manager, class of product sourced, market served, and stage in the product life cycle. Secondly, our survey was administered during a global recessionary environment, and managers did report substantial shrinkage in procurement spend. Managerial practices respond to cycles of economic growth and downturns. Moderating effects of the economic cycle on managerial perceptions would be interesting to include in such studies, but pose several challenges.

Commoditization and Innovation practices we focus on here are a smaller subset of the several practices we identified. Research into latent constructs and path effects that include other sourcing practices would yield further insights on the relational dynamics of competencies, value and performance. Other research streams are complementary to behavioral practice research in purchasing and sales management. The link between affective (Flint et al 2002) and behavioral measures of dynamic value in purchasing is a possible direction. Another promising direction is incorporating practice-based competencies from RBV perspectives into multidimensional scales on relationship value (Eggert et al 2006). The use of quasi-longitudinal methods is a promising direction as it would allow more insights into the time sequence and duration of priorities in managerial practices.

Finally, company ratios used for prediction of competencies, such as Revenue Per Employee, were derived from self-report by managers on items in the survey. As the survey assured anonymity, it was not possible to link manager survey responses on practices to yet other company ratios available in standard reports such as Form 10-K filings or databases such as Compustat®. Further research should seek to pass this hurdle by combining self-report with secondary data on company ratios. This would also enable us to link sourcing competencies with specific financial ratios of performance, such as Tobin's *q* and return on assets. Moreover, this approach has the advantages of reducing possible common method bias, and yielding a richer set of variables to better guide sales targeting.

Further comparative research with ASEAN and other regions of the world would yield valuable insights. Managerial practices in across-border sourcing relationships in the region are sparsely studied in business marketing, but are of increasing interest.

CONCLUSIONS

The primary motivation for the paper was to identify sourcing practices managers engage in subsequent to the outsourcing decision, and to determine how suppliers may build better sales strategies with that knowledge. Several practices managers engage in were identified and described. Two key sets of practices central to the literature were investigated further. These were the particular buyer competencies that lead to commoditization and innovation outcomes. Supply Commoditization and Supply Innovation constructs based on these practices were proposed and were operationalized with measurement scales. Several hypotheses were developed that could serve to improve supplier sales

strategies. A path analytic model allowed us to successfully link a key company ratio to these sourcing competencies, thereby improving supplier ability to target sales efforts. Overall, this paper makes a contribution in demonstrating the usefulness of a two stage strategy of (a) linking capabilities to practices, such as with Supply Commoditization and Supply Innovation, and (b) using targeting information to align sales strategies with these competencies.

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