

# The Changing Architecture of Advertising Agencies

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In contrast to other marketing activities, advertising is usually outsourced—historically, to an integrated full-service advertising agency that provides both creative and media services. Recently, major changes have occurred, specialized media shops have appeared, and large holding companies with several agencies and a separate media shop have emerged. This paper describes how firms in the current industry structure choose their agents. A theoretical section specifies the firm's decision process in obtaining the creative and media components. Conditions under which one or both could be effectively produced internally are identified. In the prevalent case when these components are outsourced, we evaluate whether they can be more efficiently produced by a bundled full-service agency or by unbundling to separate agents. An empirical section tests the theory implications with cross-sectional data on U.S. firm choices of advertising agents. The bundled full-service agency is still widely used. Firms with large advertising budgets unbundle to take advantage of media discounts obtained by market-making media shops. Internal agencies are used when firms have internal creative abilities, or have low-level requirements in both creative and media. The creative and media agencies within holding companies are found to act independently.

*Key words:* advertising agencies; media shops; outsourcing; unbundling; double marginalization

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## Introduction

Advertising is the vehicle by which firms inform consumers of their products and services. In the United States in 2003, firms spent \$245 billion on advertising (Coen 2004). Excluding direct mail and yellow pages, most published advertising information relates to media spending included in *Advertising Age's* annual surveys. Advertising agencies' capitalized billings amounted to \$149 billion in 2001. Since 1990, they have been in the range of 1.24%–1.41% of GNP, and their current level is approximately \$400 per capita. In 2003 the largest advertiser was General Motors (GM), which spent \$3.4 billion, followed by Procter & Gamble (P&G) with \$3.3 billion, Time-Warner with \$3.1 billion, and Pfizer with \$2.8 billion. Most advertising expenditure involves media billings channeled through advertising agencies to six main media: TV (40%), newspapers (30%), radio (12%), magazines (10%), Internet (4%), and outdoors (4%). In addition to media billings, agencies' capitalized billings include expenses for art, mechanical, and production, as well as commissions. Advertising agencies' gross income (compensation) account for approximately 13% of capitalized billings.

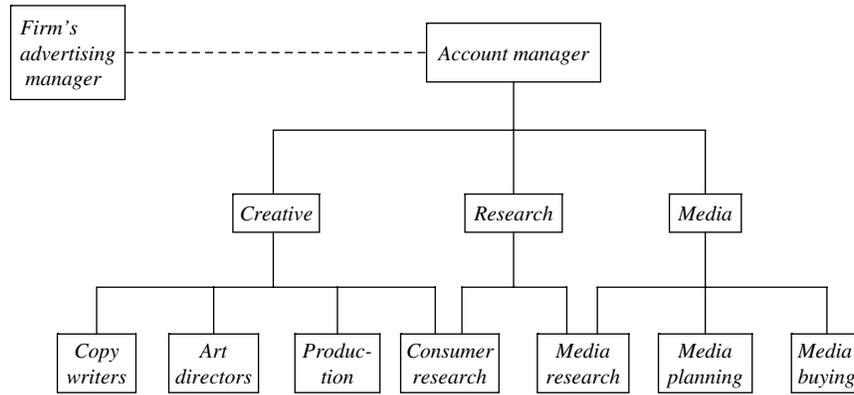
In the United States in 2002, there were about 13,000 advertising agencies (Bureau of Labor Statistics). The typical integrated full-service advertising agency assigns a team dedicated to an account (Figure 1) that offers expertise covering consumer and media

research, creative copy planning and execution, and media planning and buying. Above the account manager, the agency typically has VPs, senior VPs, executive VPs, etc., who are matched with similar functions at the client and make the relationship "stickier." The agency over time gains in-depth knowledge of the client's industry and consumers. It is commonly privy to information regarding current and future products, market intelligence data on competitors, etc. Thus, switching costs incurred by the client in replacing the agency are substantial. The agency, which accumulates knowledge about the client's industry, is prevented from serving its competitors. This increases its costs if it loses the client. These traits create a more partnership-type relationship. This relationship, while legally open-ended,<sup>1</sup> is for all practical purposes long term, and on average lasts eight years (American Association of Advertising Agencies 1997, Spake et al. 1999).

The full-service advertising agency concept was considered inviolate by the advertising industry till the 1980s. Creative boutiques, which specialized in creative ideas generation, were mainly used by full-service agencies as subcontractors. Relatively few firms had in-house agencies. Within the full-service agency, the better paid and prestigious positions belonged to creative people. As pointed out by Lodish

<sup>1</sup> The usual provision for cancellation is a 90-day notice.

Figure 1 Typical Organization of an Account Team Within an Advertising Agency



(1986), the media tasks were commonly viewed as a necessary evil, and the slogan “media is tedia” was often used. The main criterion that led an advertising agency to gain or lose an account was its creative performance. In the last two decades, major changes have occurred on the media side. The media marketplace expanded and became less concentrated. Instead of three national TV networks, there are now seven. Cable-based channels have further increased the number of TV channels. From a handful of national circulation magazines their number rose to 17,254 in 2003 (National Directory of Magazines 2004). The increased complexity of the media environment has fueled the emergence of companies that specialize in media buying. These media shops have been able to attract more talented and aggressive managers than the media departments of full-service agencies, where they would have played second fiddle. The main clients of the first media shops were small full-service agencies, which pooled their media purchases to achieve economies of scale comparable to those of large agencies. The appearance of media shops also allowed client firms to unbundle their advertising tasks to two agents. The research and creative tasks continued to be performed by the full-service advertising agency, while media planning and buying were delegated to a specialized media shop. In the last decade, unbundling has become increasingly popular. Recently, there has also been an increase in consolidation of media assignments by large advertisers. For example, GM and P&G, which, respectively, have seven and twelve different advertising agencies handling their brands, consolidated all their media buying with one media shop.

Currently, the majority of U.S. advertisers still use full-service advertising agencies. According to a 2003 survey by the Association of National Advertisers (ANA) of its members (Association of National Advertisers 2004), who tend to be larger advertisers, 48% used their regular agency to buy media. Taking into account smaller advertisers, this percentage

is higher. Tables 1 and 2 provide the top 12 advertising agencies and media shops and their billings in 1999. Each group totals almost \$45 billion in billings. By 2002 the billings of the top 10 media shops rose to \$66 billion, making it evident that they had become major players.

An additional industry change occurred in agencies’ ownership. Advertising agencies, which were mostly privately held, were bought by public holding companies (Table 1). They were not further merged to allow handling of competing accounts. Advertising agencies within conglomerate parents are separately managed, and thus operate in competition with one another. Media buying shops were also started or bought by holding companies (Table 2).

Another major change occurred within the last decade in the compensation of full-service advertising agencies. Historically, the compensation method was a fixed commission rate, 15% of media billings. Nowadays, other compensation methods are commonly used. Labor-based compensation, in which the client is charged for the hours devoted to his account plus a profit margin, has become increasingly popular and is now dominant. In 2003, 74% of advertisers paid

Table 1 Largest Individual Agencies Ranked by 1999 U.S. Capitalized Billings, in Billion Dollars

Rank	Agency	Conglomerate parent	Capitalized billings
1	Foote Cone & Belding	True North	4.9
2	McCann-Erickson	Interpublic	4.8
3	Young & Rubicam	Young & Rubicam	4.7
4	BBDO	Omnicon	4.1
5	Euro RSCG	Havas	3.6
6	Grey	Grey	3.6
7	DDB Needham	Omnicon	3.5
8	J. Walter Thompson	WPP	3.5
9	Ogilvy & Mather	WPP	3.2
10	TMP	TMP Worldwide	3.1
11	Leo Burnett	Leo Burnett	2.9
12	Bates	Cordiant	2.9

Source. *Advertising Age*.

**Table 2** Largest Media-Buying Specialist Companies Ranked by 1999 U.S. Billings, in Billion Dollars

Rank	Media Specialist Company	Conglomerate parent	Billings
1	MindShare	WPP	6.5
2	Initiative Media	Interpublic	5.4
3	TN Media	True North	5.3
4	Universal	Havas	5.0
5	OMD Worldwide	Omnicon	4.1
6	Media Edge	Young & Rubicam	3.9
7	Starcom Worldwide	Leo Burnett	3.7
8	MediaVest	MacManus	2.8
9	Zenith Media Services	Saatchi & Saatchi	2.8
10	MediaCom	Grey	2.4
11	Carat North America	Carat	2.1
12	Optimedia	Publicis	2.0

Source. *Advertising Age*.

agencies based on labor; only 10% used billings-based compensation, and most of them negotiated a commission rate below the traditional 15% (ANA 2004).

Despite the large magnitudes of firms' advertising spendings and the fact that most of these funds are channeled through advertising agents, there exist only a few studies on the relationship between firms and advertising agencies. Lodish (1986) provides a managerial perspective of the advertising firms and the agencies that serve them. He reviews copy and media decisions and discusses the pros and cons of an in-house agency. Gross (1972) examines how many creative campaigns, possibly generated by different agencies, ought to be evaluated before one is chosen. Villas-Boas (1994) examines why competing firms may prefer to be served by the same agency (current practices preclude such behavior, except in Japan). Schmalensee et al. (1983), and Silk and Berndt (1993, 1994) find scale and scope economies in advertising agency costs. Calantone and Drury (1979), Ellis and Johnson (1993), and Spake et al. (1999) address advertising agency compensation practices. However, no study deals directly with the major changes that have occurred in the architecture of advertising agencies, in particular the appearance of very large media-buying shops and conglomerates, and in the way firms currently choose their advertising agents. This paper deals with these issues.

The plan of this paper is as follows. A theoretical section addresses how a firm chooses among the type of creative and media providers now available. The conditions under which one or both of the advertising tasks are best performed by the firm internally rather than outsourced are identified. It is further evaluated when the creative and media tasks can be more efficiently produced by a bundled full-service agency or by unbundling the media to a media shop. The impact of more recent changes in the architecture of advertising agents such as conglomeration is also pursued.

For example, are there benefits in choosing a creative agency and a media shop that belong to the same conglomerate? An empirical section tests the theory implications on current choices of advertising agents by a very large sample of United States firms. A random coefficients logit model is used in the econometric analysis, and the empirical findings are consistent with the theory.

## The Choice of Creative and Media Providers

The firm's objective is to maximize profits. Sales and revenues depend, among other things, on its advertising activity. Other variables that impact revenues include the brand's current market share and price, competitors' prices and advertising, consumers' perceptions of the brand and its competitors, etc. Annually, the firm sets goals for its advertising and determines its media budget. A vast academic literature exists on this topic (for a review, see Hanssens et al. 1990). The effectiveness of the advertising activity is further dependent on the type of media advertisements are placed in, and the amount of space or airtime in each medium. These in turn depend on the target consumers, type of media watched and read by them, etc. Media allocation and scheduling to achieve maximum consumer exposure have also been extensively studied (for an early review, see Gensch 1973). The effectiveness of the media bought depends largely on the quality of the creative work. Consumers' awareness level, attitude change due to repositioning in the attribute space, and choice depend on the message and its delivery. Copy tests, tracking procedures, and test markets with split-cable television are used to gauge the effectiveness of the creative work and measure its impact on sales and profits (for a review, see Lodish 1986).<sup>2</sup>

In the past, a firm determined the required level of creative work and the type and amount of media, and paid the advertising agency 15% of the media billings' list price. For this fixed fee, the agency produced the required quality of creative and bought the agreed-upon media. To ensure continual high-quality performance, a review of the account was conducted every few years (Gardner 1996, Jones 1999). If the quality of the creative work was deemed insufficient, the firm conducted a contest among agencies and chose a different agency with higher anticipated creative quality. In the last decade, several changes have occurred. In particular, an alternative way to obtain the media

<sup>2</sup> Recent empirical studies on the impact of advertising on sales include Dubé and Manchanda (2005), Steenkamp et al. (2005), Pauwels (2004), and Naik et al. (2005). Recent theoretical studies on the value of consumer targeting through advertising include Gal-Or and Gal-Or (2005) and Iyer et al. (2005).

became available and the compensation method for advertising tasks has changed.

**The Firm’s Format Decision Problem**

The majority of firms use a full-service agency to provide their advertising activities. Fewer firms unbundle the services to two separate outside agents. The research and creative tasks remain within the relevant departments of the full-service agency, which for convenience will be referred to as the “creative agency,” and the media planning and buying tasks are assigned to a specialized media-buying shop. Some firms are known to internally execute both creative and media tasks, or just one of these tasks. The five alternative ways (“formats”) of obtaining the creative and media tasks are illustrated in Figure 2. Two formats, full-service and in-house, are forms of bundling to one agency that provides both creative and media. These two formats have existed for a long time. The other three formats are forms of unbundling to two separate agents and have only become available since media shops appeared on the scene and full-service agencies agreed to also function as creative agencies only. The five formats, thus, include only two different creative providers: the creative agency, which is part of three formats (full-service, creative agency, and creative-out) and the in-house creative agency, which is part of two formats (in-house and creative-in). On the media side there are three different media providers in the five formats: full-service, media shop, and in-house.

In all formats, excluding in-house, the firm faces a further set of decisions: the selection of specific agent(s) within the format. There are thousands of full-service agencies and tens of media shops from which to choose. We assume that due to the pioneering work by Gross (1972) and industry experience, the firm knows how to select within each format the specific agents best suited for its needs. Our focus is on the higher-level decision problem of how a firm chooses a format.

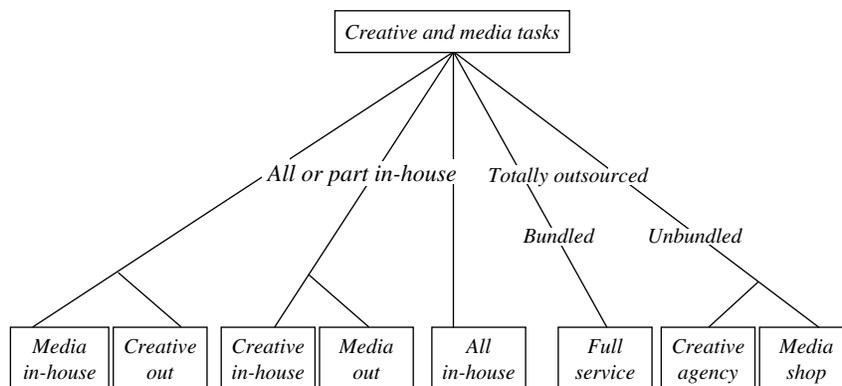
The firm’s format choice problem is assumed to be one of choosing format  $j$ , which minimizes total advertising production costs:

$$\text{Min}_{j=1,\dots,5} C_j(q, M) = b_j(q) + \Delta b_j + d_j(M) + \Delta d_j, \quad (1)$$

where  $q$  is the required quality of creative work,  $M$  is the required media budget based on list prices of media to be bought,  $b$  are creative work-related costs,  $d$  are media-buying-related costs, and  $\Delta b$  and  $\Delta d$  are profit margins to the creative and media providers, respectively. The index  $j$  denotes the format:  $j = 1$  bundled full-service agency;  $j = 2$  unbundled creative agency and media shop;  $j = 3$  in-house;  $j = 4$  creative-in media-out; and  $j = 5$  creative-out media-in. The firm’s choice among the five formats depends on the costs to the creative and media providers in each format and the profit margins the firm needs to pay them. This brings to the fore certain questions. How would the firm compensate an agent whose costs are not perfectly known to it? Would the sum of profit margins to the specialized agents be higher or lower than the joint profit margin of the full-service agency? Could an in-house agency, which does not receive a profit margin, perform the required tasks at costs comparable with those of agents who serve multiple clients?

The decision to internalize or outsource advertising will be examined along the lines of the classic make-or-buy proposition: Should an intermediate product be produced internally or procured in the marketplace? Coase (1937) recognized that internal organization and markets are alternative structures that differ in their transaction costs. Williamson (1975, 1985) developed a microanalytic framework that dimensionalizes different sources of transaction costs. For the decision to bundle or unbundle the outsourced tasks, a different methodology developed more recently in economics will be applied. Baron and Myerson (1982) examine the compensation of

**Figure 2** Decision Tree of the Advertiser



an agent with unknown costs. Baron and Besanko (1992) and Gilbert and Riordan (1995) examine the conditions for unbundling a service composed of two strictly complementary components to two independent agents with unknown costs. The creative and media tasks fit this description; without either one, there is no advertising campaign. The above theoretical developments will be utilized to propose a unified framework to ascertain under which conditions each of the five formats of Figure 2 will perform the required advertising tasks at the lowest costs.<sup>3</sup>

### The Costs of Each Format

The cost components of Equation (1), which the firm will bear in each format, can be further elaborated upon and the total expected cost in each format specified.

**Bundling.** The most common provider is the full-service advertising agency. It provides both creative and media tasks and is compensated on a “cost plus” basis.

The total payment to the agency,  $C_1$ , is a function of the agency’s costs and profit margin. The full-service agency has a cost  $b_1$  for the creative component and a cost  $d_1$  for the media component and will receive a joint profit margin  $\Delta(b_1 + d_1)$ . Each component’s production is initially assumed to be independent of the other component. Let  $e = b_1 + d_1$  denote the joint cost incurred by the agency in the production of creative and media. The agency is assumed to know this cost. Despite the firm’s prior experience and the agency’s record keeping, the firm is unable to perfectly audit the agency’s true costs. A situation of asymmetric information exists, where the agency has private information about its costs. According to the Revelation Principle (e.g., Baron and Myerson 1982), without any loss of generality, the firm may be restricted to compensation policies that require the agency to report its cost  $e$  and provide the agency no incentive to lie. The firm does not know the agency’s exact joint cost, but is assumed to have a subjective prior probability distribution for the unknown cost  $e$  prior to receiving a cost report from the agency. The density function for this distribution,  $h(e)$ , is a continuous function of  $e$ , with  $h(e) > 0$  over the interval  $[e, \bar{e}]$ , and has a corresponding cumulative distribution function  $H(e)$ . The firm recognizes that the agency has an incentive to misreport its cost in order to obtain a higher price for its services. The firm will thus set a compensation plan  $(r, s)$ . Let  $r(\hat{e})$  be the probability that the firm will use the advertising

agency if it reports cost  $\hat{e}$ , where  $r(\hat{e})$  is a nonincreasing function of  $\hat{e}$  and  $0 \leq r(\hat{e}) \leq 1$ . If the firm decides to use the advertising agency when it reports  $\hat{e}$ , it will pay it a total amount  $s(\hat{e})$ . The firm and the advertising agency are assumed to be risk neutral.

If the advertising agency’s cost is  $e$  and it reports  $e$  honestly, then its expected profit is

$$\Omega(e) = [s(e) - e]r(e). \quad (2)$$

If the agency lies and reports  $\hat{e}$  when its true cost is  $e$ , then its expected profit is

$$\Omega^*(\hat{e}, e) = [s(\hat{e}) - e]r(\hat{e}). \quad (3)$$

To guarantee that the advertising agency has no incentive to misreport its cost, the Incentive Compatibility (IC) condition must hold:

$$\Omega(e) = \max_{\hat{e}} \Omega^*(\hat{e}, e) \quad \text{for all } e \in [e, \bar{e}]. \quad (4)$$

The advertising agency will work only if it expects a nonnegative profit from conducting the advertising campaign for the firm, satisfying the Individual Rationality (IR) constraint

$$\Omega(e) \geq 0 \quad \text{for all } e \in [e, \bar{e}]. \quad (5)$$

Equation (4) implies that  $\Omega(e) \geq \Omega(\hat{e}, e)$ , and by manipulation, Equations (2) through (5) lead to  $\Omega'(e) = -r(e)$ . Integration implies that the following must hold for any feasible payment plan:

$$\Omega(e) = \Omega(\bar{e}) + \int_e^{\bar{e}} r(\bar{e}) d\bar{e}. \quad (6)$$

The firm’s expected payment in using the advertising agency is

$$C_1 = \int_{e=e}^{\bar{e}} s(e)r(e)h(e) de. \quad (7)$$

The firm’s problem is to provide the agency with a feasible payment plan  $(r, s)$  that minimizes the firm’s expected payment subject to the agency’s IR and IC constraints. The firm’s expectation of the advertising agent’s profit (before  $e$  is known) is

$$\int_{e=e}^{\bar{e}} \Omega(e)h(e) de = \int_{e=e}^{\bar{e}} [s(e)r(e) - er(e)]h(e) de. \quad (8)$$

Substituting (8) into (7) and integrating by parts while using (6), the firm’s objective can be specified as

$$\begin{aligned} C_1 &= \int_{e=e}^{\bar{e}} er(e)h(e) de + \int_{e=e}^{\bar{e}} \Omega(e)h(e) de \\ &= \int_{e=e}^{\bar{e}} er(e)h(e) de + \int_e^{\bar{e}} \left( \int_e^{\bar{e}} r(\bar{e}) d\bar{e} + \Omega(\bar{e}) \right) h(e) de \\ &= \int_{e=e}^{\bar{e}} er(e)h(e) de + \int_e^{\bar{e}} r(\bar{e}) \left[ \int_e^{\bar{e}} h(e) de \right] d\bar{e} + \Omega(\bar{e}) \\ &= \int_{e=e}^{\bar{e}} er(e)h(e) de + \int_{e=e}^{\bar{e}} r(e)H(e) de + \Omega(\bar{e}). \end{aligned}$$

<sup>3</sup> An assumption made here, which will be further discussed later, is that the creative quality and media budget are exogenous to the format choice problem.

Multiplying and dividing by  $h(e)$ , the firm's expected payment is

$$C_1 = \int_{e=\underline{e}}^{\bar{e}} \left[ e + \frac{H(e)}{h(e)} \right] r(e)h(e) de + \Omega(\bar{e}). \quad (9)$$

Thus, based on the revelation principle, the firm sets the payment to the agent by using a margin (subsidy) to both reward the agent sufficiently so he will provide the service and induce him to reveal his true costs. The subsidy that induces the agent to reveal his true cost is shown to be equal to  $H(e)/h(e)$ . It represents the information cost incurred by the firm due to information asymmetry between the firm and its agency regarding the agency's true costs.<sup>4,5</sup>

**Unbundling.** In the unbundled case the firm is contracting with two separate suppliers. Its full-service agency continues to provide the creative component, and a media shop provides the media component. It is assumed that the component suppliers act independently of each other. The creative supplier has cost  $b_2$ , and the media supplier has cost  $d_2$ . The two unbundled suppliers have private information about the costs of their own components. The firm does not know the agents' exact costs, but is assumed to know that they are independent random variables with densities  $f(b_2)$  and  $g(d_2)$  defined over the range  $[b, \bar{b}]$ ,  $[d, \bar{d}]$ , respectively, and corresponding cumulative distribution functions  $F(b_2)$  and  $G(d_2)$ . In a similar manner to the bundled case, the firm's expected payment is

$$C_2 = \int_{d=\underline{d}}^{\bar{d}} \int_{b=\underline{b}}^{\bar{b}} \left[ b + \frac{F(b)}{f(b)} + d + \frac{G(d)}{g(d)} \right] \cdot r(b, d)f(b)g(d) db dd + \Omega(\bar{b} + \bar{d}). \quad (10)$$

**An In-House Agency.** A firm that performs both advertising tasks in-house will eliminate the need to pay profit margins to outside agents. In this case, the total cost to the firm is:

$$C_3 = b_3 + d_3, \quad (11)$$

where the creative cost is  $b_3$  and the media cost  $d_3$ .

<sup>4</sup> For example, take the case in which the firm negotiates with an agent and knows that the agent's costs  $e$  are uniformly distributed such that  $\mu - \sigma < e < \mu + \sigma$ . The subsidy is  $H(e)/h(e) = e - \mu + \sigma$ . It is evident that the greater the dispersion  $\sigma$ , the greater the subsidy. In other words, the more uncertain the firm is about the agent's true costs (a higher distribution dispersion), the higher the subsidy it will pay. On the other hand, if the firm is certain about the agent's true costs,  $\sigma = 0$  and  $e = \mu$ , then it will only cover the agent's costs.

<sup>5</sup> The single-period analysis conducted above is a simplification. In reality, the firm and the agency are playing a multiperiod game, in which the dynamics of future costs and benefits are taken into account.

**Creative-In and Media-Out.** The firm may decide to internalize only one task and outsource the other. In such a case, the firm has private information on the cost of the internally produced component, but knows only the cost distribution of the complementary outsourced component. When a firm internalizes the creative component, the specific media provider chosen will be the same media shop as in the unbundled case. The firm's total expected payment is therefore:

$$C_4 = b_3 + \int_{d=\underline{d}}^{\bar{d}} \left[ d_2 + \frac{G(d_2)}{g(d_2)} \right] r(d)g(d) dd + \Omega(\bar{d}). \quad (12)$$

**Media-In and Creative-Out.** Similarly, in the case where the firm internalizes the media-buying component and outsources the creative component, it will choose the same creative agency as in the unbundled case. The firm's total expected payment is:

$$C_5 = d_3 + \int_{b=\underline{b}}^{\bar{b}} \left[ b_2 + \frac{F(b_2)}{f(b_2)} \right] r(b)f(b) db + \Omega(\bar{b}). \quad (13)$$

#### When Would Each Format Be Chosen?

Different firms require different creative quality levels, media budgets, and media types, and may find it advantageous to choose different formats. The main question posed in this study is under what conditions each format is likely to lead to the lowest total expected costs for a firm, and therefore be chosen.

**Bundling.** The outsourcing formats of bundling and unbundling enjoy several major advantages over the in-house operations, and those will be discussed later. The bundling format was, and still is, the most prevalent. In the following, we focus on reasons for the total expected costs of bundling (9) to be lower than those of unbundling (10).

*Lower Joint Margin Avoidance of Horizontal Double Marginalization.* The firm's expected costs in the bundled and unbundled formats, Equations (9) and (10), can be compared, assuming that the unbundled suppliers have the same production technology as the joint supplier,  $b_1 = b_2$  and  $d_1 = d_2$ . Because the full-service agency's creative department continues to provide the creative component, the main assumption here is that there is no difference in costs between the full-service agency's media department and the media shop. It can be shown (see the appendix for derivation) that for a broad range of cost distribution functions, including the uniform, normal, exponential, logistic, Laplace, and chi-square; and under some restrictions on the parameters Weibull, gamma, and beta; the joint margin of Equation (9) is lower than the sum of the separate margins in Equation (10):

$$\frac{H(e)}{h(e)} < \frac{F(b_2)}{f(b_2)} + \frac{G(d_2)}{g(d_2)}.$$

Therefore, the firm will end up paying less to the bundled provider. The intuition as to why it is better for the firm to bundle and deal with only one agency is that integrated supply eliminates the informational equivalent of “double marginalization.” In the unbundled case, each component supplier ignores the negative consequences of his actions on the profits of the supplier of the complementary product, whereas the bundled supplier internalizes this effect. This makes the component suppliers more willing to overstate their costs in the unbundled case, thus increasing total information rents.

*Economies of Scope.* The assumption of independently distributed component costs may not always hold. The joint production of creative and media may give rise to economies of scope, which will make it less costly than the two separate productions. If a cost reduction due to the joint production of both services exists,  $e < b_2 + d_2$ , the bundled case may be preferred.

*Coordination Costs.* The dissolution of advertising tasks will create new coordination inefficiencies. Someone within the firm, with advertising expertise, will need to manage and coordinate two outside agents as opposed to one (the internal full-service agency coordination is performed by the account manager). The advertising agency, which services many accounts, may have economies of scale in these managerial tasks. This may lead to  $e < b_2 + d_2$ . These coordination-type costs may be more pronounced for certain firms. For example, consumers exhibit high brand loyalty in product categories defined by credence attributes, such as pharmaceuticals and cosmetics. In such products it is hard for consumers, even after several trials, to ascertain a brand’s true quality.<sup>6</sup> To induce brand switching in such categories, a high level of coordination between the creative work and the media planning and buying will be needed. Firms in these industries may therefore lean more than others towards bundling.

**Unbundling.** The above analysis may explain why most firms use full-service agencies and why this format was considered inviolate by the industry till the 1980s. Nowadays, however, advertising unbundling increasingly takes place. Several reasons may explain what leads a firm to unbundle or, in other words, for the expected costs of Equation (10) to be lower than those of Equation (9).

*Better Media Technology.* The previous analysis assumed that creative and media-related costs are identical for the unbundled and bundled cases; both employ the same technology. However, the media shop may have better technology. In such a case, the

expected media costs of the media shop will be lower; the cost density function  $g(d)$  will be pushed to the left. For example, due to specialization media shops may (and in fact claim to) develop better media-planning models and attract managers who are better negotiators with the media. One implication of better media shop technology is that the larger the firm’s media expenditure, the greater the savings it can realize by unbundling.

*Competition.* In the unbundled case the firm can benefit from horizontal competition among independent suppliers of either one of the advertising components, which reduces information rents for this component. The more competition, the lower the demanded profit margin, and the more unbundling is preferred. One could argue that media buying is more of a “commodity” than creative work, which can be viewed as a differentiated product. Therefore, the threat to a media shop that the firm will move its media buying to a less expensive media shop is more credible. Empirical support for the impact of increased competition in media can be found. The number of media shops started to increase in the early nineties and, indeed, ANA reports a large jump in the number of its member firms unbundling, from 18% in 1991 to 47% in 1994.

*Media Market Making.* One of the main advantages of the media shop is that it operates under fewer constraints. Unlike the full-service advertising agency, which cannot work with competing accounts, the media shop makes no such commitment. This means, for example, that the media shop can buy the more expensive network TV slots in the upfront market, at a lower price, with anticipation of using them for particular clients. Were one of these clients to eventually decline to buy a particular slot, the media shop could sell it to this client’s direct competitors, who have a similar target audience. A full-service agency would need to take detours and absorb potential losses to get rid of such a spot. In short, the media shop, unlike the full-service agency, can be a *media market maker*. Endicott (2000) provides clear evidence for this. Nearly two-thirds of all national media is purchased through media shops. Half of the media (mostly network TV) that full-service agencies purchase on behalf of their clients is bought through media shops. An implication is that firms that are heavy users of the more expensive and concentrated national network TV and cable TV will benefit more from unbundling because they know that the expected costs of the media shops are lower in this medium. Empirical support for this contention is provided by ANA (2001), which reports that media shops are compensated at 3% for national TV and 5% for the more fragmented spot TV and magazines.

<sup>6</sup> The notion of search, experience, and credence-type goods was forwarded by Nelson (1970, 1974) and Darby and Karni (1973).

*Economies of Scale.* Economies of scale in the media component have been reported (e.g., Silk and Berndt 1993); this may lead the media shop to have an advantage. Certain companies operate in several product classes and hold several brands in each. They often employ several advertising agencies, either to take advantage of a wider range of creative ideas or because of agencies' specialization in certain industries. Such companies may find it advantageous to employ several agencies for creative work, but to aggregate their media billings and assign them jointly to one media shop. Evidence was provided earlier for an increase in consolidation of media assignments by large advertisers. It should be noted, however, that unbundling when several creative agencies are involved will increase the firm's coordination costs.

*Conglomerate Membership.* Large conglomerates nowadays own several full-service/creative agencies and a media shop (Tables 1 and 2). The ownership of several competing agencies allows the conglomerates to gain economies of scope while adhering to the restriction that no individual agency serve competing accounts. The ownership of a separate media shop provides the ability to gain economies of scale by jointly serving the agencies in media buying. A firm that chooses a media shop that is part of the same conglomerate as its creative agency may enjoy several advantages of both unbundling and bundling. The unbundling to two outside agents increases coordination costs. However, this increase may be mitigated within the same conglomerate. In a sense, the firm rebundles the unbundled agents. This rebundling, if the two agents are not truly independent, may also decrease the impact of double marginalization, because the agents will be concerned about each other's profits. It should be noted that even if the firm decides to bundle, it may accrue benefits by choosing a full-service agency that belongs to a conglomerate. This will happen if the agency uses the conglomerate's media shop as a subcontractor in media buying and if the media shop passes back (through the agency) to the client firm part of the larger discount it gains (due to its various advantages mentioned earlier). On the other hand, if conglomerate members are truly independent (as claimed by the creative agencies when they try to attract competing accounts) and such independence extends to the media shop, then their joint ownership by the conglomerate will make no difference to the client. Potentially, based on the above discussion on media market making, there may be large incentives for the media shop to remain truly independent.

**Internalizing Versus Outsourcing** A firm will prefer internalizing over outsourcing all or some advertising tasks if it can perform them more efficiently internally. The *Transaction Cost* framework will be

instrumental in identifying when this may occur for each internalized format. For all internalized formats, a substantial advantage is the avoidance of paying profit margins to agents. However, there are major costs, related to diseconomies of scope and scale, which usually outweigh this advantage and lead most firms to outsource.

*Avoidance of Margins and Vertical Double Marginalization.* When a firm internalizes creative work, it avoids paying the associated margin. If the firm also internalizes media buying, it avoids paying the media agent's margin but also eliminates the costs of vertical double marginalization. The media supplier (i.e., Network TV) demands a margin, and the media shop or the full-service agency's media department requires its margin. By internalizing media buying the firm eliminates the "middleman."

*Diseconomies of Scope and Scale.* If outsourced agents are more efficient, due to economies of scope and scale, then despite their margins they may be overall less costly to the firm. Such economies are likely to exist in an outside agency, which serves many clients, as opposed to the dedicated in-house agency, which services only one client. The costs of employing high-quality creative, research, and media specialists can be shared by several clients. The costly infrastructure for producing advertisements in complex media (i.e., TV) can be shared. The negotiating abilities of a media buyer representing many accounts and a larger budget are also likely to be better. Cost savings created in full-service agencies due to economies of scope in handling a larger media mix are reported by Schmalensee et al. (1983) and Silk and Berndt (1993, 1994). Silk and Berndt (1993) demonstrate that economies of scale appear when an advertising agency serves more accounts and/or larger accounts.

**An In-House Agency.** The in-house format will be chosen when the costs  $C_3$  are the lowest of all five potential formats. For that to happen, the internal costs of producing the required creative quality and buying the allotted media need to be comparable to those of the alternative bundled format—the full-service external agency.

*Internal Competency.* When the firm has internal production capabilities similar to those of outside agents it should conduct all advertising tasks in-house. This may occur when the advertising make-or-buy decision is related to the production of the firm's main line of business. For example, in mail order firms the creation of catalogs and their shipment according to a mailing list, as well as subsequent packaging and mailing of orders, are major components of their general activity. Furthermore, the required creative and media skills are of a level that could be managed efficiently in-house. If this activity was outsourced, the advertising agent would need to

develop *asset-specific* capabilities that it could not put to alternative use if it lost the account. It would thus charge higher than normal rents to develop and maintain such capabilities. It would also be *complex* (transactional costly) for the firm to fully and accurately describe these types of responsibilities to an agent.

*Local Advertising.* Firms that need local area knowledge about consumers and media, which may be hard and costly for national advertising agencies to acquire and maintain, may also be better off internalizing the advertising activity—for example, retailers that use local printed media to inform consumers of currently promoted products. For such firms, the creative work and media-buying task are relatively basic, and an in-house agency could produce them efficiently. Moreover, the type of media is such that an outside agent may not have any relative advantage in obtaining discounts.

**Creative-In and Media-Out.** For  $C_4$  to be smaller than  $C_2$ , and for this format to be preferred to unbundling with two outside agents,  $b_4$  needs to be smaller than  $(b_2 + \Delta b_2)$ . In other words, the internal creative group must be able to produce the creative quality at a cost comparable to that of the creative agency.

*Internal Creative Capabilities.* There are instances when the firm has *internal competencies* that allow it to be cost efficient in the production of the creative task. For example, firms in the entertainment industry, such as movie studios, have employees with similar talents to those required for creative advertising tasks. These firms may create internal economies of scope if they conduct the creative tasks in-house and outsource the media task. A firm that chooses this format uses a media shop to purchase media. It is therefore likely to have a larger advertising budget and use more complex media than a firm that in-houses both advertising tasks.

**Media-In and Creative-Out.** For  $C_5$  to be lower than  $C_2$ ,  $d_5$  needs to be lower than  $(d_2 + \Delta d_2)$ . The internal media-buying operation needs to be nearly as efficient as the media shop.

*Internal Media Capabilities.* Firms with *internal competencies* only in media buying are rare. Media companies (i.e., broadcast firms) are probably the only type of firms with internal media capabilities, but they also have creative abilities. If their media spendings are relatively large, they will probably choose “creative-in and media-out” to benefit from the media shops’ advantages. The one case in which a dedicated internal media operation may potentially be nearly as efficient as a media shop is firms with very large media budgets. In this case, also the savings associated with the avoidance of the media-related vertical double marginalization will be most pronounced. However, these in-house media operations will not

have the full media market-making advantages of the media shops; they will be constrained in their ability to resell media to the firm’s competitors.

## Actual Choices of Advertising Agents

To examine the validity of the above analysis, its empirical implications will be tested through the current choices of advertising agents by a large cross-section of U.S. firms.

### The Data

The data are based on the *Advertiser & Agency Red Books* that are compiled by the National Register Publishing. These publications provide a detailed profile of the advertising industry. They are compiled and updated yearly from information supplied by advertisers and advertising agencies, as well as annual reports and business publications. “*Red Books*” (National Register Publishing 2000) lists 4,676 firms with an advertising budget of over \$200,000 in the United States. Our analysis will be limited to 2,238 firms with an advertising budget of over \$1,000,000, because with a lower budget it is questionable whether the use of a media shop is a viable option. Out of these, for 1,746 firms there was complete information on their advertising providers, and they constitute the cross-sectional sample. The sample’s total advertising spending is \$63.25 billion.<sup>7</sup> The data for each firm includes its characteristics (e.g., name, location, S.I.C. codes, business description, number of employees, sales, tradenames owned, geographic distribution, channels used) and advertising information (e.g., advertising budget, media types used, and advertising agent(s) employed).

The number of firms that chose each format and their total advertising expenditures are shown in Table 3. The percentage of firms that outsource all advertising services is 86.4%, and most, 75.7%, do so to a full-service agency. In-house is chosen by 10.7% of firms and creative-in by 2.9%. The option of media-in is not chosen, and therefore is dropped from further consideration. Media shops (unbundled and creative-in) handled 58% of advertising dollars. The table shows the distribution of providers chosen by advertisers at different advertising expenditure levels. It is evident that as the advertising budget increases, so does the tendency to unbundle.

Some of the firms that outsource choose agencies within conglomerates. Of the 1,322 firms that bundle, 1,099 use a single full-service agency and 455 (41.4%) of these belong to a conglomerate. Two hundred twenty-three bundlers use multiple full-service agencies. Of these, 42 (18.8%) use only full-service agencies

<sup>7</sup> The 2,238 firms with a budget lower than \$1,000,000 spent jointly nearly \$1 billion. Only one of these firms used a media shop.

**Table 3** Firms' Format Choice and Advertising Expenditure

				Bundle	Unbundle	Creative-in	House	Total
Total number of companies = 1,746				1,322	187	50	187	100%
Percent of companies				75.7%	10.7%	2.9%	10.7%	100%
Total ad expenditure (billions) = \$63.25				\$24.02	\$34.92	\$2.52	\$1.79	100%
Percent of total ad expenditure				38%	55.2%	2.8%	4%	100%
Ad budget (millions)	No. of companies	% Companies	% Advertising					
\$1–2	520	29.8%	1.2%	81.7%	2.3%	1.5%	14.4%	100%
\$2–5	411	23.5%	2.3%	82.5%	2.7%	2.9%	11.9%	100%
\$5–10	270	15.5%	3.3%	83.7%	4.8%	2.6%	8.9%	100%
\$10–20	177	10.1%	4.2%	73.4%	11.3%	2.3%	13.0%	100%
\$20–50	168	9.6%	8.9%	66.1%	22.0%	6.5%	5.4%	100%
\$50–100	68	3.9%	7.9%	55.9%	33.8%	7.4%	2.9%	100%
\$100–200	68	3.9%	15.0%	52.9%	42.6%	2.9%	1.5%	100%
\$200–500	43	2.5%	19.3%	27.9%	60.5%	2.3%	9.3%	100%
\$500–1,000	12	0.7%	12.2%	33.3%	66.7%	0.0%	0.0%	100%
>\$1,000	9	0.5%	25.7%	11.1%	88.9%	0.0%	0.0%	100%
Total	1,746	100%	100%					

that belong to conglomerates, and another 88 (39.5%) use at least one agency that belongs to a conglomerate. In terms of the 187 firms that unbundled, 90 use a single creative agency, and of these, 23 (25.5%) choose one that belongs to the same conglomerate as their media shop, 36 (40%) others choose a creative agency that is in a conglomerate but their media shop is either independent or in a different conglomerate, and 31 (34.4%) use a nonconglomerate creative agency. Multiple creative agencies are used by 97 unbundlers. Of the multiple-agencies users, for 3 users (3.1%) all of their agents (creative and media) belong to the same conglomerate; for 30 (31.6%) others only some of their creative agencies are in the same conglomerate as their media shop. Fifty (51.5%) firms use creative agencies, of which some or all are part of conglomerates, but their media shop is independent or belongs to a different conglomerate; 14 (14.4%) use only nonconglomerate creative agencies.

### Estimation Methodology

Figure 2 illustrates the decision problem faced by the firm in choosing the service format most appropriate for its needs. The firm evaluates which service provider(s) can develop its advertising campaign with the highest profitability (lowest costs), given the specified creative quality and allocated media budget.

To the researcher, the true costs of the various  $j$  formats for firm  $i$  are unknown. However, these costs can be approximated based on measurable firm variables. Firm  $i$ 's profits in format  $j$  can be specified as:

$$\Pi_j^i = a^i - [\alpha_j + \beta_{1,1,j}^i X_{1,1}^i + \beta_{1,2,j}^i X_{1,2}^i + \cdots + \beta_{2,1,j}^i X_{2,1}^i + \beta_{2,2,j}^i X_{2,2}^i + \cdots] + \varepsilon_j^i \quad j = 1, \dots, 4, \quad (14)$$

where  $a^i$  is firm  $i$ 's media billing adjusted revenue, which is assumed to be format independent,  $X_1^i$  is

a vector of measurable firm  $i$  characteristics related to creative costs, and  $X_2^i$  is a vector that includes its advertising budget and media allotments. The vectors of coefficients,  $\beta_{1,j}^i$  and  $\beta_{2,j}^i$ , relate to the efficiency of format  $j$ 's provider(s) in fulfilling the creative and media tasks for firm  $i$ . Given the "demographic" nature of firm variables, model (14) is not the conventional econometric model in which the  $X$ s vary across the  $j$  alternatives, and the coefficients  $\beta$  do not. Rather, the  $X$ s are identical across alternative formats, and the coefficients  $\beta$  are alternative specific.<sup>8</sup> For example,  $X_{1,1}^i$  could be a dummy variable indicating whether firm  $i$  is in the entertainment industry and thus has high internal creative abilities. The Walt Disney Company will receive a value of 1 irrespective of the format. The corresponding coefficients,  $\beta_{1,1,j}^i$ ,  $j = 1, \dots, 4$ , suggest by how much Walt Disney's internal creative abilities reduce its creative costs in each format. This coefficient will be zero for the outsourced formats,  $j = 1, 2$ , and nonzero for formats in which the creative advertising task is internalized,  $j = 3, 4$ . The variable  $X_{2,1}^i$  could represent firm  $i$ 's network TV budget. The coefficients,  $\beta_{2,1,j}^i$ ,  $j = 1, \dots, 4$ , are indicative of the charges the various  $j$  agents levy on firm  $i$  for buying that medium. Reasons (and evidence) were provided earlier for why a media shop charges less for network TV than a full-service agency. Thus, it is expected that  $\beta_{2,1,2}^i < \beta_{2,1,1}^i$ . The coefficient  $\alpha_j$  represents the fixed costs associated with using format  $j$ . The error term  $\varepsilon_j^i$  captures random effects.

Without loss of generality, Equation (14) can be redefined by treating the costs of the bundled format

<sup>8</sup> This will eventually lead to the multinomial logit (as opposed to conditional logit) model. For a discussion comparing the multinomial logit and McFadden's conditional logit, see Maddala (1983, p. 41).

as base case costs, and normalizing the costs and profits of all alternatives

$$\tilde{\Pi}_1^i = a^i + \varepsilon_1^i, \quad (15)$$

$$\tilde{\Pi}_j^i = a^i - [\tilde{\alpha}_j^i + \tilde{\beta}_{1,j}^i X_1^i + \tilde{\beta}_{2,j}^i X_2^i] + \varepsilon_j^i \quad j = 2, 3, 4. \quad (16)$$

The new parameters  $\tilde{\alpha}_j = \alpha_j - \alpha_1$  and  $\tilde{\beta}_j^i = \beta_j^i - \beta_1^i$ ,  $j = 2, 3, 4$  represent the differences between each format's cost coefficients and those of the bundled case. This set-up is econometrically necessary and also advantageous. In this industry the standard practice, historically and factually, is to bundle. It is easier to predict which cost proxy variables should be included in each relative to bundling cost function—in other words, which measurable firm variables are likely to indicate that the firm will have lower (or higher) cost in obtaining the required creative quality and allotted media through a nonbundling format than through a full-service agency. As before, the vector of nonzero  $\tilde{\beta}_{1,j}^i$  will differ for each format.

**Random Coefficient Multinomial Logit Model of Format Choice.** The probability that the normalized profit of format  $j$ , as specified in model (16), is the highest, and therefore will be chosen by firm  $i$ , can be represented by the logit model when the error term  $\varepsilon_j^i$  has i.i.d. Extreme Value Type I distribution. While we are unable to estimate directly firm  $i$ 's specific characteristic coefficients  $\gamma_j^i = (\tilde{\beta}_{1,j}^i, \tilde{\beta}_{2,j}^i)$ , we can allow for unobserved heterogeneity in these parameters. To this end, the mixed logit framework will be drawn upon. For a detailed exposition of the random coefficients mixed logit methodology, see Revelt and Train (1998) and Train (1999). One can assume that the function  $f(\gamma | \theta)$  describes the density with which parameter  $\gamma$  varies over firms. The vector  $\theta$  represents parameters of this multivariate distribution, such as its mean and standard deviation. The probability that firm  $i$  will choose format  $j$  takes the form:

$$P^i(j=1) = \int_{\gamma} \frac{1}{1 + \sum_{j=2}^4 e^{-[\tilde{\alpha}_j + \tilde{\beta}_{1,j} X_1^i + \tilde{\beta}_{2,j} X_2^i]}} f(\gamma | \theta) d\gamma, \quad (17)$$

$$P^i(j) = \int_{\gamma} \frac{e^{-[\tilde{\alpha}_j + \tilde{\beta}_{1,j} X_1^i + \tilde{\beta}_{2,j} X_2^i]}}{1 + \sum_{j=2}^4 e^{-[\tilde{\alpha}_j + \tilde{\beta}_{1,j} X_1^i + \tilde{\beta}_{2,j} X_2^i]}} f(\gamma | \theta) d\gamma \quad j = 2, 3, 4. \quad (18)$$

The parameters  $\theta$  of the mixing distribution  $f$  can be estimated through simulations.

**Predicted Impact of Variables.** The implications of the theory section can be used to specify measurable firm variables to be included in the model, and to predict these variables' expected impact. The cost functions of Equation (1) are approximated in model (16) as the cost of creative and media in each format relative to the cost of the bundled alternative.

If a certain cost coefficient in vector  $\tilde{\beta}_{1,j}^i$  is negative, then it implies that as the corresponding element of  $X_1^i$  increases, the cost of nonbundling decreases and the profit associated with unbundling increases—implying further that the probability that firm  $i$  will choose a nonbundling format increases (conversely, a positive coefficient indicates that bundling is more likely).

Predictions on the coefficients' signs are discussed next and summarized in Table 4. Because in the mixed logit framework the coefficients may be distributed across firms, these predictions relate to the sign of their means, and thus to the impact of explanatory variables on the average firm.

*Unbundle versus Bundle.* A lower joint margin, existence of economies of scope, and reduced coordination costs will lead the bundled provider, in general, to have a cost advantage. The intercept,  $\tilde{\alpha}_2$ , is thus expected to be positive. On the creative side, greater emphasis on creative work and tighter coordination with the media is expected for firms in product categories defined by credence attributes: pharmaceuticals, cosmetics, and optical (film, etc.). This implies that the element of  $\tilde{\beta}_{1,2}$  corresponding to the dummy variable that the firm belongs to these product categories should be found positive. Because low-budget firms tend to bundle, the credence-type firms are limited to those with an advertising budget above \$50 million. Based on Table 3, a firm with such a budget has a probability greater than  $\frac{1}{3}$  to unbundle. Possibly a similar effect, of reduced magnitude, exists for experience goods.

With respect to media costs, the media shop is able to acquire the same media at lower costs. Therefore, the advertising budget variable is expected to have a negative coefficient. Heavy use of network TV to address consumers will have a similar effect. Such usage is measured by the dummy variable indicating whether this medium is used, multiplied by the total advertising budget. Use of cable TV is likely to have a similar effect. The number of agencies the firm employs for creative work may have a negative or positive effect. When the firm unbundles, all separate budgets are aggregated to a media shop, which is able to extract a bigger discount. However, when the number of agencies increases, the coordination costs between the media shop and creative agencies rise.

Conglomerate membership, if its members are not fully independent, may make a difference. If a firm chooses a full-service agency that belongs to a conglomerate (all conglomerates have a media shop) and if some of the media savings are passed back to the agency and further to the firm, bundling may be less costly. Two dummy variables were specified, one when the firm's single or multiple full-service agencies belong to conglomerates, and one when only

**Table 4** Predicted Impact of Firm Variables on the Choice of Agent Format

Parameter <sup>a</sup>	Corresponding variable	Predicted sign <sup>b</sup>	Costs in comparison to bundling
<b>Unbundle versus Bundle</b>			
$\alpha_2$	Intercept	+	Higher separate margins and coordination costs, no economies of scope
$\beta_{1,2,1}$	“Credence” product	+	Higher coordination cost
$\beta_{2,2,1}$	Ad budget	–	Media shop will extract larger discounts
$\beta_{2,2,2}$	Network TV ad budget	–	Greater discounts in concentrated media
$\beta_{2,2,3}$	Cable TV	–	As in network TV
$\beta_{2,2,4}$	Number of agents	–	Larger discounts due to aggregation of media budgets
		+	Greater coordination costs
$\beta_{2,2,5}; \beta_{2,2,6};$ $\beta_{2,2,7}; \beta_{2,2,8}$	Membership in same conglomerate	+/?	Reduced media costs if some discounts are passed back
		–/?	Reduced coordination and separate margins if form of rebundling
<b>House versus Bundle</b>			
$\alpha_3$	Intercept	+	Nonshared fixed costs
$\beta_{1,3,1}$	Entertainment	–	Existence of internal creative abilities
$\beta_{1,3,2}$	Mail order	–	Complex central activity
$\beta_{1,3,3}$	Catalogs	–	Can be done efficiently in-house
$\beta_{1,3,4}$	Direct marketing to consumer	–	Existence of other marketing activities done internally
$\beta_{2,3,1}$	Ad budget	+	Full-service agency will get larger discounts
$\beta_{2,3,2}$	Media types	+	Full-service agency more cost effective if many are used
$\beta_{2,3,3}$	Daily newspapers	–	Require localized knowledge, simple creative and media
$\beta_{2,3,4}$	Newspaper distributor	–	As above
$\beta_{2,3,5}$	Co-op	–	As above
$\beta_{2,3,6}$	Spot TV	+	Requires more sophisticated creative and media abilities
<b>Creative-in versus Bundle</b>			
$\alpha_4$	Intercept	+	Higher fixed and coordination costs, loss in economies of scope
$\beta_{1,4,1}$	Entertainment	–	Existence of internal creative abilities
$\beta_{1,4,2}$	Cultural	–	As above
$\beta_{1,4,3}$	Mail order	–	Complex activity
$\beta_{2,4,1}$	Ad budget	–	A form of unbundling, additional discount to media shop

<sup>a</sup>For ease of notation in Tables 4 and 5,  $\tilde{\alpha}$  and  $\tilde{\beta}$  are represented by  $\alpha$  and  $\beta$ .

<sup>b</sup>A positive sign indicates that bundling is less costly and more likely to be chosen.

some of the multiple full-service agencies belong to conglomerates. If a firm chooses a creative agent(s) that belongs to the same conglomerate as its media shop, unbundling (due to rebundling) may be less costly. Two additional dummy variables were specified: one when the firm’s single or multiple creative agencies belong to the same conglomerate as the media shop, and one when only some of the multiple creative agencies belong to the same conglomerate as its media shop. If agents within conglomerates are fully independent, then all these four coefficients will be insignificant.<sup>9</sup>

*House Versus Bundle.* Both formats are forms of bundling; however, there are fixed costs associated with the existence of an advertising agency. In a full-service agency these costs can be shared by several accounts, while an in-house agency will bear them fully. These fixed costs are likely to overshadow the fact that an in-house agency demands no profit margin. The intercept,  $\tilde{\alpha}_3$ , is thus likely to be positive. In terms of creative costs, if the firm is in the entertainment business (i.e., broadcast, cable, and film) it

has reduced costs in an internalized creative operation. A firm classified as engaged in mail orders or that uses catalogs and direct marketing as media may choose to internalize the advertising activity.

On the media costs side, the element of  $\tilde{\beta}_{2,3}$  representing the advertising budget should be positive because an outside agent is better able to extract discounts. Advertising in various media, measured by the number of media types used, would also favor bundling. The full-service agency has teams to negotiate with various media, whereas the in-house agency will need to add those. Use of print media, particularly newspapers and co-op advertising, will have a negative coefficient. The use of such media requires localized knowledge and simple creative and media skills. On the other hand, placing spot TV ads, which are also localized, should work in the opposite direction because it indicates the need for sophisticated creative abilities, which will be expensive to build internally.

*Creative-In and Media-Out versus Bundle.* The nonshared fixed costs of an in-house agency, loss in economies of scope, and increase in coordination costs due to dividing the tasks are likely to be larger than the savings in creative profit margin. Therefore, the

<sup>9</sup> The dummy variables are both firm and format specific.

intercept  $\tilde{\alpha}_4$  will be positive, favoring bundling. In terms of creative costs, having creative abilities due to other firm activities (an entertainment company, or one engaged in cultural activities) should favor creative-in. In terms of media costs, “creative-in and media-out” is a form of unbundling, and therefore the advertising budget size should favor it.

**Empirical Findings**

Table 5 reports estimation results of the standard and mixed multinomial logit models. The mixed logit model includes normally distributed random coefficients for the coefficient of the dummy variable representing credence-type products, and slopes of the continuous variables: advertising budget, number of agents, and interaction of network TV with advertising budget. The coefficients of dummy variables representing the firm’s industry (proxy for creative abilities) and the media types it uses are homogeneous (found not to benefit from heterogeneity). 100 Halton draws (see Train 1999) were used. The addition of random coefficients improves overall fit, log-likelihood value of  $-1,126$  versus  $-1,169$  which is significant at the 1% level. The holdout sample predictive abilities of both models are very good. For example, when the mixed logit model was re-estimated on data from 75% of the sample and predictions were made for the other 25%, 91% of the holdout format choices were correctly predicted (see Table 6).<sup>10</sup> In terms of the nonrandom coefficients, their significance, signs, and magnitudes remain similar in both models. In the random coefficients some changes occur. Several coefficients become larger in magnitude, which is commonly observed in mixed logit estimation. The slope of the advertising budget in-house versus bundling becomes significant. It also increases substantially in magnitude to a level comparable to the slope of advertising in unbundling versus bundling. The rest of the discussion relates to the mixed logit estimates.

**Directional Impact of Variables.** In general, the estimates, in terms of significance and signs, support the predictions made in Table 4 on when non-bundling formats will outperform the bundling format. Unbundling is favored when the advertising budget increases, TV is used as a medium, and more creative agencies are involved. Unbundling is not favored for highly advertised credence-type products. House is favored when the firm has creative abilities, is engaged in mail orders, and uses catalogs,

<sup>10</sup> The confusion matrix indicates that 96% of bundlers, 67% of unbundlers, 84% of house, and 29% of creative-in were correctly classified. It should be noted that due to the low occurrence of creative-in in the sample, its holdout cell size included only seven firms.

**Table 5 Estimation Results of the Multinomial and Mixed Logit**

Parameter	Variable	Multinomial logit		Mixed Logit	
		Estimate	Std err	Estimate	Std err
<b>Unbundle versus Bundle</b>					
$\alpha_2$	Intercept	3.604 <sup>a</sup>	0.222	4.849 <sup>a</sup>	0.523
$\beta_{1,2,1}$	“Credence” product				
	Mean	0.617	0.563	4.517 <sup>a</sup>	1.637
	SD			2.656 <sup>a</sup>	1.086
$\beta_{2,2,1}$	Ad budget*				
	Mean	-0.417 <sup>b</sup>	0.206	-2.035 <sup>a</sup>	0.677
	SD			3.956 <sup>a</sup>	0.777
$\beta_{2,2,2}$	Network TV $\times$ ad budget*				
	Mean	-0.481 <sup>b</sup>	0.227	-2.322 <sup>a</sup>	0.813
	SD			2.434 <sup>a</sup>	0.573
$\beta_{2,2,3}$	Cable TV	-0.563 <sup>a</sup>	0.202	-0.443 <sup>d</sup>	0.307
$\beta_{2,2,4}$	Number of agents				
	Mean	-0.339 <sup>a</sup>	0.073	-0.302 <sup>d</sup>	0.213
	SD			1.161 <sup>a</sup>	0.298
$\beta_{2,2,9}$	Spot TV	-0.709 <sup>a</sup>	0.235	-0.614 <sup>c</sup>	0.343
<b>House versus Bundle</b>					
$\alpha_3$	Intercept	2.244 <sup>a</sup>	0.207	2.354 <sup>a</sup>	0.317
$\beta_{1,3,1}$	Entertainment	-0.885 <sup>b</sup>	0.470	-1.326 <sup>a</sup>	0.540
$\beta_{1,3,2}$	Mail order	-1.949 <sup>a</sup>	0.454	-2.367 <sup>a</sup>	0.557
$\beta_{1,3,3}$	Catalogs	-0.598 <sup>a</sup>	0.188	-0.581 <sup>a</sup>	0.209
$\beta_{1,3,4}$	Direct marketing to consumer				
	Mean	-0.514 <sup>a</sup>	0.185	-0.561 <sup>a</sup>	0.205
	SD				
$\beta_{2,3,1}$	Ad budget*				
	Mean	0.221	0.255	2.778 <sup>a</sup>	0.851
	SD			2.121 <sup>a</sup>	0.524
$\beta_{2,3,2}$	Media types	0.061 <sup>b</sup>	0.031	0.055 <sup>c</sup>	0.034
$\beta_{2,3,3}$	Daily newspapers	-0.427 <sup>b</sup>	0.199	-0.413 <sup>b</sup>	0.217
$\beta_{2,3,4}$	Newspaper distributor	-0.435 <sup>b</sup>	0.223	-0.444 <sup>c</sup>	0.254
$\beta_{2,3,5}$	Co-op	-0.335 <sup>c</sup>	0.185	-0.310 <sup>d</sup>	0.202
$\beta_{2,3,6}$	Spot TV	0.288 <sup>d</sup>	0.189	0.293 <sup>d</sup>	0.207
<b>Creative-in versus Bundle</b>					
$\alpha_4$	Intercept	4.598 <sup>a</sup>	0.394	4.622 <sup>a</sup>	0.401
$\beta_{1,4,1}$	Entertainment	-2.772 <sup>a</sup>	0.404	-3.052 <sup>a</sup>	0.427
$\beta_{1,4,2}$	Cultural	-1.328 <sup>b</sup>	0.646	-1.303 <sup>b</sup>	0.647
$\beta_{2,4,1}$	Ad budget*				
	Mean	-0.466 <sup>b</sup>	0.208	-0.283 <sup>d</sup>	0.195
	SD			0.058	0.198
$\beta_{2,4,2}$	Mail order	-2.873 <sup>a</sup>	0.644	-3.019 <sup>a</sup>	0.666
$\beta_{2,4,3}$	Consumer magazines	-0.791 <sup>b</sup>	0.366	-0.818 <sup>b</sup>	0.369
$\beta_{2,4,4}$	Spot radio	-0.718 <sup>b</sup>	0.365	-0.747 <sup>b</sup>	0.368
$\beta_{2,4,5}$	Network TV	0.658 <sup>c</sup>	0.327	0.601 <sup>c</sup>	0.378
Log-likelihood		-1,169		-1,126	

<sup>a</sup>Significant at the 1% level.  
<sup>b</sup>Significant at the 5% level.  
<sup>c</sup>Significant at the 10% level.  
<sup>d</sup>Significant at the 15% level.  
 \*Scaled at \$100,000,000.

direct marketing, newspapers, and co-op advertising. House is not favored when the advertising budget increases, more media types are used, and spot TV is used as a medium. Creative-in is favored when the firm has internal creative abilities and is engaged in mail orders. All intercepts have the signs predicted in Table 4.

Some of the coefficients discussed earlier were found to be insignificant, and therefore removed. Producers of experience goods, unlike those of credence goods, were not found to overfavor bundling. Joint

**Table 6** Percent of Correctly Predicted Format Choices in Hold-Out Sample

	Predicted				Total cell size
	B	U	C	H	
Actual holdout sample					
B	<b>96.19%</b>	2.64%	0.59%	0.59%	341
U	28.89%	<b>66.67%</b>	4.44%		45
C	57.14%		<b>28.57%</b>	14.29%	7
H	13.64%	2.27%		<b>84.09%</b>	44
Total cell size	351	40	6	40	437

conglomerate membership had no effect, implying that if the full-service/creative agency and media shop belonged to the same conglomerate, they acted as totally independent agents.

There are several unpredicted findings that are consistent with the theory. Spot TV, in addition to national network TV and cable TV, works in favor of unbundling. According to Coen (2001), spot TV has a sizable national component of \$12.26 billion. The media shop is probably more efficient in getting discounts on the national component. Use of consumer magazines and spot radio favors creative-in, while the use of network TV does not. A possible interpretation is that ads in magazines and spot radio require intermediate creative skills, lower than those required for TV ads, which are better produced by a full-service agency (or a creative agency).

**Average Impact of Variables.** The coefficients' average magnitudes warrant further discussion, although it will be conjectural in nature. The unbundling decision is motivated by a desire for higher media discounts. Spending a dollar on network TV doubles the discount in comparison to other media (the coefficients of advertising budget and network TV  $\times$  advertising budget are almost identical). This is consistent with earlier evidence that even full-service agencies purchase most TV advertising slots through media shops, and that network TV purchases through media shops are compensated at a lower rate than other media. The decision to have an internal creative agency is motivated by creative considerations. The coefficients for creative abilities, entertainment, and cultural activities are large and loom above the rest. Moreover, the entertainment coefficient is almost three times larger than in in-house, which may indicate greater utilization of internal creative abilities on intermediate level-type media. Media discounts consideration plays a small role in this decision, given the relatively small magnitude of the advertising budget coefficient. Presumably, a media shop that is employed in creative-in cannot obtain larger discounts in consumer magazines and spot TV than the media department of a full-service agency. The in-house agency decision is largely the result of a low

media budget and using simple localized print media. Under those circumstances, the specialized creative and media capabilities of outside agents do not come into play.

One should not lose sight of the fact that bundling is the most popular format in the marketplace and in the sample. The theoretical explanations for bundling versus unbundling were lower joint margins, economies of scope, and lower coordination costs, all proxied through the intercept. The intercept's magnitude is such that it would take an advertising budget of \$105 million to make a firm indifferent between bundling and unbundling (assuming it uses one creative agent and network TV).<sup>11</sup> The data in Table 3 provide support for this magnitude. The tendency to bundle despite a large media budget is most pronounced for credence-type firms with an advertising budget of over \$50 million. Given the magnitude of their coefficient, it would take on average an advertising budget of \$210 million to make this type of firm indifferent between the two formats. In the bundle versus creative-in case, the attraction to bundle is due to economies of scope, lower coordination costs, and the avoidance of the fixed costs associated with an in-house agency. The intercept's magnitude is such that it would take being in the broadcast industry and using consumer magazines and spot TV for a firm to be indifferent between bundling and creative-in. In the bundle versus in-house case, the fixed costs of the in-house agency are proxied by the intercept. Its magnitude is such that, if the firm is in entertainment, sends catalogs, uses daily newspapers, employs a newspaper distributor, and funds co-op advertising, it could have an advertising budget as high as \$25 million and be indifferent between in-house and bundling. With a higher advertising budget, such a firm would be more likely to outsource to a full-service agency. It would also use such an agency at a much lower budget if it did not engage in some of the above activities.

**Heterogeneity.** In the unbundling case, the advertising coefficient is heterogeneous. Its mean is  $-2.0347$  with standard deviation of 3.9559, which implies that 70% of firms have the predicted negative advertising coefficient. It is plausible that for the remaining firms, given the media types they use, a full-service advertising agency can get a discount equal to that of a media shop. Two additional continuous variables account for heterogeneous behavior: the interaction of network TV with advertising (83% of firms have the predicted coefficient sign), and number of agents (60% have a negative coefficient). Possibly, certain firms

<sup>11</sup> Indifference in the context of a logit model means that conditional on the firm outsourcing both creative and media, it has a probability of 1/2 of choosing either to bundle or to unbundle.

(17%) that use network TV spend only a small fraction of their overall budget and altogether a small amount on that medium. Perhaps for these firms, given the other media types they use, a full-service agency is able to get media discounts similar to those of the media shop. The prediction on the number of agents was twofold: A greater media discount can be obtained if the firm aggregates its separate media budgets to one media shop, and as the number of agents increases, coordination costs between these outside players increase. The results seem to indicate that for 60% of the firms, the greater media discounts exceed the increase in coordination costs, whereas for 40% of the firms the opposite occurs.

In the in-house case, given the distribution of the advertising coefficient, 90% of firms have the predicted coefficient sign favoring bundling. Possibly, for particular media (i.e., local newspapers), certain house agencies may be able to get better (or equal) discounts than a full-service agency explaining the remainder 10% of firms.

## Summary

The outsourcing of the advertising activity to outside agents has been in vogue much earlier than the recent trend to outsource production, data processing, etc. In terms of budgets involved, the advertising activities are of extremely large magnitude. Nevertheless, the problem of whether and to whom to outsource this activity has received little attention in the marketing literature. This work attempts to fill this void; it examines both theoretically and empirically the architecture and choice of agencies that fulfill the advertising services.

A rationale was forwarded for why the full-service agency format has been and still is the norm. The conditions for a firm to not select a full-service agency, but rather to unbundle the creative and media tasks to two specialized agents, or internalize both tasks, or just creative, were identified. Most firms prefer the full-service agency; three-quarters of all firms use it. A phenomenon highlighted in this paper is the growing popularity, especially among large advertisers, of unbundling the traditional tasks of the full-service advertising agency, and in particular the separation of media planning and buying from the other tasks. Currently 10.7% of advertising firms choose this format, and they channel 55% of all advertising dollars through media shops. In general, firms will prefer to unbundle when their annual advertising budget exceeds \$100 million and when they are heavy users of network TV. Firms with credence-type products will resist the temptation to unbundle until their advertising budget is double the above amount. An in-house agency that provides both creative and

media needs was selected by 10.7% of firms. An additional 2.9% use an internal agency just for their creative work. Firms lean towards developing an in-house agency when their advertising budget is low and they use simple local print media. An internal creative agency is developed by firms with internal creative capabilities that use intermediate-type media.

A major advantage of media shops is their ability to serve as media market makers. This is a direct consequence of the fact that media shops, unlike full-service agencies, do not limit themselves to not working with competing accounts. While the fact that media shops buy media for full-service agencies as well is discussed in the popular press, this particular reason for their improved efficiency has not been explicitly raised. However, this reasoning is crucial for understanding the media shops' cost advantages and in explaining the unbundling phenomena. Moreover, it also has bearings on the latest changes in the architecture of advertising agents: the creation of large conglomerates with several full-service agencies and a media shop. The full-service agencies act fully independently in order to be able to attract and serve competing clients. A question that arises is whether the conglomerate's full-service/creative agencies and media shop act independently. If they do not act independently, then from the client's perspective this structure is a form of rebundling. Based on the empirical findings, these agents act independently, meaning that using a media shop that is in the same conglomerate does not offer clients any benefits that they could not get in other, out-of-the-conglomerate, media shops. This finding is consistent with the reasoning that a major cost advantage of the media shop is its ability to serve as a media market maker, which is contingent on its distancing itself from any commitments. Another potential explanation for this empirical finding is that the less differentiated media-buying market is much more competitive than the creative market, and the resulting thin margins do not allow the media shops to favor other conglomerate members.

Given that this is the first study on this topic, some limiting assumptions were made—in particular, that the creative quality, the media budget, and its breakdown to specific media are exogenous to the format choice problem, and thus do not depend on the format type. Analogous restrictive assumptions are made in the cited economics literature. For example, in "the make-or-buy" literature the product to be procured internally or externally is always uniquely specified. It should be noted that if the creative quality, media budget, and its breakdown are not uniquely prespecified by the client firm, and may be different for each format, the problem would be one of profit maximization where their optimal level, as well

as the optimal format, would be derived. The fact that the common practice is to compensate advertising agents on a “cost plus” basis offers some empirical support that these variables are prespecified by the client firms. This is in contrast to salespeople who are usually compensated as a function of sales or profits. Relaxation of these limiting assumptions is left for future research.<sup>12</sup> Another assumption inherent in the cross-sectional empirical analysis is that the firms’ format choices are stationary. However, the evidence points to the fact that unbundling is increasingly popular. Presumably, the cost advantages of unbundling are increasing over time and a longitudinal analysis may yield additional insights into the causes of the structural changes occurring in this industry.

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**Appendix. Joint vs. Separate Margins**

It has been assumed that  $b$  and  $d$  are independent variables where  $e = b + d$ . It is now further assumed that  $F(b)$  and  $G(d)$  are log concave. Log concavity is satisfied by many distributions, including the uniform, normal, exponential, logistic, Laplace chi square, and, under some restrictions, on the parameters of Weibull, gamma, and beta. This assumption implies that  $F(b)/f(b)$  and  $G(d)/g(d)$  are nondecreasing functions. Log concavity is preserved under convolution (Eaton 1980); therefore, the sum of two independent variables with log concave distribution functions has a log concave distribution function. Thus,  $H(e)$  is log concave and  $H(e)/h(e)$  is nondecreasing. The sum of two nondecreasing functions,  $F(b)/f(b) + G(d)/g(d)$ , is also nondecreasing. Substituting  $e = b + d$ , the sum  $F(e - d)/f(e - d) + G(d)/g(d)$  is nondecreasing in  $d$  and by symmetry  $F(b)/f(b) + G(e - b)/g(e - b)$  is nondecreasing in  $b$ .

By convolution of independent variables, the density function for  $e = b + d$  is

$$h(e) = \int_{d=\max(\underline{d}, e-\bar{b})}^{\min(\bar{d}, e)} f(e-d)g(d) dd \tag{A.1}$$

<sup>12</sup> Relaxation of these assumptions, in particular with respect to creative quality, which is hard to measure, will be difficult. Nevertheless, one can speculate on its impact. On the creative side, because the cost of producing the creative work is higher for in-house formats, a more complex analysis is likely to predict utilization of higher creative quality in the outsourced formats, as well as higher profits. A corrected empirical analysis will thus predict fewer firms that choose the internalized formats. On the media side, the lowest production costs are those of the media shop, followed by the full-service agency, and then the in-house agency. A corrected analysis will predict somewhat higher media budgets, profits, and probabilities for the formats, in that order. These biases in the current analysis are, however, mitigated in the empirical investigation, as they are systematic and occur to all firms when they utilize a particular format. They are, thus, partially captured by the format-specific parameters of Equations (17) and (18).

and the corresponding distribution function  $H(e)$  is

$$H(e) = \int_{d=\max(\underline{d}, e-\bar{b})}^{\min(\bar{d}, e)} F(e-d)g(d) dd + G(\max(\underline{d}, e-\bar{b})). \tag{A.2}$$

Applying (A.1) and (A.2) to the firm’s expected cost in the bundled case (9):

$$C_1 = \int_{e=\underline{e}}^{\bar{e}} \left[ \int_{d=\max(\underline{d}, e-\bar{b})}^{\min(\bar{d}, e)} \{ef(e-d) + F(e-d)\}g(d) dd + G(\max(\underline{d}, e-\bar{b})) \right] r(e) de + \Omega(\bar{e}). \tag{A.3}$$

Similarly for the unbundled case (10), when substituting  $b = e - d$ ,

$$C_2 = \int_{e=\underline{e}}^{\bar{e}} \int_{d=\underline{d}}^{\bar{d}} \left[ e + \frac{F(e-d)}{f(e-d)} + \frac{G(d)}{g(d)} \right] \cdot r(e)f(e-d)g(d) dd de + \Omega(\bar{e}) \\ = \int_{e=\underline{e}}^{\bar{e}} \int_{d=\underline{d}}^{\bar{d}} \{[ef(e-d) + F(e-d)]g(d) + G(d)f(e-d)\}r(e) dd de + \Omega(\bar{e}). \tag{A.4}$$

There exist values of  $e$  for which no advertising will occur, because the reported joint advertising costs are too high (in such cases  $r = 0$ ). Advertising will also not occur if either  $b$  or  $d$  is too large. Assuming without loss of generality that  $\bar{b} \leq \bar{d}$ , for advertising to occur it must hold that  $e \leq \bar{b}$ . Then  $[G(\max(\underline{d}, e-\bar{b}))] \equiv 0$ , and (A.3) is equal to

$$C_1 = \int_{e=\underline{e}}^{\bar{e}} \left[ \int_{d=\underline{d}}^e \{ef(e-d) + F(e-d)\}g(d) dd \right] r(e) de + \Omega(\bar{e}). \tag{A.5}$$

Comparing Equations (A.4) and (A.5), it is clear that  $C_1 < C_2$ , because  $G(d) > 0$ . Applying to Equations (9) and (10), it must hold that the sum of the separate margins is larger than the joint margin

$$\frac{F(b)}{f(b)} + \frac{G(d)}{g(d)} \geq \frac{H(e)}{h(e)}. \tag{A.6}$$

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