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Simon P. Anderson
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Handbook of

MEDIA ECONOMICS

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MEDIA ECONOMICS

Volume 1A

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INTRODUCTION TO THE SERIES

The aim of the *Handbooks in Economics* series is to produce Handbooks for various branches of economics, each of which is a definitive source, reference, and teaching supplement for use by professional researchers and advanced graduate students. Each Handbook provides self-contained surveys of the current state of a branch of economics in the form of chapters prepared by leading specialists on various aspects of this branch of economics. These surveys summarize not only received results but also newer developments, from recent journal articles and discussion papers. Some original material is also included, but the main goal is to provide comprehensive and accessible surveys. The Handbooks are intended to provide not only useful reference volumes for professional collections but also possible supplementary readings for advanced courses for graduate students in economics.

Kenneth J. Arrow and Michael D. Intriligator

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INTRODUCTION

Media markets are special in many ways, and they take on an importance that is much larger than their accounting contribution to GDP. First, on the consumer side, is the astonishingly large fraction of leisure time devoted to them. Second, on the advertiser side, they provide a conduit for firms to get consumers to buy goods, which supports employment in the advertising industries and may foster economic growth by enabling innovations to be brought quickly and profitably to market and rewarding risk-taking. Third, the media plays a very special role in providing information on current events and politics. However, the media by necessity systematically filters and biases this information. How much and which information is transmitted is likely to affect wide range of political, economic, and social outcomes, including political accountability, corporate accountability, financial market performance, and educational and family choices. Because of these effects, the media is a particular industry that is specifically regulated in the constitutions of most democratic (and nondemocratic) countries.

Foremost, perhaps is the paramount role of informing the electorate, arising largely as an externality to news consumption. In terms of market performance, media markets may embody several key features that give rise to specific types of market failure. Many media have relatively high fixed costs and low marginal costs, and hence a paucity of equilibrium product offerings, leading to preference externalities in content provision whereby majority groups' tastes tend to be catered at the expense of minorities. This news bias also alters the trade-off in political competition and therefore introduces a bias in public policy against the interest of minority groups. Moreover, the business model of advertising finance is that of a two-sided market with media outlets (platforms) delivering eyeballs to sell to advertisers, which is a quite different market structure from traditional market interactions.

This volume (1A and 1B) contains 19 chapters on the state of the art on the economics of media. These chapters are divided broadly into three parts.

Part I. Media market structure and performance, covering theory and methodology.

Chapter 1 explores the implications of the high fixed costs and heterogeneous consumer preferences endemic to media markets and the ensuing preference externalities in media markets. Both the positive and the normative economics are developed through a suite of theoretical models that are then illuminated empirically.

Chapter 2 covers the theory of two-sided markets as it relates to media markets. Platforms realize a two-sided balance between the two sides, and in competition with each other. The extent of consumer (viewer) multihoming is a key driver of positive predictions. Advertising revenues ultimately underwrite programming content, and this feature impacts performance measures from static market efficiency through genre choice and equilibrium variety.

Chapter 3 reviews the techniques of empirical industrial economics most helpful for the study of media markets. The chapter includes an extensive discussion of demand modeling, as well as entry modeling. The chapter takes a more methodological approach than others in the volume.

Much of the media sector is dependent on advertising for revenue. Chapter 4 takes a detailed look (primarily theoretical) at the background to the economics of advertising. It develops various conceptual roles that advertising may take, and it draws out the consequences for evaluating the surplus associated to advertising. This is a key ingredient to evaluating the performance of ad-financed media.

Chapter 5 takes a primarily marketing perspective to describe audience behavior and consumer response to ads. It discusses recent innovations such as advertising avoidance, advertising targeting and personalization, and reviews how the landscape has changed over the last decade.

Chapter 6 explores merger policy and regulation of media industries. These industries require a dedicated analysis distinct from standard markets because of their two-sided nature and because of their pivotal place in providing information. The chapter exposits the extant theory, delivers some empirical evidence on the consequences of mergers, and discusses recent cases.

Part II. Industry sectors, covering the economics of particular media industries. The first three chapters of this part give historical background and empirical results on various pertinent aspects, with special emphasis on the US landscape. The last three chapters of this part address various facets of the economics of the Internet.

Chapter 7 surveys the economics of television, the dominant entertainment medium for most consumers. The chapter describes incentives for production and consumption of content, recent trends in television and online video markets, and the state of economic research on these industries. Topics emphasized include pay television, vertical relations, the role of public television, and growing online video.

Chapter 8 on radio pays special attention to the effects of recent consolidation in the United States. It also addresses the impact of the public sector and findings on the extent of overentry in the sector. Another contribution is to depict the interaction between the music and radio industries.

Chapter 9 on newspaper and magazines describes the history and structure of print markets in the United States. The chapter discusses these sectors in the context of two-sided markets. It includes discussions of whether or not advertising is a net nuisance to print media consumers, antitrust issues in print markets, and the effect of the Internet on these sectors.

Chapter 10 on media economics of the Internet is a primarily theoretical synthesis of recent key advances as applied to this emergent sector. The chapter includes discussion of such pertinent aspects as aggregators, search engines, and Internet service providers.

Chapter 11 covers the topic of privacy and the Internet, which has been an issue of much public concern and debate. A conceptual framework is developed and related to empirical estimates. Further topics include advertising, social networks, data security, and government surveillance.

Chapter 12 addresses user-generated content and social media. It covers an eclectic set of applications in a fast-moving sector, and pays particular attention to determining the quality of the content.

Part III: The political economy of mass media, covering the effects of media on political, economic, and social outcomes. Chapters 13–17 discuss the media's political coverage, bias and capture, and the resulting effects on political accountability. Chapter 18 covers effects in finance and Chapter 19 covers effects on social outcomes.

Chapter 13 presents a baseline model of how the information filtering caused by media coverage affects political accountability. It discusses the welfare consequences of private provision of news as well as regulation to solve the problem of underprovision of news. The model also supplies an array of testable implications, used to organize the existing empirical work. The key questions are: what drives media coverage of politics; how does this coverage influence government policy, the actions and selection of politicians, and the information levels and voting behavior of the public?

Chapter 14 discusses how bias may reduce the informativeness of media, undermining its positive role for political accountability. It surveys the theoretical literature on the market forces that determine media bias. A simple model is used to organize the literature on the determinants of bias, focusing first on supply-side forces such as political preferences of media owners, and then turning to demand-side forces working through consumer beliefs and preferences. The chapter defines bias, analyzes its welfare consequences and how these are affected by, for example, competition.

Chapter 15 surveys empirical studies of media bias, with a focus on partisan and ideological biases. The chapter discusses the methods used to measure media bias, the main factors found to be correlated with media bias and measures of the persuasive impact of media bias on citizens' attitudes and behavior.

Chapter 16 surveys models of media capture and media power. In both cases, media sources deliberately deviate from truthful reporting in order to affect electoral outcomes. The chapter speaks of media capture when the government has an active role in capturing the media, and media power when media organizations distort news reporting for political ends. The chapter discusses theories of when news manipulation is more likely to succeed and electoral outcomes are more likely to be distorted. It discusses how media regulation can reduce the extent of these two phenomena.

Chapter 17 surveys the empirical literature on the determinants and the consequences of media capture. It reviews the literature on the determinants of media capture. It discusses the methods used to control media, and examines the evidence on the effect of media capture on media content. Next, it presents evidence on the effects of captured media on the behavior of people, as well as the effects of independent media in captured environment. It concludes by discussing the factors that limit the effect of propaganda.

Chapter 18 reviews and synthesizes a rapidly growing subfield that analyzes the relation between media and financial markets. The chapter discusses theories of the role of information provided by media in financial markets. It describes new data and methods that have enabled powerful tests of theories and have the potential to address longstanding puzzles in finance, such as why trading volume and stock price volatility are so high. The chapter presents evidence on, for example, the effect of the volume and content of media coverage on market activity and stock prices.

Chapter 19 reviews the literature on the impact of media exposure on a wide net of social and economic outcomes: education, family choices, labor and migration decisions, environmental choices, health, crime, public economics, attitudes, consumption and savings, and development economics. It stresses five themes: (i) the key role of the demand for entertainment; (ii) the importance of crowding out of alternative activities (substitution effect); (iii) identification of causal effects—credible estimates are available for some topics and media but not for others; (iv) effects may differ by type of media; and (v) both the substitution effect and the demand for entertainment play an important role for the policy impacts.

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DEDICATION

We dedicate this Volume to our respective wives, children, and parents.

PART I

Media Market Structure and Performance

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CHAPTER 1

Preference Externalities in Media Markets

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Abstract

Media industries typically exhibit two fundamental features, high fixed costs and heterogeneity of consumer preferences. Daily newspaper markets, for example, tend to support a single product. In other examples, such as radio broadcasting, markets often support multiple differentiated offerings. Both contexts can deliver preference externalities, when the options and well-being for consumers depend on the number and mix of consumers according to their content preferences. This chapter presents evidence on these fundamental features of media markets. We then incorporate these features into a suite of theoretical models to obtain both a description of media markets as well as predictions for how they would be expected to function. In Section 1.3, we turn to "results," i.e., empirical evidence on the questions illuminated by the theoretical models. We then explore the effects of technological change, and we suggest directions for future work.

Keywords

Preference externalities, Media markets, Differentiation, Entry, Broadcasting

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1.1. INTRODUCTION

One of the basic intuitions about markets implicit in many elementary discussions—and explicit in the work of Friedman (1962)—is that markets, unlike political decision processes, avoid the tyranny of the majority. "Each man can vote, as it were, for the color of tie he wants and get it; he does not have to see what color the majority wants and then, if he is in the minority, submit" (p. 15). To say this another way, the products that a consumer gets from the market depend only on his own preferences and means, but they do not depend on the preferences of others. Yet, when fixed costs are substantial, this intuition is not correct. Consumers get products that they find appealing only to the extent that others share their preferences, giving rise to a phenomenon one might term "preference externalities" and which we define more precisely below.

Preference externalities are common in media markets for three reasons. First, media products tend to have high—and almost exclusively—fixed costs. In the absence of fixed costs then the market could provide a continuum of products catering to diverse preferences. That is, every taste type could have its own tailored service, provided at marginal cost (Mussa and Rosen, 1978, deliver a "quality" model along these lines). Then there is no preference externality problem, and no worry about product selection distortion. Of course, fixed costs are not zero, and whether a market is served at all depends on whether a firm or firms can extract sufficient net revenues to cover entry costs. A second important feature of media markets is that the structure of preferences differs substantially across groups of consumers. Men and women tend to prefer different types of media products, as do young and older people, as do blacks and whites, as well as Hispanics versus non-Hispanics. Preference cleavages are not by any means limited to the distinctions among

US consumer groups. The different linguistic groups within Europe, for example, provide excellent additional examples. The more that preferences differ across groups, the less that entry targeting one group will benefit members of another group. The more heterogeneous is the population in terms of tastes for different varieties, and the more intense the willingness to pay for different variants (and the less substitutable are the variants for consumers), the more types will be produced.[1]

Finally, in many media markets advertising finance is the sole, or at least a major, source of revenues. This means that if advertising demand is weak, then the market may not be served. This could be a major problem in market provision (and hence a role for government intervention, for example, with a public broadcaster) in less developed nations, or in other contexts in which audiences have insufficient commercial value to advertisers to cover costs with revenue. When the market is served, markets provide content appealing to consumers whom advertisers covet rather than content appealing to consumers themselves, giving rise to another reason why the content one faces might depend on the preferences of others.

Prominent examples of media markets with preference externalities are newspapers, radio and television stations, magazines, and various kinds of web properties. The way that preference externalities operate depends largely on the magnitude of fixed costs in relation to market size and, consequently, the number of products in the market. At one extreme are daily local newspaper markets, many of which are literal monopolies. If consumers affect each other in daily newspaper markets, it will be through the quality and positioning of the sole product. Local radio markets, with about 20 products per market across large US metropolitan areas, provide a contrasting example. With multiple products in the market, groups of consumers with heterogeneous tastes can affect each other by bringing forth additional products that may, or may not, appeal across groups.

This chapter lays out a framework for thinking about media products embodying fixed costs, heterogeneity of consumer preferences and product differentiation, and advertiser finance. First, we present some evidence on a few primitives: that making products available has significant fixed costs, how preferences differ across groups, and the important role of advertiser rather than user finance of products. We then incorporate these features into a suite of theoretical models to obtain both a description of media markets as well as predictions for how they would be expected to function. For example, how does the mix of consumers, by preference groups, affect the targeting of the product or products, as well as the well-being of market participants? How does market size affect entry and welfare? How do market outcomes relate to optimal configurations? We use these models both to illuminate how preference externalities operate in media markets as well as how ongoing changes in technology—reducing entry costs relative to market

[1] Preference externalities are not specific to media markets and can arise whenever fixed costs are high and preferences differ across groups of consumers. See, for example, Bhattacharya and Packalen (2008, 2011) and Chevalier et al. (2008). Related issues arise in Handbury (2011), Haurin and Rosenthal (2009), Rosenthal and Strange (2004), Choi and Bell (2011), as well as Cutler et al. (2008).

size—would be expected to change media markets. In Section 1.3 we turn to "results," i.e., empirical evidence on the questions illuminated by the theoretical models. We discuss empirical results on entry and preference externalities that speak to the predictions, we discuss the effects of technological change, and we suggest directions for future work.

1.2. FIXED COSTS AND HETEROGENEOUS PREFERENCES

1.2.1 Fixed Costs

Media outlets, such as newspapers and radio and television stations, have cost structures that are predominantly fixed. The cost of putting together a daily newspaper is based mostly on the staff of reporters and editors, and this cost does not vary directly with the number of copies produced (although a newspaper with more content might attract more readers). To a varying degree across different sorts of media products, these fixed costs are large, in the sense that markets can support few, or sometimes only one, product(s). In the late 1990s the *Columbus Dispatch*, the major newspaper serving a metropolitan area of roughly 3 million people, had 69 reporters and editors. At the same time, the *New York Times*, serving the 22 million person metro area around New York, had about 300 reporters and editors.[2] According to the Bureau of Labor Statistics, reporters and editors earn an average of $44,000 per year.[3] Hence, the annual fixed cost of putting together content at these two papers was roughly $3 million and $13 million respectively. Radio stations have a similar cost structure, although their absolute level of fixed costs is much lower than for newspapers. One cost estimate for a rudimentary religious radio station puts the annual cost of operation at $142,000 per year.[4] Typical radio stations have more employees, including at least six on-air personalities, as well as other managers, sales staff, and engineers, bringing their costs of operation to about $650,000 per year according to one estimate (without interest service on a license).[5] The budget of a public radio station serving Garden City, Kansas (population 26,000) was reportedly $1 million in 2014.[6] The marginal cost of serving an additional listener to a radio station is, of course, zero.

These estimates are of course rough, but they provide clear substantiation of high fixed costs: it's clear that the availability of these media products depends on many others also wanting them.

[2] See http://www.census.gov/population/cen2000/phc-t3/tab03.txt for 2000 population and Burrelle's Media Directory for information on newspaper staff size.

[3] See http://www.bls.gov/oes/current/oes273022.htm.

[4] http://www.christianradiohome.com/operating_costs.asp.

[5] http://en.allexperts.com/q/Radio-Industry-2499/2008/10/radio-station-budget.htm.

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