Challenges for the Fourth Estate: Newspaper Journalism in the light of Experimental Economics

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By

Syed Ali Hasanain
Bachelor of Science
Lahore University of Management Sciences, 2005

Director: Charles K. Rowley, Professor
Department of Economics

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George Mason University
Fairfax, VA

DEDICATION

This is dedicated to my grandparents, their children and grandchildren; to the teachers who inspired me; to friends who supported me; and to Marrium, who waited.

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ABSTRACT

CHALLENGES FOR THE FOURTH ESTATE: NEWSPAPER JOURNALISM IN THE LIGHT OF EXPERIMENTAL ECONOMICS

Syed Ali Hasanain, PhD

George Mason University, 2010

Dissertation Director: Dr. Charles K. Rowley

This dissertation provides a theoretical and experimental analysis of various pressures currently facing journalists. The first two chapters provide theoretical explanations for two observed dynamics: the industry-wide decline of the print media; and the internal barriers many newspapers erect between managers and journalists. The two subsequent chapters develop experiment designs to investigate the effects of media manipulation by government officials on reporting; and since many newspapers are currently facing bankruptcy, the differences between two different repayment rules under Chapter 7 bankruptcy. The final chapter reports on an experiment conducted to investigate the effect Defamation laws may have on news reporting.

CHAPTER 1: The Economics of Information and Newspapers

(The Press) makes political life circulate in every corner of (America). The press it is whose ever watchful eye exposes the secret motivations of politics and forces men in public life to appear one by one before the court of popular opinion.[1]

1.1 Journalism as a Covenant and an Industry

Commentators such as Tocqueville have long stressed the Media as an integral component of Liberty for a reason: good journalism provides an important disciplining force for the public and private sectors alike, and government restrictions on the Press are therefore regarded with widespread distrust.

However, while journalists frequently see their reporting as governed by a covenant with the reader whereby reporting must be relevant and trustworthy[2], the media like any industry is influenced in ways that sometimes clash with this expressed covenant by its internal organization and economic motives, the government, and prevalent laws.

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[1] Tocqueville, p217
[2] Kovach and Rosenstiel, p5

The challenges that can arise as a result are exacerbated by the ongoing changes in the industry: newspaper readership in the US has been in decline for decades, and this trend has only accelerated as news websites and blogs have matured. Newspapers have responded to this by cutting the size of their news bureaus, and even pulling out of different regions, depending instead on newswire services for coverage.[3]

In this dissertation, I study both general problems of journalism, as well as problems particular to the print media. In this first chapter, I elaborate reasons for the decline of newspapers, and contextualize subsequent chapters. Chapter two describes a model of the organization of the newsroom analyzing how the economic pressures on media firms may cause principals to set up particular incentives for agents. The third chapter discusses the ways in which government agents can manipulate journalists, describes the interaction as a multiple-principal agent model, and sets up an experiment to investigate how journalists respond to such manipulation. While both of these chapters are written in the context of the newspaper industry, the problems discussed may be general to news companies regardless of their means of communication.

The newspaper industry has been hard hit by new methods of communication, and many firms have recently gone bankrupt. The fourth chapter discusses the problem of bankruptcy and discusses how agents may behave under different legal rules of loan repayment. Finally, the fifth chapter discusses the evolution of Defamation Laws in the

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[3] Perez-Pena, 2008

UK, US and Australia, and provides evidence from an experiment designed to study how Defamation laws affect news reports.

The remainder of this chapter discusses economic issues of journalism, outlines an economic model of information provision, and discusses the past, present and future of journalism in the light of this model.

1.2 News as an Industry

1.2.1 Defining 'News'

In the first 'element' of their popular manifesto for journalists, Kovach and Rosenstiel state that 'Journalism's first obligation is to the truth'[4]. Despite emphasizing it in this manner, they note that the word 'truth' is itself hard to define. This difficulty carries over to the definition of 'news'. Merriam-Webster dictionary defines 'news' both as 1) "*a report of recent events*" or "*previously unknown information*", and as 2) "*material reported in a newspaper or news periodical or on a newscast*" or simply "*matter that is newsworthy*".[5]

Definition 1) is not sufficient since every "*report of recent events*" is not news, nor is all "*previously unknown information*". The first half of definition 2) can also be discarded since it is circular. The second half is more helpful: "*matter that is newsworthy*".

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[4] Kovach and Rosenstiel, p36
[5] Merriam-Webster Online Dictionary, 2008.

Substituting the definition of "*newsworthy*"[6] from the same dictionary, and the concepts from the first definition, this becomes: "*previously unknown information about recent events that is interesting enough to the general public to warrant reporting*"[7]. In other words, what constitutes news depends on the public's demand for information about recent events.

A newspaper is a bundle of reports, but not all of these reports constitute 'news' as defined here. There is a significant portion devoted to editorials and columns, to comic strips and horoscopes, to book and film reviews. Since it is a bundle, a newspaper has different and sometimes disparate determinants of demand. Clearly, a report about an overseas war, a report about a firm's market performance, and a comic strip have very different characteristics. However, even restricting ourselves to news reports, we can distinguish between different types of demands. Some of these are elaborated below.

1.2.2 The Demand for News

There may be at least three sources of the demand for news. First, news is itself a consumption item. People like learning about happenings around them with an interest that is, in part, non-instrumental. While some have argued that this is the primary source of news demand, there is little debate that it is at least *one* component of the demand for

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[6] Ibid.
[7] Newspapers and other news media do a good job of not reporting in a vacuum, but catering to the particular tastes of their market. See Waldfogel (1999), and George and Waldfogel (2000)

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news[8], and there is evidence that reports on topics as important as US primary elections are strongly influenced by the need to entertain.[9]

Second, news can be demanded and consumed as a way to signal intellect in both professional and social contexts. The news is a pool of hard-to-procure, verifiable and decaying information. A person who demonstrates good command of current affairs in an interview, for example, is making a credible signal of having made an effort to consume news recently. Since it is easier for intelligent, disciplined and organized people to follow news regularly, knowledge of current affairs may help distinguish persons with these qualities from others. The need to maintain this signal is a component of news demand.[10]

Third, news may be demanded to learn potentially actionable information, for consumption, production, or voting.[11] That is, readers may learn about consumer products in reviews; producers may discover business opportunities in news reports or business coverage; and finally voters may learn about information relevant to their voting decisions, for example, in reports about politicians' campaigns and the incumbent government's actions.

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[8] See Dewey 1922 and Lippmann 1963 for an example of such a debate
[9] For example, a study of the 2007-8 US Primary Elections found that election strategy and horse-race issues featured far more heavily in press coverage than the politicians' stands on different issues. (Pew, 2008)
[10] This is argued, among others, by Tullock (2004).
[11] This taxonomy is by Downs (1957)

This information may be a public good[12], in the case of information about politicians for example (leading in part to rational ignorance) or a private good (when reading product reviews, or when an individual may use this information to make business decisions[13]).

The focus of this dissertation is primarily on news reports, and it is assumed that these can be less or more accurate, and that the newspaper prefers them to be more accurate, ceteris paribus.

Since they contain information, newspapers suffer from the same problems that other information goods do: it is difficult for the producer to appropriate the rent required for normal profits. The next section describes a standard model that elaborates on this problem, and describes the fortunes of the newspaper industry in the light of this.

1.3 Newspapers as information goods

Journalism as an industry depends structurally on the methods of communication used to disseminate news. In large part, journalism is similar to writing a book or developing a scientific breakthrough, in that it is the generation of information that has repetitive value, i.e. is worth copying. It can therefore potentially suffer the same problem all such information suffers: the problem of non-appropriability of potential profits.

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[12] See for example, Shy p163.
[13] The individual must have some positional advantage or barriers to the use of the information in this case. If anyone could use the information, its value would be dissipated instantaneously at the time of publication, as is widely assumed about the stock market. An example of a positional advantage would be when a private business owner uses public information relevant to his firm.

Information, including news, has the oft-discussed property of being very expensive to produce, and very cheap to reproduce. Without legal or technical barriers to reproduction, the original producer of information may find themselves unable to recoup costs as resellers copy and reproduce the information. This is the problem of piracy. This dynamic can be understood with the help of a simple model, which is the subject of the next section.

1.3.1 Theoretical Model

Assume initial information generation (news collection and editing) requires a lump-sum cost FC, and that each subsequent copy of the information (each copy of a newspaper, or in other contexts, the marginal cost of an additional listener to a radio show, or visitor to a webpage) costs VC.

If TC represents Total Cost, and Q represents the recipients of the information (total newspaper subscribers plus non-regular readers i.e. total *circulation*, radio listeners etc.), then:

Total Cost = Fixed Cost + Variable Cost . Quantity

TC = FC + VC.Q

The Total Revenue TR of the firm is Price times Quantity

TR = P.Q

So the breakeven price requires:

TR = TC

P.Q = FC + VC.Q

P = FC/Q + VC

In other words, the price charged per unit is the cost of producing the additional unit (cost of publication), plus a proportion of the initial cost (cost of news generation) inversely proportional to the circulation.

Without legal or technical barriers, a resellers' market could emerge. Since these resellers produce the final product without making the initial investment, they are termed *parasitical resellers*.[14]

The Total Cost TC_p of a parasitical reseller is only unit cost times the number of units sold Q_p.

$TC_p = VC_p.Q_p$

The price P_p a parasitical reseller needs to charge to break-even is:

$TR_p = TC_p$

It is assumed that resellers can produce the final product at the same unit cost as the original producer ($VC_p = VC$):

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[14] This term is not meant to be pejorative. Allowing copying of an information good by resellers can lead to efficiency gains in the short run. See Johnson (2000) for a theoretical explanation, and Liebowitz (1985) for empirical support. It can also, under restrictive conditions, increase profits for the original seller (Besen 1986).

$P_p.Q_p = VC.Q_p$

$P_p = VC$

Since this price is lower than the original producer's price P, parasitical resellers can undercut the original producer, and thus force all prices down to the cost of publication, VC. It may also be that resellers cannot fully replicate the production of the original seller, or that buyers dislike buying from resellers. In this case the original seller can charge a premium P - P_p.

1.3.2 Technology and the Health of Journalism

Given this possibility of parasitical reselling, the original producer of the information will only choose to produce the information under three cases. First, if there is a time lag between the original producer's production of the information, and the entry of resellers into the market (or if the information has only instantaneous value), the original producer might be able to sell enough units at a price P > VC so as to recoup the cost of generating the information FC. Second, information generation is sustainable if copying and reproducing the product is illegal (as in the case of copyrights on books, music or software), and can be enforced without incurring prohibitive costs (which is currently less true of music and software than books). Finally, it is possible if reproduction is technically prohibitive or costly relative to the benefit (Coca Cola, for example, does not

have a patent on its formulae, but has not been copied for more than one hundred years[15]).

If purchasers of newspapers make their purchase for the new information the paper carries and do not require the information to be communicated by a particular newspaper, there may be an opportunity for parasitical reselling.

When newspapers were the sole medium of formal information dissemination (before the invention and propagation of alternate mediums of communication like Radio, TV or the internet, and disregarding informal methods such as hearsay), the challenges facing resellers were great. The reseller would need to buy a copy of the newspaper as soon as it was available for sale, rewrite it to avoid legal claims of copyright violation, and then print it. He would then have to sell it at a discounted price, since his readers would have given up the opportunity to buy the earlier, original newspaper.

This means that, unlike the situation described above, the reseller had to incur a non-trivial fixed cost FC_p to copy the original report. In such a situation, the price the reseller would have to charge is higher than before ($P_p = FC_p/Q_p + VC$) and the premium paid for buying from the original seller (which may be preferred for quality or moral reasons), $P - P_p$ is smaller.

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[15] Pendergrast 1993, 11, 421. Of course, Coca Cola does benefit from its Trademark, and from Trade Secret laws.

The technical challenge (supported to some extent by copyright law, which disallows directly copying the paper and takes away the easiest way to resell it) makes resale of newspapers highly unlikely[16]. Unsurprisingly, the news industry was especially healthy at the time newspapers were the dominant medium of news transmission.

Besides the greater difficulty of reproduction, the print industry has historically had another advantage. News is an experience good[17], in that a report must be read to determine both its accuracy and readability. Verification of stories in newspapers is made difficult by the necessary bundling of news: a particular news story cannot be bought on its own, but is packaged with the rest of the day's news. For a reader to compare reports about the same topic across newspapers requires buying both papers, and then locating the relevant stories in each and reading them. This is relatively cumbersome, and so direct comparisons across newspapers is made only occasionally by consumers. This in turn increases the necessity for newspapers to build reputations regarding accuracy and editing over time.[18] If a parasitical reseller copies a story, they still do not have the reputation of the original newspaper, which decreases the benefit of copying. However, this drawback of copying is specific to the reproduction method described above, and changes in technology have had a fundamental impact on this dynamic, as discussed below.

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[16] Shy (2001) calls this "The built-in copy protection of printed media"
[17] Hamilton (2004)
[18] Hamilton (2004), p13.

1.3.3 The changing face of journalism

A decline was felt in the newspaper industry around the time that television was first introduced and became a source of news also[19], but the differences in the two mediums (the cost of newspaper space is less than airtime on television, so print reporting tends to be more in-depth) were large enough that each could survive.

The advent of the internet, and its cheap availability in most American homes was the first rival to the printed medium where the alternate medium of communication was also in the form of the written word. The penetration of the internet into homes in the 1990s forced most newspapers to put content online, both to generate interest in the physical newspaper, and to generate revenue from online advertising. The cheap cost of supplying the information to additional persons, and its quick delivery means that internet-based news sites can write about a news event so quickly that there is little or no difference in between an original newspaper's publishing, and a potential resellers' copy. In terms of the model above, FC_p has all but vanished.

Moreover, verifying a news story online is almost costless in comparison to before. Few newspapers charge for reading individual articles, and when they do, these articles are not bundled with the rest of the paper. This lack of bundling also makes lower prices more likely.[20] With verification cheap, reputations are likely to decrease in importance, and

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[19] Bagdikian (1974)
[20] Shapiro and Varian (1999) stress that bundling under conditions of varied demand increases willingness to pay compared to selling the components of the bundle individually.

repackaging news gathered by a competitor becomes easier. In other words, the premium $P-P_p$ that the original seller could have charged before is much reduced in size.

These two changes wrought by the internet, reseller's ease of copying and reader's ease of verification, imply that without legal barriers to copying and the means to detect and punish the copying, the news industry will face the classic non-appropriability problem of not being able to recover the fixed costs of news production.

The very low cost of circulation, coupled with the lack of effective legal scrutiny, and the availability of ad-based revenue has allowed news reselling or repackaging to become a great threat for news companies built around the print media. Without a change in the current dynamic, the loss of revenue to newspapers is likely to continue precipitating the decline of news generation, and the scaling down and closure of newsrooms across the nation could leave a much weaker journalistic tradition in this and other developed countries.

There seem to be three ways in which journalism may survive and actually thrive in the era of the existence of the Internet. First, society could choose to adopt restrictive intellectual property laws that disallow internet news websites to copy and provide any news. Such laws would need to be so strong that they would be likely to have large unintended consequences, such as decreasing the benefits from Fair Use. Moreover, while such laws would benefit the industry and incentivize continued production of news

(improved dynamic efficiency, or economic efficiency over time), they are functionally protectionist, and so static efficiency (efficiency at a given time) will suffer.[21] The particular measure chosen will depend, in part, on the relative market sizes for original versus copied material[22].

Second, it is possible that professional journalism as we know it today will vanish altogether, and be replaced by citizen journalism (the publishing of news stories by non-professionals who happened to be at the scene of an event, and whose reporting is usually without financial remuneration). The internet's low cost of information dissemination that has caused problems for centralized newsrooms also makes it easy for individuals to contribute to the news-generation process. Such a system would need the emergence of strong editing if quality is to be maintained, and while there are promising nascent online news sources, it is too early to tell whether they will be able to take over completely in terms of quality and coverage. Indeed, some have already argued that as newspapers have declined, news coverage of important events has been found wanting[23].

Finally, hand-held reading devices have made it far more convenient to access newspapers and other content. Electronic readers have made great strides in ease of use and news can be downloaded to them practically anywhere and at anytime. At the time of writing, these readers restrict the ability of the user to copy and retransmit the reading

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[21] Delong, J.B and Froomkin A.M. (2000)
[22] Besen and Kirby (1989). Varian (2000) describes restricted conditions where copying information goods can be profitable to original producers, none of which fit the newspaper industry.
[23] Washington Post, 2009.

material they buy. Some of these readers offer access to online editions of newspapers, and if they develop into a serious revenue source, they may be able to provide enough incentives to newsrooms that they may continue news production.

1.4 The continuing importance of print media

Despite this decline, this dissertation restricts itself to an analysis of print media because online journalism has yet to settle into steady patterns and drawing stylized facts to base models on would be a much more speculative exercise. Thus while an analysis of online journalism is undoubtedly pivotal to this line of research, I believe that restricting the current work to print media constitutes a reasonable first step.

There is a separate reason for focusing on print media also: the declining health of the newspaper industry in America is out of step with experiences elsewhere. Axel Springer, the German publisher, reported its highest-ever profits in 2009, for example[24]. In many underdeveloped countries, print media continues to enjoy a readership that far outstrips that of news websites. While computer and Internet usage around the world can only increase with time, I believe that the diminishing importance of print media in the developed world does not portend a similar reduction in its importance, especially in poorer countries in the foreseeable future. Therefore, the analysis of print journalism remains important, and is expected to remain so.

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[24] New York Times, 2009

Moreover, much of the analysis done here will be applicable to online journalism also. Subsequent chapters will in many places discuss how the analysis changes when the internet is included in our discussion. Ultimately, I hope that this work will allow me to appreciate the significance of a changed industry as I analyze online journalism in future work.

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CHAPTER 2: Organization of the Newsroom

This chapter argues that the internal organization of a newspaper is likely to be influenced by external pressures, the nature of the product, and its ownership structure. The nature of a newspaper as an experience good may incentivize managers to slowly undermine quality, and thus necessitate a way of signaling quality to consumers. This may explain why newspapers often build up a 'wall of separation', i.e. institutional barriers, between the marketing and news production departments. A model is developed, and the experience of some American newspapers discussed.

2.1 Implications of selling an experience good

2.1.1 Experience goods and quality

An experience good is a product for which a consumer cannot directly ascertain quality without consuming it. We cannot, for example, be certain about the taste of fruit before eating it. Similarly, we cannot be certain about the quality of a book without reading it. In fact, all literature, including newspapers, falls under this category.

Producers and retailers of experience goods usually mitigate uncertainty by developing reputations. Thus grocery stores feel confident about buying fruit that carries the label of an established farm, and consumers feel confident about buying fruit sold by well-established grocery stores. Books by authors who have published successful books in the past, or whose books carry reviews by reputed authors will be in greater demand ceteris paribus, than books by previously unknown authors. Similarly, newspapers develop reputations by the quality of their previous editions, and by demonstrating investment in newsrooms.

Since experience good quality cannot be directly observed (and in the case of newspapers, may sometimes be hard to verify even after consumption), this leaves room for the producer to cheat or shirk on quality (Emons, 1995, 1997). This shirking may be corrected partially by building a reputation and repeating interaction, but neither of these corrects the problem fully (Hubbard, 1998, 2002; Schneider, 2007; Jin and Leslie, 2009), and they are costly (Ely and Valimaki, 2003; Ely, Fudenberg and Levine, 2005).

2.1.2 Experience goods can exacerbate agency problems

To these problems, newspapers add a further complication: unlike books, newspapers are jointly produced by a very large number of authors and editors. They also require large advertising departments. Larger newspapers can have a staff of thousands of people[25]. Organizing a large staff thus necessitates many layers of management.

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[25] The New York Times has a strength of over 1200 personnel in its newsroom alone. (Hoyt, 2009)

Managers can, however, have incentives that do not preserve reputation at high levels. If managers can not be easily punished for a fall in quality (for example, if quality deterioration cannot be traced back easily to the manager's actions, or takes so much time to be detected that there is a low likelihood that the manager will still be at the firm at the time of detection), there can be an incentive for the manager to shirk in ways that are individually optimal, but not in the long-term interest of the firm. In fact, managers of publicly traded companies are generally argued to be 'myopic', i.e. to under-invest in long-term investments.[26] Newspaper owners need to take steps to disincentivize this behavior, or erect institutional barriers against it.

2.1.3 Owners need to signal quality

Since customers may not be able to discern the quality of the newspaper by direct, immediate consumption (because the large number of articles, and differences in quality of articles means 'newspaper quality' needs to be gauged over time), they need to be able to distinguish it in other ways. This may be done in many ways. As mentioned earlier, they can do this in part by relying on the reputation of the firm, or by the assessment of the firm by others.

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[26] See Stein (1988, 1989) for a theoretical model of manager myopia empirically supported by Holden and Lundstrum (2009), Graham et.al. (2005), Dechow and Sloan (1991) and Baber et.al. (1991). See also, Wooridge (1988). Rowchowdhury (2006) and Bushee (1998) report that managers may manipulate real activities in general to meet analyst forecasts of financial performance. Abarbanell and Bernard (2000) argue that there is no myopia in the US stock market, but a short-term bias may exist due to information asymmetries.

Newspaper owners can also play a more proactive role in signaling high quality, by committing to institutional constraints in the firm that incentivize agents to preserve quality. One way to do this is to maintain a hierarchy in the firm, and reward seniority. Owners may not be able to credibly commit to monetary rewards for effort, but may put into place a system of promotion that rewards effort over a period of time with seniority.[27]

Similarly, owners can signal high quality by removing the influence of managers, who are interested in short-term profits, from news production. This can be accomplished by institutionalizing the separation of the news and advertising departments of a newsroom. Since this separation leaves journalists more in control of news reports, and since journalists' future earnings and reputations depend on their individual writings more than on the current profitability of their newspapers[28], reporting is likely to be more accurate, or at least less prone to subversion by advertisers.

As an extreme example of owner efforts to separate these two sections of the organization, *The Chicago Tribune* created two separate elevator systems in its Tribune Tower offices so reporters and advertisers would not ride up to their offices together and have a chance to collude.[29] Not only does such an effort set up the institutional barriers required, it is also a tremendous advertising opportunity that signals commitment to

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[27] See Becker and Stigler (1974), Lazear (1974) and Davis (1990)

[28] Journalists are regularly indoctrinated in the merits of honest reporting in journalism school, and it is no coincidence that the profession provides secondary motivation for good, accurate reporting in the form of awards such as the prestigious Pulitzer Prize.

[29] Kovach and Rosenstiel (2001) p65.

accurate and influence-free reporting. A visible commitment to maintaining this separation is likely to give greater confidence to readers in the commitment of the firm in providing high quality news. This signaling provides another rationale for erecting a 'wall of separation' between the two departments.

2.2 The Agents Involved

To more rigorously analyze the dynamics mentioned above, a formal model is described in the next section. First however, it is appropriate to discuss the various economic agents affected by and involved in this environment: Readers, Journalists, Advertisers, Managers and Owners. The discussion in this section introduces these agents, and elaborates on assumptions made about them in the model that follows.

2.2.1 Readers

As far as the reader's demand is concerned, we need assume only that she gets a positive value from an accurate report, and no value from an inaccurate report. Such demand is theoretically justified in all three of the different forms of news demand discussed in the first chapter. The first and second forms of demand discussed there, consumption and signaling, can also support other types of demand (i.e. it may be that accuracy is not as important in those cases). The quality of the report is not observed before consumption, but the behavior of the newspaper agents is.

2.2.2 Journalists

There are many different types of people involved in producing news reports. First, there are reporters who research, investigate and write about news events. Then, there are columnists writing opinions that may also contain fresh news and which process the information collected by reporters for readers. The newsroom is also staffed by editors who check that news was reported correctly, rewrite it, and make decisions about the length allotted to specific stories and how these stories should be written.

These reporters, columnists and editors (collectively, the journalists) are the main actors involved in the day-to-day collection and reporting of news. However, for the sake of simplification in the model discussed in the next section, it is assumed that the journalists are passive, in the sense that they will produce accurate reports if protected by a wall of separation, and will produce inaccurate reports otherwise.

2.2.3 Marketing Department and Advertisers

Newspapers typically depend very heavily on advertisement revenue, and newspapers usually set up large marketing departments staffed by marketing executives whose job it is to woo advertisers to buy ads in the paper. The marketing executives' promotions depend on the amount of revenue they can generate, and so their incentives are assumed to match closely to Advertisers.

It is assumed that the news under question is either directly about the advertising firm, or discusses a situation that has economic implications for it. For example, a news story can report that a particular company is making heavy losses this year, which may be bad for the company, or it can report that a particular country or region is suffering security lapses, thus contributing to hurting the tourism industry of that region by discouraging people from planning trips there. The tourism board could attempt to manipulate news by inserting a positive skew in news coverage in that case.

I am assuming that the advertiser will always have an economic interest in the news report, i.e. will always want the report written in a certain way. This is obviously incorrect. Many advertisers will simply be interested in the newspaper's circulation. In this case, there is no conflict between them, readers or owners. However, there are important cases where advertisers have been reported to try to manipulate the news. Perhaps the most famous example of an advertiser dictating the news is when the *Los Angeles Times* agreed to do a special supplement, not marked as advertisement, for the Staples Center in exchange for ad sales.[30] Steffens (2007) provides evidence that marketing executives can influence news presentation and layout to prevent it from casting unfavorable light on their advertisers' products. Peeler and Guthrie (2007) also discuss numerous examples where advertisers in digital mediums have been known to aggressively pitch their messages in ways that may be deceptive and even harmful to others.

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[30] Kovach and Rosenstiel, p54

This characterization of the Advertiser does not correspond to much advertising as we observe it in the real world. Real-world advertisers may be induced to advertise more if the newspaper is not susceptible to any one advertiser's attempts to manipulate it, since this might make it more credible with its readers. The Advertiser in this model describes agents wishing to manipulate the media only for a given time period. In other words, it represents an agent with a very short time-horizon with regards to the newspaper. This horizon may be because the advertiser can then move on to other newspapers; because its institutional life is very short; or because the institution advertising in the paper is in turn controlled by myopic managers.

Regardless of these caveats, circulation depends on the newspaper's reputation, and individual advertisers will treat this reputation as a public good. Holding circulation constant, an advertiser will prefer news slanted in his favor, and so the newspaper will require institutional mechanisms to guard against advertiser pressure.

2.2.4 Managers

As mentioned earlier, managers may be myopic. This does not, of course, imply that all managers are waiting for advertisers to bribe them. However, they may have a tendency to prefer short-term revenue over the long-term health and reputation of the newspaper. This preference makes them susceptible to accepting ads that are implicitly, or even explicitly conditional on coverage or slant.

In cases where the news deals with concentrated economic interests, it is likely that there are economic actors present willing to make payments to slant the reporting in one direction or the other. These payments could be in the form of legitimate ads carrying no overt agreement of slant in reporting, but that are made with the implicit understanding that the newspaper will not criticize the advertising company, or they could be made with such an explicit agreement in place.

Accepting these payments, or 'bribes'[31], increases short-term revenue, but can be damaging in two ways: first, it could become publicly known that a bribe was accepted. Customers would then likely expect that such decisions might be taken in the future also, and hence the credibility of the newspaper will be diminished. Second, even if the bribe remains private, this slanting of the news represents diminished accuracy of reporting, and inasmuch as readers are concerned about, and cognizant of accuracy, the bribe will contribute to lower future demand as the reputation of accuracy is decreased.

Given the manager myopia discussed above, we can expect them to choose an unfavorable balance between short-term payments and long-term reputation. If the manager chooses to accept these 'bribes' all the time, the newspaper quickly degenerates into, literally, a collection of advertisements.

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[31] As mentioned above, these do not have to be literal bribes, and the use of the term below is done with that caveat in mind.

2.2.5 Owners and the Wall of Separation

The newspapers are owned either by a wealthy individual or family, or more usually by a publicly traded company.[32] Historically, newspapers were mostly owned privately by families. By the end of the twentieth century however, there was an increasing trend towards public ownership.

The Wall of Separation is the name given[33] to the voluntary introduction by the owner of a barrier between the Marketing Department and the Newsroom[34], and is the central concern of this chapter. I argue here that the Marketing Department has incentives closely aligned to the Advertisers' interests, and that we can therefore collapse these two actors into a single Advertiser agent. Thus the Wall of Separation introduces a barrier between the Advertiser and the Newsroom. Since there are institutions separating journalists from revenue-generating activities, there is only one threat the Owner can make in bargaining with his journalists to distort news reports: removal from the job. However, this can be circumvented also by writing long-term employment contracts.

If the stock markets are indeed myopic, as the literature cited in an earlier section claims, then it becomes more likely for the wall of separation to be broken down. Private owners will primarily need a wall of separation to guard against manager myopia. However, while I have so far described the wall of separation as a consequence of manager myopia

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[32] Djankov et.al. discuss Media Ownership in greater detail across countries
[33] Kovach and Rosentiel, p64
[34] Peeler and Guthrie (2007) note that advertisers have often distorted news messages when the wall of separation does not exist, and regulation is not done.

only, private owners too, may be myopic, and may set up a wall of separation not only to restrict managers, but to restrict themselves in the future too. Individual myopia is likely to be a relatively small factor in the owner's decision-making process. More importantly, if a firm is family-owned, but control passes quickly between multiple descendents or is expected to do so in the future, then the wall of separation may be a tool to insulate the firm from being damaged by a particular heir.[35]

In circumstances such as these, the owner wishes to bind himself ex ante not to accept the bribe ex post[36]. One way he can do this is to insulate the newsroom from his control. If the owner can set up the organization of the newsroom so that he does not control the news in a given period, he cannot give in to the temptation to accept a bribe in the short-term that will be bad for the newspaper in the long-term. In other words, the Principal can voluntarily introduce the agency problem into the system as a credible commitment mechanism.

While the Agency problem has been described as a solution to a problem here, it clearly brings costs of its own. These are the usual agency costs: lost control, which implies possible shirking, and the possible existence of inefficiently long contracts.

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[35] Owners have often also attempted to preserve the quality of the firm by concentrating control in privately held voting shares, while selling non-voting shares.

[36] This is the well-known strategy of credible commitment. See for example Schelling (1960)

2.3 The Model[37]

For the sake of simplicity, assume there is a single reader. Assume also that accurate reporting has a positive value to the reader, greater than the price of buying the newspaper. Moreover, assume that the newspaper is the only way for the reader of getting access to the reporting.

The manager is assumed to be myopic, always choosing higher earnings in a given period at the expense of future earnings. Therefore, his actions need not be explicitly modeled. The behavior of the firm will depend on whether the Owner chooses to maintain the wall of separation in the future. For a given period, this means that game play is sequential. For repeated play and a large number of periods, the game play can be assumed simultaneous.

Let:

S = price of the newspaper

X = value to the reader of accurate reporting by the newspaper

A = Short-term benefit of slanting news. (This may be advertisement revenue or disinvestment of quality in the form of lower costs, a smaller workforce etc.)

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[37] See, for example, Baird et.al. (1994) pp165-178 for a general characterization

The reader has the choice of buying the newspaper for a price S, or not buying it. If she chooses to buy, she gets a value of X if the reporting was accurate (for a net payoff of X-S), or no value if the report was inaccurate (for a net loss of –S). If she chooses not to buy, she gets no information and incurs no cost, so her payoff is 0.

The Owner has the choice of setting up high institutional barriers between advertisers and the newsroom, or setting these barriers low. This is represented as his choice between a high or low wall of separation. The choice of wall is assumed costless in itself. That is, institutional barriers (and monitoring etc.) are assumed costless. As mentioned above, the manager need not be explicitly modeled.

If the reader chooses to buy the newspaper, the owner earns S whether the Wall is low or high, and earns A when the Wall is set low. Note the simplifying assumption that a report made when there is a low wall of separation is worthless.

If the reader chooses not to buy the newspaper, the owner earns nothing, since the newspaper is not sold (and advertisement revenue is assumed contingent on newspaper circulation). Therefore, whether the wall of separation is low or high, the owner earns 0 in this case.

These choices can be represented by the following normal form game representation:

Table 1: Readers' and Owners' strategic choices

		Reader's Choice to Buy	
		Yes	No
Owner's Choice of Wall	High	(S, X - S)	(0,0)
	Low	(S+A, -S)	(0,0)

2.3.1 One shot interaction

Consider first the interaction between the newspaper company, and a reader making a single decision to buy a newspaper. In the one-shot interaction, the owner's 'Low' strategy weakly dominates his 'High' strategy.   Using the iterative-elimination-of-dominated-strategies, we can rule out the top two cells from the Reader's consideration. The Reader then has the choice between buying the newspaper for a payoff of $-S$, or not buying it for a payoff of 0, and chooses the latter.

2.3.2 The infinitely repeated game

Now consider repeated interaction. It is reasonable to assume that both parties expect to interact regularly until an unknown date in the future. The interaction can thus be

modeled as an infinitely repeated game. Moreover, we can assume future periods are discounted. The uncertainty and time preference are both included in the discount rate β.

Now consider the reader's 'grim' strategy where she communicates to the Owner: "I will buy from you as long as reporting is accurate (effectively till the Wall of Separation is High) and never after it is not."

The Owner now has two choices: continue setting the Wall of Separation at the 'High' level indefinitely, or lower it and earn advertising revenue A in one period, and thereupon forego future subscription.

The owner's payoff from following the 'High' strategy is: $\sum_{t=0}^{\infty}\beta^{t}S = S/(1-\beta)$

The owner's payoff from following the 'Low' strategy is: $(S+A) + \sum_{t=0}^{\infty}\beta^{t}0 = S + A$

So the newspaper chooses the 'High' wall of separation if:

$S/(1-\beta) > S + A$

$S/(S+A) > 1- \beta$

$\{S - (S+A)\}/(S+A) > - \beta$

$\beta > A/(S+A)$

<u>2.3.3. Implications of the Model</u>

What can we now say about the Wall of Separation?

i. If A is very large, (A →∞), A/(S+A) → 1 > β. This implies the wall is likely to break down when the possible advertisement revenue A is large relative to subscription earning S.

ii. The converse is true if subscription earning S is large relative to A, since (S →∞), A/(S+A) → 0 < β, so the wall is likely to stay intact.

iii. We can also compute how small discounting can be to sustain the Wall if we know how large the immediate earning of A is relative to S. For example:

   a. If an advertiser offers nine times the subscription earning for a period (A = 9S), we can say that β must be greater than

   A/(S+A) = 9S/(S+9S) = 0.9

   b. If an advertiser offers ninety-nine times the subscription earning for a period (A = 99S), we can say that β must be greater than

   99S/(S+99S) = 0.99 etc.

iv. β can be smaller for two reasons: if the newspaper owner discounts the future due to his time preference, or if there is uncertainty about the future. In either of those scenarios, the wall of separation is likely to be lowered.

v. In the model, we've assumed interaction between one newspaper and one reader. Naturally, this is highly abstract. What happens when there is more than one reader? Specifically, let us assume that the newspaper has a circulation to N readers. The game then becomes:

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Table 2: Multiple Readers

		One Reader's Choice to Buy	
		Yes	No
Owner's Choice of Wall	High	(NS, X - S)	(0,0)
	Low	(NS+A, -S)	(0,0)

Notice that the Reader's payoffs remain the same, since each (identical) reader makes their own decision. The Owner now caters to N identical readers though, and so earns S from N readers when he sells the newspaper. Since readers are identical in this model, circulation is either NS or 0. The solution to this game is the same as before, except the term S is replaced by NS throughout.

So the owner keeps the Wall if:

$NS/(1-\beta) > NS + A$

And solving as before, the condition for retaining the Wall is:

$\beta > A/(NS+A)$

Comparing to the previous condition, the denominator on the right-hand side has increased, so this inequality is now easier to meet than before. In other words, greater circulation makes the wall of separation harder to break.

Conversely, reduced circulation (if, for example, there are more newspapers entering the market) makes the wall of separation easier to scale.

vi. If ownership is diluted proportionately, an individual owner will face the same game as described in the tables above, and if the choice of wall is determined simply by voting amongst owners, they will make the same decisions, unanimously, as a unified owner. However, this model does not capture differences in decision-making ability within the firm, or agency problems arising as a result. Some companies that were previously privately owned have maintained control by diluting ownership through the sale of non-voting shares, while maintaining a tier of shares attached to voting rights in the original owners' hands. It may be no coincidence that the newspapers that have maintained a reputation for quality have been structured this way[38], while others where control has passed from a small group of private owners have done worse.[39] [40]

2.4 The Wall of Separation and other issues in Journalism

How does the Wall of Separation inform the subsequent discussions in this dissertation?

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[38] The Independent, 2008; Washington Post Co. 2009.
[39] USA Today, 2006.
[40] An alternative explanation may be that publicly traded firms are more efficiently managed, and that the correct managerial decision in a declining industry is to reduce investment in intangibles such as quality in preparation of shuttering and possibly bankruptcy (Brealy and Myers, 2003. Ch 18.)

In Chapter three, I propose an experiment designed to investigate how journalists might be manipulated by government officials. That chapter is a natural compliment to the current one, and the experiment discussed there can also be used to study economic pressures on journalists, which is under study here. The wall of separation is the name given to mechanisms and organization structures that insulate journalists from economic inducements by organizations. The media manipulation discussed in the next chapter is done through political pressure, but state officials have been known to give journalists government jobs, or even cash bribes to skew reporting in their own favor. A high wall of separation may make it harder for officials to reach, and journalists to accept such bribes, and therefore one of the levers of influence governments can use on journalists can be reduced in efficacy in this way.

Chapter four discusses a situation of bankruptcy. A comparison is made between two different forms of loan repayment, and incentives for managers to file for bankruptcy (liquidation), or to try to continue the existence of the firm are discussed. A firm nearing bankruptcy may face greater uncertainty, and in the last section in the current chapter we have discussed how this might cause the wall of separation to crumble. If different bankruptcy rules have different effects on the degree of uncertainty faced, they will also have different implications for the accuracy (and therefore reputation) of a troubled newspaper. In general, the greater the uncertainty, the sooner the wall of separation crumbles. Nearing bankruptcy may also shorten owner time horizons, which is again likely to reduce the wall of separation.

Finally, the fifth chapter analyzes how defamation laws can influence journalists' reporting by potentially punishing inaccurate reporting. However, since Defamation law is asymmetric (i.e. it punishes excessively negative, but not excessively positive news), it is unlikely to apply more when the Wall of Separation is lowered. In fact, a low wall of separation may make newspapers more likely to praise the ware of their advertisers, and may actually decrease Defamation claims. However, it is implausible that a journalist would criticize an advertiser so strongly that they would file a defamation suit against the newspaper. Therefore, there may not be a large correlation between the Wall of Separation and Defamation.

2.5 Conclusion

This chapter proposes that the Principal-Agent problem should not just be thought of as a problem, but as a possible solution to the issue of credible commitment. The internal organization of the newsroom is considered a response to pressures the owner faces, and implications for internal organization are derived from potential revenue sources and owner preferences. It is hoped that these implications can be tested in future research.

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CHAPTER 3: Media Manipulation by Government Officials

This chapter discusses the incentives for government officials to manipulate media reports, describes some of the ways in which this manipulation takes place, and proposes an experiment design meant to shed light on the relative effects of similar incentives due to the employer and manipulator.

3.1 The Government's incentives to manipulate the media

Both bureaucrats and politicians may have potential interests in manipulating media reports regarding the political, social and economic state of the country[41]. Bureaucrats likely have a narrow interest in positive reports of areas related to their work, while elected politicians would like to convince voters that they are worth re-electing.

The direction of the skew political parties (either government or opposition) will favor is not immediately clear: the government may want to have positive reports about decisions it has made in the past. On the other hand, it may prefer a bias towards negative reporting

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[41] As an example of media influence, DellaVigna and Kaplan (2007) show that the introduction of Fox News led to Republican party gains in a sample of US towns.

about events not under its control, so that it may argue that there should be no experimenting with leadership at a time of crisis.

3.2 Manipulation of the Media

3.2.1 Legal Manipulation

The US constitution famously guards the freedom of speech and the press in the First Amendment (which reads: "Congress shall make no law …abridging the freedom of speech, or of the press…"[42]), and Supreme Court rulings have set further guidelines establishing the rights of journalists. The government is not allowed, inter alia, to make newspapers publish items by force[43], impose punishments for truthful reporting[44] or levy special taxes on newspapers. [45]

On the other hand, shield laws granting journalists privilege in not reporting their sources are only in place at the state, not the federal level. It is currently unclear whether shield laws are moving in the direction of favoring journalists more or less: The most significant Shield Law case in US Supreme Court history was *Branzburg v Hayes* in 1972, in which the court ruled that journalists don't have a privilege when summoned to testify before a grand jury. However, a vague concurrence by Justice Powell left the verdict unclear, thus allowing lower courts over the next three decades to interpret the verdict as allowing

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[42] U.S. Const. am.1.
[43] *Miami Herald Publishing Co. v. Tornillo*, 418 U.S. 241 (1974)
[44] *New York Times v. Sullivan,* 376 U.S. 254 (1964)
[45] *Grosjean v. American Press Co.* 297 U.S. 233 (1936)

privilege under some circumstances. Thus *de facto* shield laws have arguably been in place during the post-*Branzburg* era.

However, these privileges have been scaled back by important legal developments (such as Judge Posner's reinterpretation of Powell's opinion in *McKevitt v Pallasch* at the Seventh Circuit in 2003), which argued that the earlier case had not given journalists privilege. While the courts have moved in one direction though, the Senate continues considering a Federal Shield Law bill (most recently S2035: Free Flow of Information Act 2007).

Having discussed the ways in which the government is specifically disallowed to manipulate the media, some of the ways it can do so are described below:

The first way in which government can manipulate the media is by restricting media access. For example, an investigative journalist will likely find it harder to gain access to a military installation, than say, to the Forestry Department. This in turn means that the government has some discretion over which news is gathered and which isn't.

On the other hand, by giving access in a favorable environment, the government can either indirectly curry favor with journalists, or outright dictate the content of news reports. The 2003 US invasion of Iraq introduced the concept of embedded journalists[46]:

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[46] Powell, 2004

civilian reporters who were placed in military units along with soldiers, but who signed contracts limiting what they could report on.[47]

As with any organization, the government can also issue press releases that place greater emphasis on certain facts than others, thereby trying to influence news reports.

3.2.2- Illegal Manipulation of the Media

Of course, government agents might indulge in illegal manipulation also. One way they can do this is to attempt to influence the newsroom through influencing Advertisers. In countries where government authorities have great influence of the bottom lines of different Advertisers, the latter may be persuaded to work on behalf of the former in pressurizing the Owner of the firm to not print certain news articles, or to fire aggressive journalists etc. While such behavior is illegal, it is fairly plausible in an undeveloped country with weak political institutions. Additionally, it should be noted that the Owner of the firm, in insulating itself from Advertisers as discussed in the previous chapter, thereby also makes such manipulation ineffectual.

3.2.3-Ostensibly Legal Manipulation

One way the government can avoid detection of the illegality of its manipulation is to condition its implementation of laws on whether a journalist complies with its wishes or not. Thus for example, the government could be lenient in applying the tax code to

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[47] PBS, 2003

journalists in general, but build up a reputation as going after 'deviant' reporters with a fine comb and litigating for any irregularities found. Bagdikian (1973) discusses threats of license removal and intensified FBI investigations of newspapers that clashed with the executive branch during the low point of the Nixon administration.

Carl Bernstein and Bob Woodward, the *Washington Post* writers who covered the Watergate scandal, narrate in *All the President's Men* a shocking conversation Bernstein had with a journalist from the rival paper *Washington Star*:

> "As soon as the election is behind us, we're going to really shove it to the *Post*,"
> he (the *Star* journalist) quoted (Special Counsel to President Nixon, Charles W.)
> Colson as saying. "All the details haven't been worked out yet, but the basic
> decisions have been made – at a meeting with the President." Colson advised the
> Star reporter to "start coming around with a breadbasket" because "we're going to
> fill it up with news" that would make reading the *Star* indispensable, while
> freezing up the *Post*. "And that's only the beginning. After that, we're really
> going to get rough. They're going to wish on L Street [location of the *Post*] that
> they'd never heard of Watergate."[48]

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[48] Bernstein and Woodward (1974). pp220-221

The authors then imply that *Post* stock dropped 50 percent due to actions taken by the White House administration in response to the *Post*'s critical coverage of the Watergate scandal.

3.3 Existing Literature on Multiple Principals

In essence then, when a journalist writes on a topic of interest to unscrupulous government officials, she as an agent is answering to two principals: the owner of the newspaper, who can reward her for accurate reporting, and the interested parties within the state, which can punish her for negative reporting. These principals have different, possibly opposite interests. The owner of the newspaper wants more accurate reporting (which means negative reports for negative events), since this is beneficial to the reputation of the newspaper and hence the owner's bottom-line over time[49]. The government officials simply want more positive reports, regardless of accuracy.

In developing the discussion of media manipulation, I have described a 2-Principal-Agent model. Before describing the proposed experiment design, let us first discuss existing literature on multiple Principals acting on one agent.

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[49] This is far from obvious. As Hamilton (2004) puts it: "objective news coverage is a commercial product". Until the end of the nineteenth century, most daily papers in America chose a partisan affiliation (Schudson, 1978). However, the general problem of multiple agency discussed in this chapter survives in that context too.

Public Choice theorists and political scientists realized that the early application of principal-agent theory to the interaction of Congress with bureaucracies did not take into account additional interests from other principals, such as the Executive. They therefore began relaxing the assumptions of Principal-Agent theory to include multiple principals, amongst other things. However, this work introduced multiple principals not in the original context of the agency problem, but instead in the study of agenda control (the literature discussing the degree of autonomy agents have when multiple principals are in conflict, but working within the institutional structure of Congress).

The prominent work on multiple principals in the political science literature, for example, by Moe (1984, 1985, 1987), envisions a situation where so many divergent principals are interacting with the agent that the agent gives up trying to react to each, and instead insulates herself behind a shield of professionalism; similar arguments are made by other authors too.[50]

While it yielded great insight into the working of government, especially of Congress, this literature did not develop the theory of the case where principals are multiple, but few enough in number to still act strategically. This is the situation relevant to the manipulation of media as I interpret it, and is likely to be of general theoretical interest also.

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[50] See for example, Rowley and Vachris (1990). Waterman, Rouse, and Wright (2004) provide an overview of dealing with multiple principals in their book, which looks closely at the views of bureaucrat agents in the EPA and NMED.

Some game theorists have modeled situations where multiple Principals compete for an Agent. Their results suggest that the introduction of multiple principals confers externalities between the principals because it changes the opportunity cost available with the agent. This externality can be negative or positive depending on the contract offered by that Principal[51].

The literature on Common Agency deals with the implications of having two or more principals interested in (possibly multiple) goods. Bernheim and Whinston (1986) developed a model of multiple bidders in an auction bidding on the division and sale of a divisible resource. Dixit, Grossman and Helpman (1997) relaxed the assumption of quasi-linear preferences, and adapted the model to the context of a government dealing with competitive lobbyists, Parlour and Rajan (1997) developed a similar model to analyze lenders considering lending to a borrower who could take out parallel loans from other lenders, increasing risk, and Dixit (1997) developed a general model.[52]

The Common Agency literature suggests that incentives may not only be cancelled out when different principals have opposite objectives, but that there may be externalities since each principal may end up offering insurance against each other, thus reducing the strength of incentives agents have. This literature has been tested by Kirchsteiger and Prat (1999), who found that the equilibrium predicted by Bernheim and Whinston (1986)

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[51] Fudenberg and Tirole, p331
[52] See Peters (2001) for an overview of the literature

is not observed, and posit that this is due to the computational complexity of figuring out the optimal strategy. They find that participants end up choosing simpler strategies.

Finally, a recent working paper by Cassar and Rigdon (2008) investigates how the amount of money returned in a trust game changes contingent on the extent of trust reposed relative to other simultaneously-running principal-agent relationships. They find that the degree of trust reciprocated depends on relative as well as absolute levels of trust conferred.

While Cassar and Rigdon's work models a trust game, which can shed light on the agency problem, they model two separate relationships occurring simultaneously, and not how they might interact with each other directly (the amount sent back only depends on the amount sent by that particular individual, and has *behavioral, but not functional linkages* to the interaction of the other individual).

3.4 Experiment Design Proposed

Here I design (but not, for the purpose of the dissertation, run) an experiment where the Agent has to choose one variable that is of interest to two Principals. These two principals will therefore provide contracts simultaneously to the agent.

Agent A makes a costly effort x, in order to generate revenue for a unified Principal P, or two distinct Principals, P_1 and P_2. A principal can offer an effort dependent wage to the agent. Principals can observe the effort levels and knows the cost to the agent of making effort, but not what other principals may have offered the agent. However, that agent's type is known (this is done so that principals do not interpret the agent's refusal to accept a mutually beneficial offer as malevolent, which could lead to a different type of decision-making process). Note that this is a deviation from the standard agency model, which is done to focus on the question of conflict between principals. Since effort is observable, a single principal can motivate whatever effort level is efficient simply by offering the highest remuneration for that effort.

Consider for example the following table:

Table 3: Single Principal

Cost of Effort x	1	2	3	4	5
Revenue to P(x)	2	4	6	8	10

The amount of costly effort x taken by the agent increases the revenue of a single Principal in this baseline case. Both the Principal and Agent know these payoffs, and the Principal is expected to offer incentives to the Agent to make the highest effort, because this leaves the two with the biggest pie to slice between themselves.

Now consider a case where there are two identical, and smaller Principals, but the overall

production from the Agent's efforts remain the same:

Table 4: Two Complementary Principals

Cost of Effort x	1	2	3	4	5
Revenue to $P_1(x)$	1	2	3	4	5
Revenue to $P_2(x)$	1	2	3	4	5
Combined Revenue(x)	2	4	6	8	10

In this case, the cost of the effort and the combined product of the effort remain the same,

but the benefits of the effort accrue to two different agents. It is still efficient for both 1

and 2 to offer contracts that incentivize full effort by the Agent, but there may be a

contract externality (i.e. a Principal may offer slightly lower incentives in the hope that

the other will offer high incentives and effort will happen regardless).

In terms of economic efficiency, we expect the contract to always result in effort x=5, but

the question I wish to study is whether it makes a difference how the resultant surplus is

divided amongst the principals:

Cost of Effort x	1	2	3	4	5
Revenue to $P_1(x)$	3	6	9	12	15
Revenue to $P_2(x)$	-1	-2	-3	-4	-5
Combined Revenue(x)	2	4	6	8	10

In a situation where one Principal is being hurt by increased effort, (and if we allow that Principal to promise to punish in the case of high effort) will the Agent be dissuaded from making effort at the same levels as before?

Journalists often worry about the 'chilling effect'": the idea that punishment of one reporter by the government might make other reporters much more circumspect in their reports. In the previous example, the punishment of the Agent by the Principal could be made public knowledge, so that similar interactions amongst other subjects running at the same time may be impacted.

The payoffs to be compared in the actual experiment will be designed to allow us to carefully answer the question of whether Agents treat payoffs being offered separately by two or more Principals differently than they would treat the sum of these payoffs offered by a single Principal, and if so, in which direction such a bias runs. This requires testing the current payoffs in a pilot session, which has not yet been run.

3.5 Implications of the Experiment for Media Manipulation

Depending on our findings, it might be concluded that media manipulation that lowers reporter payoffs from making a large effort with their news reports can be mitigated by the owner by simply providing incentives increased by the amount of the damage caused by the government official. This would be the case if agents simply add up contracts offered by different principals.

Alternatively, if it is found that agents respond to slight punishment by decreasing their efforts massively, this suggests that direct harassment of the reporter by government officials will have a large chilling effect on news reports. In this case, the owner of the newspaper will either not be effectual in countering the manipulation, or will have to ratchet up reporters' incentives sharply.[53]

Finally, it is plausible that being punished even slightly leads to an adversarial relationship which causes the Agent to *try to harm* the punishing Principal by increasing effort in the direction it hurts this Principal. If Agents react in this way, newspaper owners need not counter media manipulation very strongly at all.

Of course, the degree to which different principals attempt to influence the journalists will depend on the degree to which they have influence over them. If the government

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[53] This chilling effect is distinct from the self-muzzling journalists and newspaper owners sometimes indulge in to 'protect' a friendly government (Schudson, 1978. pp172-173)

officials can only use crude motivators, like banning outright the media outlet in which an offending story is published, then they are expected to analyze whether the newspaper as a whole is favorable or unfavorable to them. Similarly, if the newspaper owner cannot persuade the journalist to write in a certain way on specific topics, he must consider whether the journalist's work as a whole is agreeable to his organization or not. Whenever decisions cannot be taken issue by issue, but must be taken as a bundle, the agent is left with some discretion. In the current case, that discretion may imply that the journalist bends to the will of the government official (when the owner's decisions are 'crude' or bundled), or it may imply that the government official must tolerate negative news (when the official's decisions are bundled, as discussed above).[54]

3.6 Conclusion

The government may try to manipulate individual reporters by differential access to news sources, or differential implementation of rules and regulations. The reporter is then caught between the incentive to make an effort for the newspaper, and thus earning higher wages, and the punishment from government sources if he reports accurately. This can be characterized generally as a multiple-Principal-Agent model, which has not been studied extensively in the literature. A simple experiment design is proposed to shed light on this dynamic, and the implications to be drawn are discussed.

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[54] Alchian and Demsetz, 1972; Rowley, 1984.

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CHAPTER 4: Financing Bankrupt Firms: Trade-offs between "me-first" and "last-lender first" repayment rules

4.1 Introduction

Newspapers have seen an industry-wide trend of decline in developed countries precipitated by the rise of alternative methods of communication. While global newspaper sales have been *increasing* in recent years[55], western countries (where internet access is cheap and widespread) have seen a pandemic of closures and bankruptcies, as the print media struggle to survive.

2009 saw a sharp decline in newspaper circulation. The Audit Bureau of Circulations which verifies circulation for American newspapers, reported that for the 379 newspapers it covered, average daily circulation declined 10.6% last year alone[56]. Quality and reputation did not protect papers, since of the top 25 daily newspapers, only the Wall Street Journal saw a modest increase in circulation (0.61%).[57]

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[55] The Local (2008).
[56] Editor and Publisher, 2009a.
[57] Editor and Publisher, 2009b.

In 2009, a number of the hundred largest newspapers in the US underwent bankruptcies. Minneapolis' *Star Tribune*[58] (ranked #18 by circulation in 2008), Philadelphia's *Inquirer* (#17) and *Daily News* (#91), the *Chicago Sun-Times*, the owners of the *Chicago Tribune* (#8) and the *Los Angeles Times*[59] (#4), as well as the magazine *Reader's Digest*, have among significant others, all undergone Chapter 11 bankruptcy (reorganization) during that year.

Interestingly, although critics suggest that the newspaper industry is in steady decline and needs to reduce in size, no firm entered Chapter 7 bankruptcy (liquidation) during this time. The *Rocky Mountain News* of Colorado, which was in 2008 the 31st largest newspaper in the US went out of print during the year, but it was shuttered without entering bankruptcy.

The exit of uncompetitive firms from an industry is a crucial cog in the efficient working of a market economy. Corporate bankruptcy laws help determine whether an insolvent firm will reorganize and continue, or be liquidated. In the latter case, these laws also guide the division of the remaining pie between creditors and shareholders. Investors' ex ante incentives to invest, managers' incentives to file for bankruptcy, and creditors' (and suppliers') incentives to provide short-term credit and to trade with a bankrupt firm all depend on the specific rules that comprise bankruptcy law.

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[58] Bloomberg (2009).
[59] ABC Local (2008).

Different loan repayment rules cause different incentives for creditors and managers to continue investment in a struggling firm, or to liquidate. One potential drawback of Chapter 11 is that it may allow managers to delay the inevitable by committing to a reorganization they know is highly likely to fail, since a bankruptcy is not in their interest. While this is true of Chapter 11, it may also be partially true of Chapter 7, for reasons discussed below.

This chapter investigates the incentives different economic agents generally have in a firm in the context of a Chapter 7 bankruptcy. While an analysis of bankruptcies of newspapers would not be complete without investigating Chapter 11, its rules are more complex and so that analysis will be done in future research. In any case, a firm that cannot be reorganized under Chapter 11 then enters Chapter 7, so analyzing the latter will inform any future investigation of the former.

The theoretical literature analyzing these incentives is difficult to test empirically. An economics experiment is therefore proposed to explore the tradeoffs between the 'me-first' and 'last-lender first' rules for repayment in bankruptcy situations. Section 4.2 introduces bankruptcy and bankruptcy law and elaborates on the economic problems this body of law is meant to solve. A theoretical model is set up in Section 4.3, and hypotheses to be tested elaborated. An experiment is set up in Section 4.4, and the analysis of possible data explained. Finally, Section 4.5 concludes.

4.2 Background

4.2.1 Bankruptcy and Bankruptcy Law

In Ancient Greece and Rome, bankruptcy law did not exist: a family that defaulted on a

loan was forced into slavery until it had worked the debt off[60]. Similarly, if a person

under the rule of the Mongol emperor Genghis Khan went bankrupt thrice, he was

executed. While these rules may seem extremely harsh, perhaps barbaric to modern eyes,

they placed a very large burden of responsibility on the debtor; it is almost certain that the

rate of default in these societies was far less than in modern ones.

However, few societies today practice slavery, and many disallow capital punishment

even for the most heinous crimes, let alone a loan default. When a person or firm cannot

repay their loans, they go bankrupt. Unfortunately, bankruptcy laws, by erasing loan

obligations under certain circumstances, allow agency problems into the creditor-debtor

relationship.

The debate about bankruptcy laws in the US has focused in the last few years on personal

bankruptcy, and the 2005 reforms that have made bankruptcy harder for individuals[61].

However, a number of high-profile failures of large corporations have recently underlined

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[60] White (2007)
[61] See Zywicki, (2005a) Also, see Zywicki (2005b) for a discussion of an alternative model proposed to
explain recent trends in consumer bankruptcy, and a defense of the reforms.

the powerful impact of corporate bankruptcy laws on the decisions made by firms near, or undergoing bankruptcy.

The justification for corporate bankruptcy laws is very different from that of personal bankruptcy. An important component of personal bankruptcy is social insurance: making sure that immediate financial hardships don't impact an individual's health and education in the long-term. The aim of commercial bankruptcy, on the other hand, is to help firms avoid inefficient decisions in different contexts resulting from coordination and commitment failures.[62]

4.2.2 Inefficient Liquidation and Inefficient Continuation

Firms undergo bankruptcy in two main scenarios: first, under circumstances of failure to compete (when their long-run profits are negative, this is called 'balance sheet insolvency'), and second, when long-run profits are not negative, but they lack short-run financing to cover their current obligations ('cash-flow insolvency').

There are two ways in which a firm's decision regarding closure can be inefficient: first, if a firm will be economically viable in the future, but does not have resources to honor loans maturing in the interim, it may be forced to liquidate despite its economic viability. This is inefficient liquidation. On the other hand, a firm may be economically non-viable in the future (i.e. its expected revenues are less than its obligations), but managers may

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[62] See Chapter 14 of Posner (1986) for an early discussion.

have the incentive to try to keep it afloat by taking out more loans. This is inefficient continuation.

a- Present creditors' race to withdraw

Present creditors with unsecured claims[63] to payments by a firm being liquidated run the risk of attempting to withdraw the payment after available resources have been exhausted. Therefore, creditors will race to get paid. However, in seeking their respective payments, they can encumber the efficient short-term investment of resources during bankruptcy, by trying to force liquidation earlier than efficient[64]. Worse, they can try to force an illiquid firm that would be profitable in the long run to dismantle too. To guard against this risk, a firm may choose to declare bankruptcy sooner, which then allows the firm to make repayments under specific rules. However, doing so can cause problems with future creditors, as explained below.

b-Increased risk for suppliers and other trade creditors

Besides its workers, a firm typically has long-term relationships with suppliers and trade partners, which involve short-term credit (in the time between delivery of requested material, for example, and payment). When a firm is close to bankruptcy, these partners are likely to become more wary of providing short-term credit if they fear the firm will

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[63] As opposed to claims secured by liens, which are relatively less affected by bankruptcy. When a firm enters bankruptcy, the lender must 'perfect' the loan, and this can be challenged Such claims can call in the property to which the lien is attached. However, If the property does not cover the claim fully, the remaining claim becomes unsecured. See White (1980)

[64] This is the classic tragedy of the commons. Posner (*supra*, p375) illustrates this with the example of the need for rental payments (without which other assets would have to be moved at a cost higher than rent) being crowded out by this jostling between creditors.

default. As short-term credit becomes harder to secure, the firm may find itself unable to make efficient decisions[65].

Bankruptcy laws rank all of the firm's obligations in the order in which they must be paid, so different creditors have different likelihoods of payment.[66] Whether short-term credit dries up prior to bankruptcy will depend on the order in which creditors must be repaid in bankruptcy. Economic models have been developed to elaborate on the efficiency implications of the different ways of ranking these obligations[67].

Specifically, a comparison has been made of the "me-first" rule (first creditor paid first, etc.) and the "last-lender-first" rule. The finding reported by White (2007) is that the "me-first" rule leads to too little short-term investment, whereas the "last-lender-first" rule corrects incentives in this regard, but is likely to cause firms that should dissolve (i.e. that are not just illiquid) to try to continue[68]. This model is outlined in Section 4.3, and a proposal for investigating the model discussed subsequently.

4.2.3 Existing Literature

Theoretical models comparing loan repayment rules developed out of Bulow and Shoven's (1978) model of bankruptcy as an interaction between a coalition of equity-

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[65] That is, it may not be able to produce even though Average Revenue would exceed Average Variable Cost, but be less than Average Total Cost.
[66] However, it should be noted that courts don't always honor the bankruptcy code. Carapeto (2000) finds major deviations from the Chapter 11 code in a survey of firms in bankruptcy.
[67] See White (2007).
[68] Which is likely to increase the pressure on older creditors to withdraw before bankruptcy proceedings start

holders and the bank that can potentially lend money, interacting with bondholders. They elaborated conditions under which economically viable firms can face insolvency.

Building on this initial framework, White (1980) compared Fama and Miller (1972)'s 'me-first rule' of repayment, which is implemented in US Bankruptcy Law, with the alternative 'last-lender first rule' and concluded that neither is conclusively preferred to the other.[69] [70]

However, while the theoretical literature has developed, the empirical study of bankruptcy has been limited by the lack of systematic data. Most studies have comprised small surveys. Moreover, this work has focused mostly on the calculation of direct and indirect bankruptcy costs, or on measuring the deviation from the APR by courts[71]. Specifically, the empirical literature lacks study of the different loan repayment rules. This is necessarily so because the 'last-lender first' rule of loan repayment has not, to the best of my knowledge, been implemented anywhere.

This paper therefore proposes an experiment to study the loan repayment rules in the lab. Bankruptcy has not been extensively studied in the lab: Holt and McDaniel (1998) discuss a classroom public goods game run by Scott Bohannon at the University of

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[69] White used the Bulow-Shoven model to elaborate on other aspects of bankruptcy, including analyzing the US Bankruptcy Code of 1979 (1983), and modeling the effect of uncertainty of future firm earnings (1989)
[70] Other extensions are Gertner and Scharfstein (1991), Bebchuk and Fried (1996) and Sulz and Johnson (1985).
[71] White (2007)

Virginia[72] that is framed as a decision involving a bankrupt firm. However, I have found no previous attempt to study Bankruptcy Law in the lab.

I propose to design and run an experiment[73] comparing the efficiency implications of the "me-first" and "last-first" rules. The propensity of managers to request, and creditors to provide credit will be contrasted with first-best decisions. Since the "me-first" rule is currently used, its performance relative to the "last-first" rule (and possibly other asset allocation methods) in different environments should help further the debate on the design of corporate bankruptcy law.

4.3 Theoretical Model[74]

The managers of a firm in distress are faced with the choice of liquidating the firm immediately, or taking out a short-term loan to pay off current creditors, and later earning the returns from an investment (net of other obligations). Full information is assumed (that is, both managers and creditors are fully aware of a firm's economic viability, and of the viability of using assets in this or other uses). The firm's obligations are modeled using the absolute priority rule (APR). The APR is a rule in American bankruptcy law,

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[72] Bohannon's subjects have to decide whether to demand loan repayment from an insolvent, but economically viable firm (i.e. not demanding loans allows the firm to generate enough money in a future period to pay off all its loans.)

[73] I haven't found an experimental literature on corporate bankruptcy law. However, Wilson et.al. (2008) have a working paper related to consumer bankruptcy

[74] This section relies heavily on a characterization by White (2007) of several earlier models. As noted earlier, the seminal article was Bulow and Shoven (1978), which was the first to assume a coalition between managers and banks. This was built upon by White (1980), (1983), (1989).

which states that all creditors must be paid before equity-holders can receive anything. It also determines the ranking in which creditors are to be paid, but in this model, all creditors are of the same rank.[75]

The managers of the firm are assumed to represent equity perfectly (without agency issues). They are faced with two alternatives: they can liquidate the firm in period 1, earning L from the sale of assets. By assumption, L is too small to fully pay off total debt $D = D_1 + D_2$ (D_1 is due for payment in period 1, D_2 in period 2). Since creditor obligations are not fully extinguished, equity-holders earn 0 under this first alternative.

The second alternative is to take a new loan $B_2 = D_1$, and pay off current debt so the firm is not forced into bankruptcy (specifically Chapter 7 liquidation) and can continue to period 2, earning P_2 from the investment (and using up assets L completely, i.e. these assets' value becomes 0 in the second period). P_2 is then distributed according to the APR (i.e. proportionately amongst creditors in this case). This new loan B_2 is taken out with a new lender, the "bank". Since the terms of this loan are undetermined at this point, it can be assumed that a loan is made if the coalition of managers and bank both benefit compared to the alternative of no loan and liquidation, in which case they both earn 0.

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[75] p2, White (2007).

4.3.1 Me-first (first-lender-first)

Consider first the "me-first" rule[76]: if the manager decides to liquidate, both managers and bank earn 0 since D>L. The bank earns zero because no loan is taken from it and it is not involved in any way, and the managers earn zero because nothing is left over after the debt is paid off.

However, if the manager decides to continue, the bank lends and a coalition is formed. In this case the firm earns P_2 in period 2. Since earlier creditors are paid first according to the me-first rule, debt D_2 is paid first, so the coalition receives $\max[P_2 - D_2, 0]$ and its net returns are $\max[P_2 - D_2, 0] - B_2$

Since the coalition chooses continuation over liquidation if the payoffs from the former are greater than 0 (the payoff to the coalition in liquidation), we know that:

$\max[P_2 - D_2, 0] - B_2 > 0$

$P_2 - D_2 - B_2 > 0$

$P_2 > B_2 + D_2$

and since $B_2 = D_1$, and $D = D_1 + D_2$…

$P_2 > D$

$P_2 > D$ is thus the condition under which continuation happens in the me-first rule.

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[76] First proposed by Fama and Miller (1972). The Me-first rule assumes that credit is unsecured and covered by agreement that future credit will rank lower. See White (1983)

In words, this condition derived in the White (2007) model can be re-written as:

Hypothesis 1: Under the me-first rule, continuation will happen whenever the returns P_2 in the second period are greater than total debt D.

Since the condition is on total debt D, it must follow that:

Corollary 1: Continuation under the me-first rule is not sensitive to the debt structure (the relative sizes of D_1 and D_2)

If $D_2 = D$, no loan matures in the first period, so no further role is required. In this trivial case, the surplus goes to the firm only, and not the bank.

If $D_1 = D$, the bank must pay all the debt up front, and has to be repaid from P_2, so the 'surplus' $P_2 - D$ must be divided amongst the firm and bank.

What happens if $D_1 + D_2 = D$? This should be identical to the $D_1 = D$ case in this simplified model since we are not modeling any bank liquidity constraints. The critical thing is that the firm would be unable to survive without some new loan by the bank. The firm will have the choice between liquidating, in which case it earns 0, or taking the loan, in which case it's payoff is P_2-D-B_2-X, where X is the share of the surplus taken by the bank (in addition to B_2). If the surplus is divided through the middle between the two, the

firm's payoff would be $(P_2-D)/2$.[77] So the firm would be willing to accept the loan if this term is positive.

Hypothesis 2: Under the me-first rule, the debt structure should not influence the division of surplus for non-trivial ($D_1 > 0$) cases.

Since $D > L$ by assumption and $P_2 > D$ is required for continuation by our earlier derivation, it must be true that $P_2 > L$ whenever the coalition decides to continue to the second period. That is, whenever continuation happens, it must be efficient.

Unfortunately, the other side of efficiency, making sure that continuation happens *whenever* it is efficient, is not achieved. That is, too little continuation is possible, since $L < P_2 < D$. Thus the drawback of the "me-first" rule is that too much liquidation (too little continuation) is likely. This is so because there will be cases where continuation is the economically efficient action, but the surplus over liquidation is captured fully by creditors (the principal, in this case), thus leaving no incentive for the coalition (the agent) to take that action. This inefficiency of the me-first rule is called 'debt overhang' following Myers (1977).

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[77] The division of surplus is exogenous to the model. It will depend on relative bargaining power. A simple convention is to assume both parties are equally competent at bargaining, and to divide the surplus down the middle. This is sometimes termed the 'reasonable solution'. See for example, Cooter and Ulen (2008)

Hypothesis 3a: Under the me-first rule, too little continuation is possible (i.e. in cases where $P_2 > L$ but $P_2 < D$, continuation is efficient but will not happen).

Hypothesis 3b: Under the me-first rule, too much continuation is not possible (i.e. in cases where $P_2 < L$, continuation will not happen)

4.3.2 Last-lender-first

Now consider the last-lender first rule. The payoffs to the coalition from liquidation are the same, 0. However, if the bank lends, and the firm survives to period 2 and generates P_2, the bank's loan B_2 has priority over previous lenders, so the coalition receives:

- The first B_2 dollars;
- Nothing from the next D_2 dollars;
- Everything above $B_2 + D_2$.

The coalition chooses to continue if $P_2 \geq B_2$. Comparing to the me-first continuation requirement (i.e. $P_2 > D$), this last-lender first requirement is easier to meet (since $B_2 < D$ whenever $D_2 > 0$), so continuation is more likely under this rule.

In words, this condition, derived by White (2007) becomes:

Hypothesis 4: Under the last-lender first rule, if the payoff in the second period, P_2, is greater than the debt maturing in the first period, B_2, continuation will happen.

Corollary 4a: Under the last-lender first rule, continuation may depend on the debt structure (since $B_2 = D_1$).

Now L is smaller than D by assumption, so $L \leq D$, or $L \leq B_2 + D_2$

The condition under which continuation will happen can be expanded:

$P_2 \geq B_2 \geq L - D_2$

As before, continuation is efficient iff $P_2 \geq L$

Since the former condition is less stringent than the latter, we know that continuation will happen more often than is efficient (i.e. whenever $D_2 > 0$), or in other words, liquidation will happen less often than it should. This is so because continuing the firm increases the value of the coalition's payoff, since the last-lender leapfrogs older creditors, and efficiency is diminished as a result.

Corollary 4b: Under the last-lender first rule, too much continuation may happen (i.e. continuation can happen in the case where $L > P_2 \geq B_2 \geq L - D_2$, which is inefficient).

4.4 *Proposed Experiment Design*

My experiment will follow the theoretical literature in treating older lenders as passive, and focusing on the interaction between managers and new lenders. Anonymous pairs will be randomly matched.

Lenders who loaned money previously will often not be able to renegotiate because of their large number (or in other words, because each lender loans only a small amount to the firm, and the transactions costs of negotiating with the firm individually or collectively are outstripped by the benefit). However, while considered passive, these earlier lenders will be represented by human subjects (who cannot control the parameters of D_1 and D_2, the debts due in each period). Whether more of the loan is due in the first or the second period is expected to have an affect on decisions made in the experiment.

Like the theoretical literature, this experiment will focus more closely on the relationship between managers and new lenders. Unlike the literature, which treats managers and new lenders as one entity or coalition, the experiment will feature separate managers and lenders. This will allow us to test whether conflict might arise due to possible differences in bargaining power. Banks and Managers will have to negotiate the price X of the debt $B_2 = D_1$.

The payoff from continuing (P_2) and the value of liquidation in the first period (L) both have an influence on continuation and liquidation conditions, so, along with earlier debt $D = D_1 + D_2$, these will be varied and the effect studied.

From the theoretical model, we know when continuation is efficient, and when it is profitable. The model predicts that bankruptcy will happen too much in some cases (viable but illiquid firms going under) and too little in others (managers put off the liquidation process by taking loans). This prediction will be tested as follows:

A comparison will be made between four cases:

   I. $P_2 < L < D$

   II. $L < P_2 < D$

   III. $D < P_2$ (where $D_1 = S_1$)

   IV. $D < P_2$ (where $D_1 = S_2$)

S_1 and S_2 represent two different types of debt structures, and are arbitrarily selected, but not equal)

Under the me-first rule: H1 requires that continuation (managers taking loans from banks) be observed in III and IV. H2 suggests that the negotiated price of the loan X is not statistically different in III and IV. H3a predicts that continuation will not be observed in II (although it is efficient) and H3b requires that continuation is also not observed in I (and if this is the case, it is efficient).

Under the last-lender first rule: H4 predicts that continuation will always happen in III and IV as before. In I and II, continuation depends on the size of B_2, the debt due in the first period. In I, H4 suggests that continuation will not be observed if $P_2 < B_2$, and this would be efficient. However if $P_2 > B_2$, C4b suggests that inefficient continuation will happen. Thus in I, the last-lender first rule is expected to be, at times, inferior to the me-first rule. The converse is true in II. Recall that continuation was not expected to be observed in this case under the me-first rule, despite being efficient. Under the last-lender first rule, continuation in II is not expected to be observed if $P_2 < B_2 < D$. However, when $B_2 < P_2 < D$, efficient continuation in II is expected under the last-lender first rule, and so the last-lender first rule is expected to be superior to the me-first rule under these conditions. The relative sizes of B_2 and L are not expected to matter.

By varying the rule regarding repayment between me-first and last-lender first, in all four of these cases, the differences in liquidation and continuation rates can be studied and evaluated.

Consider the following parameters (all figures in experimental dollars):

L = 100

P_2 = 50, 150 or 300

D = 200

D_1 = 25, 100, or 175.

We can describe the expected results (using the hypotheses discussed above) of this in the following table.

Table 6: Expected Continuation Results with Sample Parameters

P_2 \ (D_1, D_2)	(25, 175)		(100,100)		(175, 25)	
50	MF: L, E	LF: C, NE	MF: L, E	LF: L, E	MF: L, E	LF: L, E
150	MF: L, NE	LF: C, E	MF: L, NE	LF: C, E	MF: L, NE	LF: L, NE
300	MF: C, E	LF: C, E	MF: C, E	LF: C, E	MF: C, E	LF: C, E

MF denotes 'Me-First' rules; LF denotes 'Last-lender First'; The first letter that follows denotes

(L)iquidation or (C)ontinuation, and the second denotes (E)fficient or Not Efficient (NE)

In the discussion of Corollary 1 above, it was discussed that the size of the loan from the

bank $B_2 = D_1$, should not by itself affect the results of the experiment (although its size

relative to other parameters, since the potential surplus whose division the managers and

banks will bargain over remains unchanged. However, as the size of the loan rises, it is

possible that we will observe behavioral differences arise. In particular, for a 'large' bank

loan D_1, the bank may demand a greater share of the surplus. If this dynamic is observed,

it implies that continuation may decrease as the size of the loan maturing immediately increases. Whether this decreased continuation is efficient or not will depend on the size of P_2 relative to L.

Finally, this model can easily be extended to show that as uncertainty about future payoffs (P_2) increases, inefficient continuation becomes more likely.[78] This extension may be made in future work to test whether the rules discussed vary under uncertainty.

4.5 Conclusion

An experiment is proposed to test the theoretical prediction that the 'me-first' loan repayment rule prevalent in US Bankruptcy law today is preferable to the alternative 'last-lender first' rule in some cases, but worse in others. Theory suggests and this experiment expects to find that the me-first rule leads to too little continuation, whereas the last-lender first rule leads to too much continuation.

Which rule is more appropriate for the newspaper industry depends on how the industry is evaluated. If we perceive it to be a bloated industry with too much capacity relative to its underlying demand, then the me-first rule may lead to more efficient results. If on the

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[78] This is easy to see intuitively. As future payoffs become more risky while remaining the same on average, two situations 'high payoff' or 'low payoff' are possible. The coalition gets the entire benefit of the high payoff but shares the loss of the low payoff with initial lenders. Thus the coalition confers a negative externality on initial lenders if payoffs are risky. This immediately suggests the coalition will take more risk than efficient. This was elaborated by White (1989)

other hand, we perceive it to be encountering temporary cash-flow problems only, the last-lender first rule may be preferred.

The discussion of which rule suits the industry better is moot however, since the bankruptcy code is not tailor-made to each industry and circumstance. It is hoped that the experimental evaluation of these rules will further the debate about the efficient design of Bankruptcy Law. It may however be, that by showing that different rules are preferable under different circumstances, we are simply strengthening the argument to allow individuals to determine repayment rules through private ex ante bargaining, and to limit the role of the state to enforcing those agreements only.

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CHAPTER 5: An Experimental Investigation of the Effect of Defamation Laws on News

Reporting

5.1 Introduction

Defamation Law[79], the area of Tort Law that deals with damages to reputation through

false claims, has been in flux in many countries over the last half-century. This chapter

has two objectives: first, it seeks to investigate how the existence of Defamation laws can

affect the quality of news reporting. As a secondary objective it seeks to shed light on

how the different law regimes now in place in the UK, US and Australia might differ in

creating different incentives for reporters.

Section 5.2 introduces the different laws that impact journalists, and discusses

Defamation Laws generally. It then describes the evolution of Defamation Law in the

UK, US and Australia, and distills the difference into stylized facts. Section 5.3 sets up an

Experiment Design. 5.4 discusses hypotheses to be tested, and 5.5 discusses the results.

Finally, Section 5.6 concludes.

5.2 Laws impacting Journalists

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[79] Oral Defamation is called Slander, while Written Defamation is called Libel. The context of this chapter
is Libel, but we will use the term Defamation generically throughout the chapter.

5.2.1 First Amendment and Shield Laws

As with any other economic activity, incentives in Journalism are influenced by applicable laws. In writing their reports, journalists may make themselves vulnerable to tort claims, and in collecting and guarding the leads they use in writing reports, they may be protected by or be in violation of different laws. In fact, reporters, editors and publishers can all be held liable for libel, following the principle of vicarious liability.[80]

In Chapter II, we discussed how Shield Laws grant reporters privileges that potentially exempt them from exposing confidential sources to law enforcement agencies. On the other hand, Defamation Laws exist to protect the subjects of communications in the media from wrongful attacks on their reputations, (at least in the eyes of a 'substantial and respectable minority'[81]), and therefore open up reporters to being sued for misrepresentation.

The centrality of the First Amendment[82] (which states "*Congress shall make no law ...abridging the freedom of speech, or of the press...*") to the US Constitution, and its strong defense over the years, has ensured that reporters in the United States enjoy more extensive rights than those of any other country in the world. Current trends in both Defamation and Shield Laws are also towards shoring up the rights of the reporter.

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[80] Davis v. Hearst, 160 Cal. 143 (1911)
[81] Masson v. New Yorker Magazine, 50: U.S. 496 (1991)
[82] "The Constitution of the United States," Amendment 1

5.2.2-The evolution of Defamation Laws[83]

Defamation law in the UK forms the basis for similar laws in many other countries, including the US and Australia. In the following, we begin by describing Defamation Law in the UK, and then noting how the US and Australia have moved away from it.

a-The United Kingdom

UK Defamation Law is somewhat anomalous in the sense that it effectively presumes the guilt of the Defendant unless proven otherwise: if a Plaintiff argues that a statement has negatively impacted her reputation, a Defendant has a number of defenses that he can make, but failing to make these defenses successfully leads to the case being decided in favor of the Plaintiff. These defenses include Truth, Opinion and Privilege[84].

To elaborate, a Defendant is not liable for a substantially true statement[85] he made, even if such a statement led to damage to the Plaintiff's reputation. Defamation can also not be claimed for communication of the Defendant's opinion, as long as the Defendant can

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[83] The discussion in this chapter is based on a review of Defamation laws by Docherty (2000). Many of the individual cases were selected from Epstein (2004), discussed in Franklin (2002) and Thomson-West (2005)

[84] Any broad analysis of a complex area of the law must necessarily ignore many of the rich complexities therein. There are many caveats and exceptions to our stylized version of the law, e.g. *Defamation per se* rules, that we must ignore for the sake of simplicity.

[85] A statement can be considered substantially true even if it is not literally true, if the 'sting' of the claim is correct. For example, if a news report claims that a person swindled many millions of dollars out of a client, and it is later proven that the amount involved was smaller, the report will still be considered true. See e.g. Posadas v. City of Reno, 851 P.2d 438 (Nev. 1992)

prove that the opinion was reasonably formed, even if incorrect[86]. However, it should be noted here that opinion may be defamatory if it can be reasonably interpreted by recipients as implying underlying defamatory facts[87]. Finally, some defendants in particular contexts are exempted from liability for defamation, because their jobs are such that having liability would hamper them from carrying out the job. Examples of these include lawyers and witnesses discussing a case, government spokesmen in some cases etc.

b-The United States

Over the last half century, the US has systematically made it increasingly difficult to sue journalists on the charge of defamation. This trend emerged as a result of a landmark Supreme Court case in 1964, *New York Times v Sullivan*[88], which first drew a distinction between private and public figures. Since private figures have no way of correcting damage to their reputation, these Plaintiffs were judged to only need to prove negligence on the part of the defendant. On the other hand, public figures can put the record straight because of their greater access to the media, and thus have a higher burden of proof as Plaintiffs in a defamation suit. Such plaintiffs must therefore demonstrate 'Actual Malice' by the defendant, which is either actual knowledge that the information communicated was false, or doubt regarding its truth. Moreover, not only did plaintiffs have to show

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[86] It has been difficult to separate opinion from fact in practice. See for example Wilkow v. Forbes, Inc. 241 F. 3d 552 (7th Cir. 2001)
[87] Milkovich v. Lorain Journal Co., 497 U.S. 1 (1990)
[88] *New York Times Co. v. Sullivan*, 376 U.S. 254 (1964)

greater negligence, but the standard of proof required was increased from the usual

"preponderance of the evidence" to "with convincing clarity".[89]

For the purposes of a defamation lawsuit, US courts tend to adopt a very wide definition

of who a 'public figure' is. This case thus established for the first time that, instead of the

defendant in a defamation case having to prove his innocence through the three common

law defenses of truth, fair comment or privilege, the burden of proof shifted to the

plaintiff and became harder to overcome.

Another Supreme Court case in 1974, *Gertz v Welch*[90] established that defamation cannot

successfully be proven when the communication under dispute is an opinion, not a fact.

Indeed, the courts have regularly also pointed out[91] that mistaken or false statements are a

natural fallout of free speech, and thus are consistent with the First Amendment.

Defamation suits in the US thus became much harder to prove than in the UK. In our

analysis.

While US law has thus been relatively favorable towards the press, journalists must still

be careful in how they present the news. Typography and paragraphing that suggests

defamation (for example, listing wrong and negative claims in headlines, and burying

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[89] Some authors, like Murchison et.al. (1994) dissent from this view of Sullivan and argue that it decreases press freedom by leaving an assessment of acceptable journalist conduct at the judges' discretion.
[90] *Gertz v. Robert Welch, Inc.*, 418 U.S. 323 (1974)
[91] See for example Justice Brennan's opinion in *Sullivan*

caveats in the fine print) is defamatory[92], as is insinuation and implication[93]. The determinant of whether an article is defamatory or not is whether it may reasonably be interpreted to be defamatory.

In published defamation, or libel, general damages are usually presumed to exist, and do not have to be proven by the Plaintiff. She may also recover special damages, to compensate for loss of employment, failure of business etc., arising from the wrongful damage to her reputation caused by the publication.

When the libel is the result of common law malice (i.e. ill-will or hatred), most states allow private figures to recover punitive damages for private matters[94], but this allowance is not extended to public matters, following *Gertz*, supra.

However, courts typically refuse to issue an injunction stopping the publisher from defaming the plaintiff, due to free speech concerns arising from the First Amendment[95]

In any case, the current study remains silent on the specific nature of the damages awarded. It is only assumed that defamation will be costly for publishers of information in the case that libel laws are in place. This cost may be interpreted as general damages

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[92] See Vandenburg v. Newsweek Inc., 507 F. 2d 1024 (5th Cir. 1975), and Wildstein v. New York Post Corp., 40 Misc. 2d 586, *aff'd*, 24 App. Div 2d 559 (1968)
[93] For example, Davis v. Ross, 754 F. 2d 80 (2d Cir. 1985), Aronson v. Wiersma, 65 N.Y. 2d 592 (1985) and Healey v. New England Newspapers Inc. 555 A. 2d 321 (R.I.) *cert. denied*, 493 U.S. 814 (1989)
[94] See e.g. Norris v. Bangor Publishing Co., 53 F. Supp. 2d 495 (D. Me. 1999)
[95] Kramer v. Thompson, 947 F.2d 666 (3d Cir. 1991)

rigorously enforced, or as the expected cost of punitive damages, when those damages are assigned in proportion to the cost imposed on society and inversely proportional to the enforcement of the law.[96]

c-Australia

Australian Defamation Law also found its origins in the UK law, but Australian courts were also influenced by the US shift caused by the *Sullivan* ruling. However, Australia did not adopt the Sullivan changes wholesale, instead choosing some of its features and rejecting others[97]. Australia adopted the standard of Actual Malice from the US. It did not however, adopt some of the other features that make Defamation suits so hard to win in the US: specifically, it is harder to prove that someone is a public figure in Australian courts compared to American ones, which means that the stricter standards that apply to public figures are less likely to apply. Moreover, the standard of "convincing clarity" described above also does not apply in Australia. Moreover, Australia kept the burden of proof on the Defendant (as in the UK), instead of moving it to the Plaintiff (as in the US).

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[96] Such an interpretation is in keeping with the economic analysis of punitive damages, but may be unconstitutional. For a discussion, see e.g. Cooter and Ulen (2008), pp393-398.
[97] Marjoribanks and Kenyon (2004).

The salient differences can be summarized in the following table:

Table 7: Differences in Libel Law Across UK, US and Australia

		Liability Rule		
		Liability Rule	**Burden of Proof**	**Standard of Proof**
Country	**UK**	Strict Liability	Defendant	Preponderance of the Evidence (51%)
	Australia	*Actual Malice* (Lies or Gross Negligence)	Defendant	Preponderance of the Evidence (51%)
	US	*Actual Malice* (Lies or Gross Negligence)	Plaintiff	Beyond a Reasonable Doubt (71%)

When a reporter publishes a story that is negative and false, he may be open to a Defamation suit. However, the differences in the design of the laws of these three countries suggest that reporters may have very different expectations regarding the possibility of a Defamation suit in each country. Since suits are costly, this implies that there may be different expected costs of publishing certain types of stories. Inasmuch as they are significant, these different costs will induce different actions by reporters in each country.

5.3 Experiment Design

This experiment focuses on the effect defamation laws have on the relationship between sellers and buyers of information, rather than on the interaction of the seller of defamatory information and the victim. In other words, it studies the fallout of defamation law for readers.

5.3.1 Extending Kornhauser and Schotter (1990)

The liability rules can be compared by following Kornhauser and Schotter (1990), i.e. by having subjects decide on a level of care x that leads to different expected costs in the two different liability rules. However, Kornshauser and Schotter were interested in a general comparison of liability laws. In particular, they did not explore the questions of *intent* and *burden of proof*, nor did they investigate the other tools (besides level of care) that reporters may have in avoiding Defamatory suits.

5.3.2 The setting

This experiment studies how Reporters choose between making an effort x and reporting with a slant y in reporting their estimates of the underlying value of an item available to the Reader. Readers can buy the item reported on from its Owner. Without buying the news from Reporters, Readers are uninformed about the underlying value, which varies between 1 and 20. Being uninformed, they make an uninformed guess about the value, or in other words draw an estimate of the value that is completely random (in this case the

probability is 1/20 that the correct value is drawn). As a simplification, the assumption here is that Readers can use a news report to make decisions that directly affect their payoffs.

The naturally-occurring counterpart to these sorts of payoffs would be product reviews in newspapers and magazines. Readers buy these magazines in order to learn about which brand of a certain type of product is high quality and which is low. Reporters at these magazines specialize in accumulating expertise in evaluation, and experience that helps them make judgments about the underlying quality and value offered.

However, experts do have to make a costly effort to evaluate underlying value accurately, and they can be wrong. Therefore, in our model, Reporters can either choose not to incur a cost of effort x, in which case their evaluation is no better than the Readers' evaluations, or they can incur that cost, in which case they get to draw the value of the item with a greater accuracy than Readers. In this case, we assume that Reporters making high effort get the value right half of the time, and make an erroneous report the other half of the time.

If, over time, Reporters make low effort at no cost, they give Readers no further information about underlying value, so Readers are expected to learn not to pay Reporters anything for their reports. Given this, and as long as the chosen parameters are not extremely restrictive (i.e. as long as there is room for profitable reporting) Reporters are

expected to learn to make high effort and for Readers to learn to trust them. Without the added complexity of Defamatory lawsuits then, this is a standard Repeated Agency (or Trust) Game.

5.3.3 Defamation Lawsuits

Now suppose that a Reporter makes a report of the underlying value, which is lower than actual value. The report can damage the interests of the Owner of the item being considered by the Reader. Therefore, if the report is false and negative, the Owner may decide to sue, claiming that the Reporter has defamed him.

The Reporter then pays the cost of the Defamation D, which varies with the law regime under consideration. Under *Strict Liability*, the Agent always pays D whenever sued (for "low" reports). Under Actual Malice, the Agent pays if and only if he made a low effort (i.e. the Owner can prove Negligence).

5.3.4 Slant

A slant is defined as the difference between the Reporter's estimate of value and his report of it. In this setting, only a positive slant (i.e. inflating the reported value over and above the underlying estimate) makes sense, so a slant is assumed positive from here on.

Now the Reporter has competing interests in choosing to slant or not. A slant will always make it less likely that the reported value is correct. That is, probabilistically speaking, a

slant always decreases accuracy. Decreased accuracy sullies a Reporter's reputation and makes it less likely that Readers will demand his reports.

On the other hand, a slant makes it less likely that the reported value is less than the underlying value, and hence makes it less likely that the Reporter will be sued for Defamation.

Thus as slant increases, the Reporter's Revenue goes down as Accuracy is diminished, and Costs go down as Defamation suits become less likely. The Reporter over time is expected to choose the level of slant that maximizes his profits.

5.4 Hypotheses

There is not, to the best of my knowledge, much theoretical work on the economics of defamation, and so the hypotheses to be tested are simply based on our general discussion[98]:

> *(H1)* The existence of Defamation laws will lead to a positive bias in reporting, compared to the no Defamation law case.

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[98] Renas et.al. (1983) attempted to develop a theoretical model and argued that the right legal rule would be a proportional liability law. However, the model itself was rudimentary and not able to support their discussion.

(H2) Positive slant is expected by low-effort sellers, and no slant is expected by high-effort sellers in the tested case of Actual Malice. If the defamation treatment was modeled on strict liability type defamation (as is planned for further work), positive slant would be expected by all sellers.

(H3) High effort is expected in the Actual Malice case, because low effort will lead to more Defamation suits ceteris paribus, and low demand, i.e. will be the degenerate case.[99]. Accuracy and Reader Demand are expected to relate positively with the amount of effort.

(H4) Less supply is expected in the defamation case, since sellers will be wary of litigation costs (in other words, their expected costs of operation increase, so supply should decrease)

(H5) Reader demand should depend on the quality of information supplied: if high-quality information is provided, reader demand is expected to be high. If low-quality information is provided, reader demand is expected to be low.

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[99] It is unclear what the level of effort will be under the Strict Liability case. Standard theory suggests that there should be no difference between the two cases, but the Kornhauser-Schotter experiment (1990) found otherwise. Wittman et.al. (1997) suggest that this deviation from theoretical predictions may be due to the rules' differences in speed of convergence to equilibrium. One of the few other experimental investigations of liability regimes is Dopuch, Ingberman and King (1997), but these authors focused on differences in pre-trial settlements, not levels of care.

5.5 Results

Ten sessions of the experiment (five each of the Baseline and Defamation treatments) were run, with a total of seventy unique participants. However, while the experiment was planned to run for 40 periods in each session, some sessions ended earlier when one of the participants lost all of their experiment earnings ('went bankrupt').

Table 8: Session Summary

Experiment #	Treatment	Periods	Subjects
1	Baseline	40	10
2	Baseline	39	5
3	Baseline	40	5
4	Baseline	40	5
5	Baseline	40	5
6	Defamation	17	10
7	Defamation	40	5
8	Defamation	6	10
9	Defamation	24	5
10	Defamation	19	10

As can be seen in the table above, the premature endings happened in the Defamation treatment only (Experiment #2 ended one period early due to a software glitch, not subject behavior). The bankruptcies predominantly affected Role B participants (information sellers). The additional costs of false reporting, coupled with an apparently strong preference to make a report rather than withdraw from reporting, tightened the Role Bs' ability to remain profitable.

5.5.1 Information Sellers' (Role Bs') Behavior

a- Quality of Information: Do False reports decrease with Defamation Rules?

To test whether false reports decrease in the Defamation treatment, a variable named *Falsified* is constructed. *Falsified* takes a value of 1 if either of the two numbers reported is different from the numbers supplied in the information packet.

If a false report is made, a Role B participant can expect damage to his reputation in both treatments. However, in the Defamation treatment, there is the additional potential cost of having to pay Defamation costs to the system. Therefore, we expect falsification to be lower in the Defamation treatment. This does not turn out to be the case:

Table 9: Summary Statistics for *Falsified*

Falsified	Obs	Mean	Std. Dev	Min	Max
Baseline	717	0.679219	0.4671026	0	1
Defamation	444	0.6396396	0.4806465	0	1

It may be that the premature ending observed during the defamation treatment explains the high Falsified values observed here (if participants start by falsifying and then move to telling the truth upon being punished). To verify this, the following Probit regression is run:

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```
. probit falsified treatment period

Iteration 0:   log likelihood = -741.05497
Iteration 1:   log likelihood = -739.51706
Iteration 2:   log likelihood = -739.51697

Probit regression                                Number of obs   =       1161
                                                 LR chi2(2)      =       3.08
                                                 Prob > chi2     =     0.2148
Log likelihood = -739.51697                      Pseudo R2       =     0.0021

------------------------------------------------------------------------------
   falsified |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
   treatment |  -.0782853   .0827039    -0.95   0.344    -.240382    .0838113
      period |   .0038229   .0035545     1.08   0.282   -.0031439    .0107897
       _cons |   .3880594   .0868061     4.47   0.000     .2179225    .5581963
------------------------------------------------------------------------------
```

A small difference between Defamation and Baseline is detected, but the interaction with time (period) needs to be investigated.

Falsified can take a high value either when less information is bought, or when a spurious report is made. It is necessary to construct another measure of falsification to test this further. To do this, I construct a Boolean variable bdef, which takes a value of 1 if a Role B participant tried selling a report without buying information, and 0 otherwise.

Table 11: Summary Statistics for Role B's Attempts to Defame

BDef	Obs	Mean	Std. Dev	Min	Max
Baseline	717	0.6192469	0.485911	0	1
Defamation	444	0.2792793	0.4491511	0	1

This suggests, as expected, that when Role B participants can be punished for making a false report without buying information, they are less likely to make such reports.

More interestingly, Role B participants increased the 'fake' numbers reported when they chose to make a potentially defamatory report, when they were liable for such a report. (Recall that a Role B participant would not have to pay costs if their fake report was greater than the actual number for that period).

Table 12: Summary Statistics for Role B's Reports

BReport1	Obs	Mean	Std. Dev	Min	Max
Baseline	444	8.43018	5.386388	1	20
Defamation	124	15.26613	4.857496	1	20
BReport2	**Obs**	**Mean**	**Std. Dev**	**Min**	**Max**
Baseline	444	10.9955	5.530541	1	20
Defamation	124	16.16129	4.243382	1	20

The two numbers reported by Role Bs (BReport1 and BReport2), are much higher when there is a threat of a defamation cost.

What this suggests is that, as expected, Defamation laws have two effects. First, they have a beneficial effect on accuracy of reporting. When they are liable to be punished for making errors in one direction, reporters are slightly less likely to make errors at all. Second, Defamation laws inflate inaccurate reports, when those reports are made. This is

so because when a reporter decides to shirk on quality, he tries to avoid defamation related costs by not having anything bad to say. As mentioned in the discussion earlier, defamation is one-sided in its punishment of inaccuracies, and that one-sided nature is reflected in how economic agents respond to the implementation of such laws.

However, the overall effect is beneficial in our experiment and Role A profits are higher in the defamation treatment than in the baseline case.

Table 13: Summary Statistics for Role A Profits

Aprofit	Obs	Mean	Std. Dev	Min	Max
Baseline	478	0.8368201	7.957601	-7	20
Defamation	296	1.925676	8.439689	-7	20

This provides further support for the conclusion that the quality of information is improved in the Defamation law case.

b- Quantity of Information: do the number of reports offered for sale decrease in the

Defamation treatment?

As expected, given the increased cost of making a false and negative report, fewer Bs

chose to offer reports in the Defamation treatment case. Almost one in every three

possible offers to sell were not extended in the Defamation treatment, whereas more than

95% of possible offers were made in the Baseline case.

Table 14: Role B's Offers to Sell Reports

B's Offer to Sell	Obs	Mean	Std. Dev	Min	Max
Baseline	717	0.9529802	0.2126835	0	1
Defamation	444	0.6801802	0.4669327	0	1

Whether this decrease is simply because spurious reports are cut out, or due to a chilling

effect hinges on whether quality of information has increased or not, which, as

mentioned, requires further testing.

c- Are sellers successful in selling false reports?

While a substantial amount of false reports were made, the likelihood of false reports

being successfully sold was low. False reports were typically made by sellers who did not

have buyers, and who were simply making these reports in the hope of capturing a

buyer's mistake (in a manner that seems somewhat akin to a tourist trap).

This was tested by regressing sales against whether the seller falsified his reports in the

last three rounds. The results suggest a strongly negative relationship between false

reports and sales in future periods:

Table 15: Dynamics of Falsification

```
Source |       SS        df       MS                Number of obs =     1035
-------------+------------------------------         F(  3,  1031) =   310.10
      Model |  190.071853      3  63.3572843         Prob > F      =   0.0000
   Residual |   210.64892   1031   .20431515         R-squared     =   0.4743
-------------+------------------------------         Adj R-squared =   0.4728
      Total |  400.720773   1034  .387544268         Root MSE      =   .45201


------------------------------------------------------------------------------
breportsales |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
   falsified |
         L1. |  -.4541346   .0428246   -10.60   0.000    -.5381679   -.3701014
         L2. |  -.3288912    .043466    -7.57   0.000     -.414183   -.2435993
         L3. |  -.2558974   .0416168    -6.15   0.000    -.3375606   -.1742341
       _cons |   1.081289   .0269138    40.18   0.000     1.028477    1.134102
------------------------------------------------------------------------------
```

5.5.2 Information Buyers' (Role As') Behavior

Role As were far more likely to be successful at estimating the random number when

they chose to buy a report, than not.

100

Table 16: Buying Reports Helped

```
Source |       SS       df       MS              Number of obs =     774
-------------+------------------------------              F(  2,   771) =   69.69
       Model | 23.1440252      2  11.5720126              Prob > F       = 0.0000
    Residual | 128.029101    771  .166055903              R-squared      = 0.1531
-------------+------------------------------              Adj R-squared =  0.1509
       Total | 151.173127    773  .195566787              Root MSE       =  .4075


------------------------------------------------------------------------------
    asuccess |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
  areportbuy |   .3410374   .0298298    11.43   0.000     .2824801    .3995947
   treatment |   .0553207   .0302809     1.83   0.068    -.0041221    .1147636
       _cons |   .0467161   .0247116     1.89   0.059    -.0017939     .095226
------------------------------------------------------------------------------
```

However, given this, it is somewhat puzzling why a large number of times, Role As

chose not to buy reports at all, relying instead on blind guesses:

Table 17: Reports were Demanded at Low Levels

```
  Correct Estimate   |     Obs        Mean    Std. Dev.       Min        Max
-------------+----------------------------------------------------------------
When Report Not Bought |     324    .0648148    .2465796         0          1
When Report Bought     |     450    .4111111    .4925829         0          1
```

One explanation may be that buyers buy reports in early periods, and if they are sold

spurious information, take it as a reflection on other sellers' quality also, and resort to

making blind guesses in future periods.

5.6 Conclusions

Journalists, like any other economic actors, are incentivized in part by the laws applicable to them. One group of laws that has had an important influence on journalist behavior are Defamation laws. These are interesting not only due to their importance, but because they have differed substantially in different countries. While studying the fallout of these differences would be hard to do in the naturally-occurring environment, experiments may allow us to make some preliminary conclusions regarding the efficacy of these laws in the UK, US and Australia in terms of the accuracy and extent of information dissemination. An experiment is designed to study the salient differences in these countries. The results of a preliminary experiment are in line with predictions.

The instructions for the experiment are attached below (sections in italics are for the

Defamation treatment only, all other sections are shared for both treatments):

Introduction

Welcome to an experiment in decision-making. You earn $5 for participating in this

experiment, and may potentially make further earnings during the experiment.

The experiment is divided into many periods. In each period, you will make decisions

and may earn Experimental Dollars (E$), which is the currency used in the experiment. 1

E$ is worth 0.10 US Dollars. At the end of the experiment, your earnings in E$ will be

converted to US Dollars and paid to you.

In addition to the $5 showup bonus, all players have E$20 at the start of the game. If a

player ends up making a loss in E$s at the end of the experiment, they will end the

experiment with the $5 showup bonus intact, but zero additional earnings.

There are two types of roles in this experiment: "Role A" and "Role B". You will be

randomly assigned one type of role for the duration of the experiment. Today, your role

is: Role A/Role B. However, it is important for you to understand both roles.

Random Number

In each period, the experimenter conducting the experiment picks a Random Number between 1 and 20. This Random Number is not revealed to any participant initially.

Role A

The goal of Role A participants is to estimate the actual value of the Random Number, which is not known to them. A correct estimate earns the Role A participant E$20, while an incorrect estimate yields no earnings.

Example:

Suppose the random number picked by the Experimenter was 14. A Role A participant would get E$20 if she chose an Estimate of 14; and E$0 for any other Estimate chosen.

Role B

Role B participants do not earn money directly by estimating the Random Number. However, they can earn money by selling a Report about the Random Number to Role A participants at a price E$7.

In each period, Role B participants must decide whether to buy an information packet for that period from the experimenter or not. The information packet costs E$3, and contains two numbers, one is the chosen Random Number for the period, and the other is another

randomly picked number between 1 and 20, other than the actual Random Number. The Role B participant does not know which is which.

Once a Role B participant has either bought an information packet or chosen not to, he chooses to offer a Report to Role A participants or not. This Report contains the two numbers from the information packet, or any two numbers of the Role B participant's choice.

Role A participants do not know whether a Role B participant bought an information packet or not, and must then select a Role B participant to buy a report from (or they can choose not to buy a report at all). Role A participants can only buy a report from one Role B participant per period, and will know which Role B participant they bought from.

Examples:

Suppose the Random Number picked by the experimenter is 14, as before. If the Role B participant buys an information packet for E$3, he gets two numbers: "14" and another number between 1 and 20, say "8". The Role B participant can then offer to sell a Report for E$7 to Role A participants containing the numbers from the information packet ("8" and "14"), or to sell a Report containing any two numbers he chooses.

On the other hand, the Role B participant could have chosen not to buy an information packet. He can then choose not to sell a Report, or to sell a Report containing any two numbers.

Additional Report Costs

If the Role B participant decides not to buy the information packet, and chooses to sell a Report to Role A participants, he may face some extra costs. If any of the numbers the Role B participant includes in his Report are below the actual Random Number, he pays an additional cost of E$5.

Example: If the Random Number is 14, and a Role B chooses not to buy the Information packet, he can provide two other numbers, e.g. 3 and 17. Since one of these numbers is below 14, he pays E$5. On the other hand, the Role B would not have faced such costs if he had chosen, say 15 and 17, or if he had bought the packet.

Summary

The experiment is conducted in the following sequence:

- Role B subjects choose to buy an information packet (containing two numbers, one of which is the Random Number chosen by the experimenter) or not

- Role B subjects then choose to offer a Report to Role A subjects or not. This Report may contain the two numbers from the information packet, or any other two numbers. *If the Role B had chosen not to buy the packet, and reports numbers below the actual random number, they pay an additional E$5*

- Role A subjects choose to buy Reports or not, and choose an Estimate of the experimenter's (unknown) Random Number

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CURRICULUM VITAE

Syed Ali Hasanain graduated from Aitchison College Lahore in 2001. He received his Bachelors of Science from the Lahore University of Management Sciences in 2005 and commenced graduate study at George Mason University in the same year. He was employed as a graduate lecturer at George Mason during the Fall 2008 and Spring 2009 semesters. He received a summer research grant from the Koch Foundation in 2009.