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ABSTRACT

Markets are generally thought to avoid problems, such as tyranny of the majority, that arise when allocation is accomplished through collective processes. Yet, with fixed costs, differentiated product markets deliver only products desired by substantial constituencies. When consumers share similar preferences, then additional consumers will bring forth additional products – or improve the attributes or position of existing products – and the consumers confer positive pecuniary "preference externalities" on each other. However, if distinct groups of consumers have substantially different preferences, the groups can hurt each other through product markets. We document the pattern of preference externalities among black and white consumers of daily newspapers in the US. We find that, in their capacity as newspaper consumers, members of each group benefits themselves and either harm, or fail to benefit, each other through the product market. We document that product positioning provides the mechanism underlying our results. While Friedman (1962) argues that "the use of political channels… tends to strain the social cohesion essential for a stable society," while, by contrast, "widespread use of the market reduces the strain on the social fabric by rendering conformity unnecessary," mounting evidence on media markets suggests otherwise.

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It is generally believed that markets avoid problems, such as tyranny of the majority, that arise when allocation is accomplished through collective processes.[1] However, theory that has been well understood since at least the 1970s, as well as recent empirical work (Waldfogel, 1999), indicate that in the presence of supply side non-convexities, differentiated product markets deliver only products desired by substantial constituencies.[2] With fixed costs, the number of product options will increase in the size of the market. If fixed costs are large, the set of available products can be small or even empty. As a result, consumers are not completely atomistic; each consumer's welfare depends on the distribution of product-preferring types in her market. When consumers share similar preferences, then additional consumers will bring forth additional products – or improve the attributes or position of existing products – and the consumers will thereby confer positive pecuniary "preference externalities" on each other. However, if distinct groups of consumers have substantially different preferences, the groups can fail to benefit – or can even hurt – each other through product markets.[3] Although Friedman (1962) argues that "widespread use of the market reduces the strain on the social fabric by rendering conformity unnecessary," markets are not immune to problems analogous to the tyranny of the majority.

The way that people help or hurt each other through product markets – how product market preference externalities function – depends on the magnitude of fixed costs in relation to market size. If all production took place at constant returns to scale so that production could occur at arbitrarily small scale, then all types of consumers would get precisely what they wanted from differentiated product markets. The arrival of new consumers of some type would not need to alter the character of current products or make viable any new products for which existing

[1] See Mill (1859) on tyranny of the majority and Friedman (1962) for a clear statement of the advantages of market allocation over collective choice on the basis that markets avoid problems akin to tyranny of the majority.

[2] See Dixit and Stiglitz (1977) and, especially, Spence (1976) for a discussion of the product selection problem in differentiated product markets with fixed costs. Many ideas in this paper are an extension of Hotelling (1929).

[3] Preference externalities are negative when an increase in one population shifts away from regions of product space preferred by another group. See below.

consumers had held unfulfilled desire. With constant returns, consumers would have no effect on each other, either positive or negative. On the other hand, if fixed costs are large enough to allow only one product in the market, adding consumers with different preferences will encourage repositioning of the product to better suit the preferences of the changed population. Suppose that an individual's tendency to purchase decreases in the distance between the product and her ideal, for example because there is an "outside" option. If no additional products are introduced when the population shifts, then some of the original consumers will be made worse off by new consumers and will become less likely themselves to purchase the product.

The present study documents the importance of these supply side non-convexities by asking "who benefits whom" in US daily newspaper markets. In particular, we ask how the tendencies for blacks and whites to purchase newspapers vary across markets with the numbers of whites and blacks in the markets.[4] The newspaper market is both well-suited for studying preference externalities and interesting in its own right. Fixed costs in daily newspaper production are large, and markets typically support few participants. Most MSA's support only one or two newspapers, and only about one third of the population buys a daily paper. The newspaper market therefore has both limited product choice and widespread exercise of outside options: existing products are far enough from many households' ideal that many segments do not purchase. This suggests that differences in daily newspaper positioning will have distributional impacts on readership tendencies across groups, making some groups better off and others worse off. Newspapers also merit study as a medium that plays an important role in political discourse.

[4] We could, in principle, classify people many different ways to examine who benefits whom. Documenting patterns of preference externalities among groups requires identifiable groups with different product preferences whose absolute and relative population sizes vary across markets and, for our study, across zip codes within markets as well. As we detail below, these conditions are all satisfied for blacks and non-blacks whom we succinctly, if inaccurately, term "whites."

This study is closely related to Waldfogel (1999), which documents that consumers' welfare, in their capacity as radio listeners, depends on the distribution of consumer types – with similar and different preferences – in the market.[5] White listener welfare increases in the number of whites and is invariant with the number of blacks; and *vice versa*. Hispanic and non-Hispanic consumers bear a similar relationship to each other through radio broadcast markets. The preference externality mechanism is different in radio and newspaper markets. The top 250 markets have an average of roughly 20 radio stations, in contrast to an average of less than 3 daily newspapers published per MSA in our 269 markets. Further, the top 250 markets each have an average of 1.9 black-targeted and 1.1 Hispanic-targeted radio stations, and 61 (26) percent have at least one station targeting blacks (Hispanics). The question facing blacks as radio listeners is largely, "how many programming options will target me?" An increase in the number of blacks will increase black welfare by raising the number of black-targeted stations. This increase will hurt other listeners only if it alters the position of, say, white-targeted options that are relatively close substitutes for black stations. It will presumably have no effect on the welfare of listeners to unrelated programming formats (e.g. classical music). In contrast, there are virtually no specifically black-targeted daily newspapers.[6] The question facing blacks as potential newspaper buyers is, instead, "how close are the (few) mainstream-targeted dailies to my preferences?" In the not-uncommon circumstance of a single-daily-paper market, if the paper's positioning is responsive to the distribution of customer types, then this distribution can affect all potential customers, not only those with preferences similar to blacks. Hence, if blacks and whites have sharply different tastes in newspapers – and we will show that they do – one

[5] Oberholzer-Gee and Waldfogel (2000) document how whites and blacks affect their respective groups' tendencies to vote.

[6] Chicago has the *Defender* and New York has the *Daily Challenge*, but neither has more than a 2% percent share of daily paper circulation in the market.

might expect stronger negative across-group preference externalities in this context than in radio broadcasting.

Using zipcode-level newspaper circulation data on over 10,000 zip codes in 269 newspaper markets (MSA's), as well as both zipcode and MSA-level data on demographic composition, we examine how each group's tendency to purchase newspapers varies with the distribution of persons by type in the local market. Based on purchasing tendencies by different groups in markets with multiple papers, we can infer that blacks and whites have substantially different preferences in newspapers. Consistent with this, we find strong evidence of positive preference externalities within groups and striking evidence of negative preference externalities across groups. The tendency for blacks to purchase a daily paper increases with the number of blacks in the market but *decreases* with the number of whites. The tendency for whites to purchase a newspaper increases in the number of whites and is unaffected by the number of blacks. Using data on the distribution of reporters across beats at papers in our sample, we document the product positioning mechanism underlying our results: a) whites and blacks prefer differently positioned products, and b) product position is sensitive to the fraction of blacks in the population.

The paper proceeds in seven parts. Section 1 reviews the literatures relevant to the present study and presents both theoretical background and illustrative examples showing how groups can affect each others' welfare through product markets, or how preference externalities operate. Section 2 describes the data used in the study and section 3 examines basic evidence of preference externalities. Section 4 documents that newspaper preferences differ across groups. Section 5 describes our empirical strategy and presents results on who benefits whom in daily newspaper markets. Section 6 documents the product positioning mechanism underlying the results. A brief conclusion follows.

I. Background

1. Relevant Literature

This paper builds on three separate bodies of research. First, there are theoretical studies of differentiated product markets and monopolistic competition, which tend to show that markets characterized by fixed costs and limited mechanisms for price discrimination are prone to deliver sub-optimal product variety (see, for example, Hotelling, 1929; Spence, 1976, 1977a; and Dixit and Stiglitz, 1977). A theoretically straightforward positive implication of this work is that available product variety depends on the size of the market in relation to fixed costs and the mix of consumer tastes. Waldfogel (1999) documents who benefits whom, among blacks, Hispanics, and whites, in their capacity as radio listeners.[7]

Second, this paper builds on a small literature on race and media markets, including Spitzer (1991), Dubin and Spitzer (1993), Karamanis and Wildman (1997), and Siegelman and Waldfogel (1998). A related literature in political science and sociology considers the effect of industry concentration on the production of content and editorial diversity.[8]

Third, this study contributes to a substantial body of research on the industrial organization and regulation of media markets. In broadcast media, Spence (1977b), Berry and Waldfogel (1999b, 1999c) and Anderson and Coate (1999) examine the operation of markets in which programming produces viewers to be "sold" to advertisers. A related literature in newspapers (see Reddaway, 1963; and Rosse, 1967, 1970) emphasizes the importance of fixed costs in advertising, circulation and content production and the resulting formation of highly concentrated markets with few product options. A second branch of the literature examines

[7] Rogers and Woodbury (1996) and Berry and Waldfogel (1999a) document the relationship of market size to the number of available varieties, which indicates the importance of fixed costs in determining variety in radio markets.

[8] In particular, see Robert G. Picard, ed., "*Press Concentration and Monopoly: New Perspectives on Newspaper Ownership and Operation*," Norwood, NJ: Ablex Publishing Corporation, 1988 and Bob Franklin and David Murphy, "What News? The Market, Politics and the Local Press," New York: Routledge, 1991.

determinants of newspaper prices and advertising rates as well as antitrust implications.[9] A final line of research uses newspaper firms as an avenue for the study of technology adoption and diffusion (Dertouzos and Quinn,1985; and Genesove, 1999).

2. Theoretical Background

In the standard competitive model production takes place at constant returns to scale, so that even if preferences differ across consumer types, the welfare of each consumer is independent of the distribution of types. Because all products can, by assumption, be provided at arbitrarily small scale, consumer welfare is independent of market size.

The presence of supply-side non-convexities introduces a possible dependence of consumer welfare on the size of the market and, for differentiated products, on the distribution of product preferences across consumers. With fixed costs, a product is viable only if demand exceeds some threshold. If preferences for features of differentiated products differ across consumers, then the welfare of a potential consumer depends not only on the size of the market generally but also on the number of consumers preferring similar varieties of the differentiated product. A consumer's welfare increases in the number of persons with similar preferences and can be either unaffected, or reduced, by the number consumers with different preferences in the market.

Depending on the size of fixed costs relative to the size of the market, the mechanism underlying preference externalities can be entry or product positioning. Which mechanism predominates depends on the market. The contrast between the radio broadcasting and newspaper industries is instructive. The radio broadcasting industry, examined in Waldfogel

[9] The industrial organization of the newspaper industry has been extensively studied. From a theoretical perspective, Chaudhri (1998); and Blair and Romano (1993) examine the pricing decisions of a newspaper monopolist earning revenues from circulation and advertising. Both find that features of the newspaper market can lead to lower consumer prices with monopoly ownership. Empirically, Bucklin, Caves and Lo (1989); Dertouzos and Trautman (1990); and Thompson (1989) all produce evidence that concentration may in some cases benefit consumers.

(1999), supports an average of 24.5 stations per market across the top 246 markets. The number and mix of radio stations (products) in the market determines listener welfare, and station entry provides the mechanism for consumers to affect each other. A classical music station is launched only when the number of potential listeners crosses some minimum threshold. The addition of classical music lovers to a market thus raises the welfare of other classical music lovers. If classical listeners are drawn from another programming format (say, jazz), then the arrival of the classical music lovers can make jazz-or-nothing listeners worse off by causing withdrawal of the jazz station.

If fixed costs are purely exogenous, then consumers help or hurt each other through an integer effect, as products either launch or exit. If fixed costs include an endogenous component, for example if product quality increases in the size of the market, then consumers can help or hurt each other through effects on product quality as well as simple product availability.[10] The daily newspaper example illustrates this clearly. The small number of daily newspaper products per market, even in large markets, indicates that for daily newspapers, product quality and positioning are more significant mechanisms, relative to product entry, in determining how consumers affect each other. The Fargo metro area, for example, has a population of about 150,000 and one daily paper. If fixed costs were entirely exogenous and inputs were priced in a national market, then the Chicago metro area, population 8 million, would support 53 papers. Instead, it has about 5.[11] Daily newspaper quality is vastly different between the two markets: the Fargo paper averages 28 pages per issue and employs 20 reporters and editors, while the

[10] See Sutton (1990) for an extensive discussion of endogenous sunk costs.

[11] The Chicago *Tribune* and the Chicago *Sun-Times* have circulations of 650,000 and 500,000, respectively. An additional 24 papers published in the MSA have combined circulation of about 800,000. A useful measure of the number of available products that adjusts for the asymmetry across products is the number of paper equivalents, which is calculated as the inverse of the squared sum of the market share for each paper:

$$\frac{1}{\sum_i s_i^2}$$

which in the Chicago MSA is approximately five.

circulation-weighted averages for Chicago dailies are 50 pages and 150 reporters and editors. Endogenous fixed costs are clearly very important in this industry; how they operate is beyond the scope of this paper. What matters for the present study is that, for whatever reason, daily newspaper markets support few products. As a result, daily newspaper consumers affect each other largely through publishers' product positioning and quality choices rather than through product proliferation.

It is useful to consider how product market preference externalities might operate given the composite-nature of daily newspapers. Each daily newspaper contains a bundle of articles on topics organized into sections such as national news, local news, sports, international news, weather, style, etc. Consider a reader only interested in news whose local paper is already adequate for her interests. Suppose that a large group of sports-lovers moves to town, and the paper increases the size of the sports section to appeal to these readers. Except that the paper is a little heavier, the news-lover is no worse off, and she will presumably not stop buying. In this scenario sports-lovers benefit each other but do not hurt news-lovers. How, then, might sports-lovers hurt news-lovers? First, instead of just adding new content, the newspaper might shift some coverage from news to sports. Second, the sports-lovers might prefer a punchier prose style throughout the paper, while news-lovers prefer staid prose. With the arrival of the sports-lovers, the entire paper may shift its style toward punchy prose, also making the sports-lovers better off and the news-lovers worse off even if the total amount of news coverage remains constant.

One might characterize a newspaper product in two dimensions, *position* (as along the news-sports or punchy-to-staid spectra above) and *depth*, meaning, for example, the number of article topics covered within each section or, more simply, the number of pages. If depth were the only product dimension there would be no negative preference externalities. Simple experience suggests, however, that dailies have position as well as depth dimensions. It seems

clear that no number of *New York Post* articles constitutes a close substitute for *New York Times*, at least in the eyes of *Times* readers. Likewise for the *Boston Herald* and the *Boston Globe*, or the *Philadelphia Daily News* and the *Philadelphia Inquirer*. Position is important and, as a result, we expect some scope for negative preference externalities in daily newspaper markets, especially where there are few dailies available.

It is also important to note that, in principle, prices can affect the operation of preference externalities if different groups have different willingness to pay for daily newspapers. In practice this does not appear to be important in the newspaper market, for two reasons. First, prices do not vary much across papers: three quarters of general interest newspapers cost $0.50 per day, with little variation across markets. Second, roughly 80 percent of daily newspaper revenue is derived from advertisers, as opposed to readers.[12] Given the *de facto* reliance on advertising revenue, it is reasonable to expect product selection in daily newspaper markets to be driven by audience sizes and by ability to pay only inasmuch as different audiences have different value to advertisers. Our models in the sections that follow therefore do not include prices.

3. Illustrative Example

It helps fix ideas to introduce an example illustrating how product positioning and quality – and the resultant utility of various consumer types – vary with the distribution of consumer types in the market. Suppose that a product is characterized by two parameters, position, p, along some one-dimensional spectrum and depth d. Production costs include a fixed component and a component proportional to depth: $f_0 + f_1 d$. Consumers are located along the spectrum

[12] According to the Newspaper Association of America, revenue from readers (which they term "circulation expenditures") to daily and Sunday papers was $10.3 billion in 1997, while advertising expenditure to newspapers totaled $41.3 billion. The latter figure includes "all costs: time and talent, space and production" and therefore presumably overstates newspaper revenue from advertising. See http://www.naa.org/info/facts99 (viewed February 9, 2000). Estimates in the literature confirm these figures. See in particular industry reports by Compaine (1980, 1982) and Udell (1978).

with some density $f(x)$. The utility of the product to a consumer at location x_0 is $max[d-a|x_0-p|,0]$, where a reflects "transport costs."[13] If $a=0$, then the paper's location does not matter for whether consumers purchase or enjoy it. If a is high, on the other hand, a product will be valued only by nearby consumers, and a market might support multiple papers, provided that production costs are not too high. For some range of transport and production costs and some distribution of consumers, the equilibrium is a single product located at the median of consumers.[14] Suppose, for simplicity, that consumers buy if utility exceeds zero and that they purchase only the product with highest utility at their location.

This simple setup shows how the location of the paper can be sensitive to the distribution of consumer types. This is intuitive for equilibria involving a single product located at the median. A change in the preferences of the median consumer changes the position of the product, making some consumers better off and others worse off. The example is also useful for illustrating how groups affect each other. Figure 1 shows how two groups ("blacks" and "whites"), with different distributions of preferences along the spectrum, can affect each other. Suppose that black preferences tend to be located to the left of white preferences and that there are many more whites than blacks. With the initial black population (B_0) and a single-product equilibrium, the product locates at p_0, slightly left of the white median. When the black population increases to B_1, if the equilibrium configuration remains single product, the product's

[13] This framework is generally consistent with theoretical studies of quality differentiation in spacial markets such as Neven and Thisse (1990) and Economides (1989). However, most product differentiation models published since D'Aspremont, Jaskold-Gabszewicz and Thisse's (1979) reinvestigation of Hotelling (1929) typically consider quadratic transport costs. Neven and Thisse (1990) also introduce differentiation in quality preferences as well as product position. These modeling assumptions, while often essential to the results of each paper, are not directly relevant to our argument that the distribution of tastes affects the number and quality of products available in a market.

[14] The existence of equilibria in spatial product markets is the subject of a large literature. In general, existence depends on assumptions regarding the nature of transport costs (D'Aspremont, Jaskold-Gabszewicz and Thisse, 1979), availability of outside options (Böckem,1994), the number of choice variables (Economides, 1989), the number of competitors (Economides, 1993) and the shape of the product space (Salop, 1979). Our formulation is essentially the minimum differentiation result of D'Aspremont et al. (1979) for linear transport costs with Bertrand-style competition in quality rather than price. The elements of our illustrative example all emerge from the basic formulation of Hotelling (1929).

position shifts left to p_1. By moving the product closer to their ideal points, this repositioning makes most blacks better off; and it makes most whites worse off.

For different values of parameters, the model underlying this example can support many different predictions. For example, with sufficiently high transport costs and low production costs, one product might locate at the white median, another at the black median. For sufficiently low production costs, there could be a range of products. The point of our example is to show how groups *can* affect each other through product positioning. It is an open empirical question – and the object of this study – to document whether they do.

II. Data

The basic data set used here is a cross section of per-capita newspaper circulation by zip code in 269 newspaper markets, along with population characteristics at the zipcode and MSA level. Aggregate zip code-level circulation is constructed from underlying circulation for approximately 1,200 daily newspapers. Our data also include population shares for five races defined by the Census (white, black, Indian, Asian and other) and counts of Hispanics and non-Hispanics in each group. We construct these population shares at both the zip code and MSA level using data from the 1990 census. We also have demographic variables, such as the age, income and education distribution at both the zip code and MSA level. Our basic measure of readership is circulation per capita, which we prefer to a household level measure because of the straightforward link to demographic information from the Census. In some specifications of our model we present results using readership per household.

In addition to the circulation and population information, we have detailed data on newspaper characteristics from two sources. We record newspaper prices and the number of editors and reporters, by subject specialty (beat), at each newspaper from *Burrelle's Media Directory, 2000 Edition*. We identify the average page length of each paper using data from the

Editor and Publisher International Yearbook (1999). We use the reporter data in section 6 to characterize the spatial position of daily newspapers. We use page and price data to characterize newspaper quality.

Newspaper circulation data are published by the Audit Bureau of Circulation (ABC), a membership organization providing independent audits of newspaper and magazine circulation data for use by advertisers. ABC (1999) reports daily circulation by zip code for approximately 1,200 member newspapers. We sum circulation across newspapers to create zip code-level totals. Because some papers do not report circulation data in every year, to allow inclusion of more papers in the sample, the zipcode totals are created from daily circulation averaged over the years 1996, 1997 and 1998.[15]

We define a paper's market as the metropolitan statistical area (MSA) or consolidated metropolitan statistical area (CMSA) of publication. Note, however, that our data report each included paper's circulation in all markets, not just in the home market. This market definition is used by ABC and large individual newspapers in circulation reporting and offers the advantage of a straightforward link to Census data. Because much of our analysis involves the relationship between zipcode circulation and characteristics of the entire market, we exclude from our analysis zip codes that are not located within a metropolitan area.

We also exclude 15 MSA's for which we have incomplete data on daily newspaper circulation.[16] We identify incomplete data in two ways. First, approximately 30 general-interest daily newspapers undergo annual audits by ABC but do not report circulation by zip code.

[15] A few other features of our data are worthy of note. In particular, although most entries in ABC data cover individual newspapers, some papers published under joint operating agreements or by a single owner report combined data. For example, our data record only combined circulation for the *San Francisco Chronicle* and the *San Francisco Examiner* for each zip code—we do not know the circulation for each paper individually. Because we aggregate circulation by zip code this does not affect our analysis. However estimates of newspapers circulated per market generally underestimate totals because of this aggregation. Note also that we only have overall circulation data by zip code, not by type of household within the zip code.

[16] The excluded markets include: Atlanta, GA; Chico, CA; Daytona Beach, FL; Duluth, MN--WI; Eau Claire, WI; Janesville--Beloit, WI; Joplin, MO; Kalamazoo, MI; Lake Charles, LA; Lima, OH; Los Angeles--Anaheim--Riverside, CA; New York--Northern New Jersey--Long Island; Terre Haute, IN; Tulsa, OK; and Wheeling, WV--OH.

About 10 of these papers are published in towns or cities outside of MSA's and hence do not enter our sample. The remaining papers include nationally-distributed papers (*New York Times*, *Wall Street Journal*, *Christian Science Monitor*) as well as a handful of major regional papers (*Tulsa World*, *Daily Oklahoman*, *New York Daily News*). Second, in order to identify newspapers not audited by ABC and therefore outside the universe of our data, we compared the list of papers available from ABC to the set in Burrelle's. We identified approximately 300 general interest daily papers that do not undergo auditing by ABC and hence for which no zip code-level circulation data are available. The majority of these are published in towns or cities outside of MSA's and would therefore not enter our sample. The remaining 100 papers are primarily local papers with low circulation. We exclude from our analysis markets for which we are missing more than about 15% of MSA circulation.[17] By excluding these markets we lose 2,300 of approximately 14,200 (five digit) zip codes, about 1,600 of which are in Los Angeles or New York.

In addition, about 2,300 zip codes in our sample MSA's have circulation reported by ABC but no corresponding population information in the Census data, either because as central business district locations they literally contain no residents or because the zips were established or reconfigured after 1990. Total circulation in these zip codes is about 1.4 million, or about 4% of the total circulation covered by our data. Results for 5-digit zip codes reported throughout the paper omit zip codes for which we have no population information. In most specifications of our model we also present results that aggregate circulation in the affected zip codes to the four-digit zip code level to produce "hybrid" five- and four-digit zip codes. The assumption underlying this aggregation is that newspaper purchases in these zip codes are made by residents of nearby areas. To examine the sensitivity of our results to this treatment of circulation in "empty" zip

[17] Burrelle's reports total circulation for papers missing from ABC. Because these totals reflect circulation inside and outside of the home market, the market share we estimate using Burrelle's data overestimates the actual market share. In practice, our basic regressions are not sensitive to the cutoff.

codes we examined our results omitting the 41 markets where circulation in these zip codes exceeds 10% of circulation in the market. Results did not differ from the basic 5-digit zip results and are not presented. Finally, we used current household counts available from three sources (Claritas, the U.S. Post Office and S&MM's "Survey of Buying Power and Sales") to identify about 100 zip codes where population data from the Census differs substantially from these other sources. Results for hybrid zip codes presented in the paper also aggregate over these zips.[18]

Table 1 characterizes the data in the study, presenting population, circulation and newspaper characteristics at both the newspaper and MSA levels. The ratio of daily circulation to population – our basic measure of newspaper consumption – averages about 25% across sample MSA's. The average number of papers circulated per MSA is 8.72. Because circulation tends to be very asymmetric across papers, it is useful to calculate a "newspaper equivalent" measure, as the reciprocal of the product HHI. The average number of newspaper equivalents per MSA is 1.7. The total circulation in our data is 35 million, which is roughly 85% of general-interest daily paper circulation within metropolitan areas of the U.S. and about 60% of total circulation, according to *Burrelle's Media Directory, 2000*.

The basic empirical task of our study is to measure the impact of MSA demographic composition on different groups' tendencies to subscribe to newspapers. Successful measurement of the impact of MSA population composition on different groups' daily newspaper consumption requires variation in both MSA and zipcode population composition.

[18]Aggregation to hybrid zip codes serves one additional purpose. Because our circulation data combine newsstand and home delivery sales, to the extent that individuals purchase newspapers outside of their residential zip code we misallocate circulation in our data. If the purchase of newspapers by non-residents is highest in central business districts where we find the greatest number of "empty" zip codes, then aggregation to hybrid zip codes also ameliorates any misallocation due to newsstand purchases. To explore the potential extent of this misallocation, we obtained home delivery and newsstand sales for 12 newspapers (Honolulu *Advertiser*, Indianapolis *Star*, Arizona *Daily Star* (Tucson), Jefferson City *Capital News*, Madison *Capital Times*, Charleston *Gazette*, Syracuse *Post Standard*, Clarksburg *Exponent*, York *Daily Record*, Hagerstown *Morning Herald*, Lancaster *Intelligencer Journal* and the Seattle *Post-Intelligencer*). Newsstand sales range from about 10-40% overall for these papers, but newsstand sales are concentrated in relatively few zip codes, with between 45% and 85% of newsstand sales made in 10% of the zips carrying each paper. To further consider the potential effect of misallocation on our results we created a data set fully aggregated to the four-digit level, however variation in population statistics proved too low at this level of aggregation for meaningful analysis.

Table 1 shows that both of these sorts of variation are present. There is substantial variation across zipcodes in the fractions and, across MSA's, in the number of Hispanics and, in particular, blacks. There is substantially less variation in the number of Asians.

The bottom panel of table 1 reports individual newspaper characteristics and circulation-weighted MSA averages. The average daily paper price is $.48, with little variation across papers. The average number of pages is 35, and the average paper has 17 reporters and editors.

III. Basic Evidence of Preference Externalities

The first question we seek to address is whether consumers confer a benefit on each other generally, in their capacity as daily newspaper readers. We accomplish this by asking whether the tendency to purchase a newspaper increases in the size of the market. Table 2 presents weighted least squares regressions of readership (s_z) in five digit zip codes, in hybrid zip codes and in the MSA purchasing a daily newspaper on MSA population, with readership defined in population and household terms. In all specifications, the tendency to purchase the paper bears a positive relationship to market size. An increase in population of 1 million leads to an increase in the subscription rate of about 0.3-1.0 percentage points. The effect is somewhat larger in the hybrid zip specification, reflecting the inclusion of circulation in the unpopulated zip codes. The effects are also somewhat lower in specifications that include observables. There is evidence of positive preference externalities.

The positive relationship between market size and the tendency to purchase daily newspapers indicates that consumers derive greater satisfaction from newspapers in larger markets. How much do people benefit each other? Consumer surplus is the valuation that consumers place on the newspaper less the price paid. Both prices paid and product quality may vary across markets, so that regressions in table 2 mask the mechanism and magnitude of preference externalities. Table 3 shows how average prices and measures of paper quality (page

lengths and reporting staff) vary with market size. Prices are essentially invariant across markets. Approximately 75% percent of dailies are priced at $0.50. Yet, paper quality, measured both by page length and reporters per paper, increase in market size. If readers value additional content, then welfare will be higher in larger markets, with prices constant, even if the fraction of population purchasing the paper were invariant with market size.[19]

We have documented that people benefit each other generally through daily newspaper markets. As market size increases, the quality of the paper increases while its price does not. The tendency for people to purchase a daily paper also increases in market size. We now turn to the main question of the study, who benefits whom in daily newspaper markets?

IV. Do Newspaper Preferences Differ Across Groups?

For preference externalities to operate differently within and across groups, product preferences must vary among consumer types. Evidence from other media indicates that different racial and ethnic groups have distinct preferences for media content which might also appear in newspaper choices.[20] In this section we examine differences in newspaper preferences among whites and blacks.

Our task is complicated slightly by the fact that circulation data are not available separately by group of consumer. Consequently, we cannot simply compare the distribution of papers chosen, for example, by different groups within a market. Because group shares differ substantially across zip codes, however, we can compare the distributions of papers chosen in, say, predominantly black vs. predominantly white zip codes within the same media markets. Such a comparison also requires that the markets have at least two widely available daily papers

[19] Other measures of quality are also higher in larger markets. For example, 133 out of 224 Pulitzer Prizes in journalism (outside of the breaking news and photography categories) awarded to daily newspapers over the 20 years 1980-1999 have gone to papers in the ten largest markets, while these markets contain only 38 percent of the 1990 US population. See www.pulitzer.org (viewed May 10, 2000).

[20] See Waldfogel (1999) for evidence on how preferences in radio programming differ by race, gender, and age and Sterngold (1998) for evidence on how television viewing preferences differ by race.

(whose data are reported separately). The markets must also have substantial numbers of persons in each of the groups. These criteria are satisfied in Chicago, Philadelphia, Boston and Washington, although the black population in Boston, at 5%, is lower than the population in the other markets.

To characterize whether, and how, newspaper preferences differ across race we run the following regressions:

$$s_z^1 = g_0 + g_1 b_z + h_z,$$

where s_z^1 is the market share of the market's dominant paper relative to its major, typically tabloid competitor (e.g. the *Boston Globe* among the *Boston Globe* and *Boston Herald*) in zipcode z, b_z is the fraction of population that is black in zipcode z and h_z is an error term. In a second specification, we include the fraction in the zipcode with at least some college as well as other zipcode-level observables that might affect newspaper choice. We run a separate weighted least squares regression for each market, using zipcode populations as weights. Results are presented in Table 4. In each of the markets, preferences for the non-tabloid paper differ substantially across race. The estimates imply that in each of the markets, the non-tabloid paper has roughly 60-80 percent of circulation among white readers, while it has a roughly 20-40 percent market share among black readers.[21]

It is worth noting that table 4 shows that preferences differ across racial groups, not that preferences differ because of race. While it may be interesting to know whether preferences differ because of race or because of other unobserved factors correlated with race, understanding this distinction is not important for the present study. We are interested, for example, in how the

[21] The readership share of the Washington Post relative to the Washington Times is higher for both blacks and whites in the DC metro area, likely reflecting the somewhat unique nature of this paper.

distribution of persons with different preferences in a market affects the welfare of individuals in each group, not how individual characteristics shape the underlying preferences.

Two circumstances are needed to document a difference between own-group and across-group preference externalities. First, preferences must differ across groups. We see that preferences vary among blacks and whites. Second, documenting patterns of preference externalities requires variation in the groups' shares of population across zips and numbers across MSA's. We observe substantial variation in the proportion of blacks across zips and the black population across MSA's. The black-nonblack comparison thus provides a reasonable context for testing whether preference externalities operate differently within and between groups. The regressions in the sections that follow focus exclusively on blacks and whites.

V. Empirical Strategy and Results

1. Cross Section Approach

In this section, we document the nature of preference externalities operating within and across black and white populations. If we had subscription data by zip and race, we could simply estimate the following equations for each of the two groups:

$$(1) \qquad s_z^W = a_0 + a_1 W_M + a_2 B_M + e_z^W$$

$$(2) \qquad s_z^B = b_0 + b_1 W_M + b_2 B_M + e_z^B$$

In these equations s_z^B is the zip code share of the blacks buying a daily newspaper, s_z^W is the zip code share of whites buying a daily newspapers, W_M is the population of the whites in the MSA, and B_M is the number of blacks in the MSA. If the difference between black and white preferences matters, the tendency for each group to subscribe will increase in the size of the own-group and will be invariant (or will decline) in the size of the other group (a_1, $b_2 > 0$; and

a_2, b_1 = (<) 0). If preferences, as well as ability to pay, do not differ across groups, then a_1=a_2 and b_1=b_2.

While we have circulation data by zip code, we do not have these data by race. However, we do know the racial composition of the zip codes, and this allows us to estimate a_0,a_1, a_2 ,b_0, b_1, and b_2. Define b_z as the black share of the population in the zip code, and note that:

$$(3) \qquad s_z = b_z s_z^B + (1-b_z)s_z^W$$

Substituting (1) and (2) into (3) yields:

$$(4) \qquad s_z = a_0 + a_1 W_M + a_2 B_M + (b_0 - a_0)b_z + (b_1 - a_1)W_M b_z + (b_2 - a_2)B_M b_z + n_z$$

where ν is an error term equal to $b_z e_z^B + (1-b_z)e_z^W$.[22] All of the parameters are identified from interactions of MSA black and white populations (B_M and W_M) with the zip code black (b_z). The equation is intuitive: the a coefficients are estimated directly as the constant and the coefficients on W_M and B_M. The coefficients on the interactions of b_z with the constant, W_M, and B_M show the difference between the black and white constant, the black and white effect of whites and the black and white effect of blacks.[23]

We also estimate variants of the model that allow for differences in the tendency to purchase newspapers across regions. Region dummies estimated directly in equation (4) allow the tendency to read newspapers to vary across census regions but not across race. Region dummies alone and interacted with b_z allow for region effects that differ by race. We also estimate a specification with MSA-level observables such as income, education and age.

Table 5 reports zipcode-population-weighted least squares regression results for blacks and whites. The first four columns report the results for 5-digit zip codes and the second four columns for hybrid zip codes. We report results in each category with no region dummy

[22] We deal with the heteroscedasticity of the error ν by calculating robust standard errors.
[23] Note that we can estimate all of the (β-α) parameters using only within-MSA variation. We discuss this below.

variables, with simple region dummy variables, with region dummy variables and observables, and with interacted region dummy variables. The results, across a variety of specifications, are striking. Within-group preference externalities are positive and significant in virtually all specifications. Per capita circulation among blacks increases with the number of blacks in the MSA (b_2>0) and per capita circulation among whites increases with the number of whites (a_1 >0). The own-group effects are more than ten times higher for blacks than for whites in all of the specifications, perhaps reflecting comparatively small MSA black populations. Additional blacks raise the black-targeted appeal of products from a very low level. If the marginal utility of additional group-targeted content declines, then marginal blacks would have a larger effect on black welfare than marginal whites (who are always numerous) would have on whites.

Table 5 also shows clear evidence of negative preference externalities across groups. All else equal, the tendency for blacks to subscribe to daily papers *decreases* as the number of whites in the MSA increases (b_1<0). As white population increases, holding black population constant, newspapers become less appealing to blacks. The tendency for whites to subscribe does not appear to depend on the MSA black population ($a_2=0$).

It seems curious at first glance that the number of whites in a market actually hurts blacks. This result is easier to understand when one recalls that an increase in the number of whites, holding the black population constant, raises the proportion of population that is white. This may, in turn, shift the position of the product(s) to make them less appealing to blacks.[24] It is interesting to contrast the evidence that black newspaper consumption is reduced by white population with the analogous evidence from radio broadcasting. In that context, while blacks have a negative effect on the number of white-targeted stations in each market (and *vice versa*), there are no significant effects of each group on the other group's tendency to consume. The

[24] One can view our specifications as approximations of more general functions $s_W(W,B)$ and $s_B(W,B)$. We experimented with this approach by estimating versions of equation (4) allowing for fully-interacted first and second order polynomials in W and B. Estimates of parameters of interest were very similar in the reported specifications and the first order approximation. Estimates of the second-order approximations proved erratic.

negative consumption cross effect is absent because groups listen to the radio even when their most preferred programming options are not available. For example, blacks listen to white radio in markets without black-targeted options almost as much as blacks listen in markets that also offer black-targeted options. The negative consumption result for newspapers suggests that blacks are less willing to consume a less-preferred newspaper option than in the radio context. Individuals do not exercise the outside option in radio: virtually all persons listen to radio during the week, while only about one third of the population purchases a daily newspaper. Presumably, this difference reflects availability of substitutes. There are many substitutes for daily papers, including television, radio, weekly newspapers and magazines but few substitutes for radio listening, particularly in cars.

2. MSA Fixed Effects

One concern that our basic specification cannot address is whether unobserved MSA factors affecting the tendency to read newspapers are correlated with MSA group populations. We can use within-MSA variation across zipcodes to identify some of the parameters in equation (4). In particular, we can estimate the difference between each group's own and cross effects. Table 6 presents estimate the following equation:

$$(5) \qquad s_{Mz} = (b_0 - a_0)b_{Mz} + (b_1 - a_1)W_M b_{Mz} + (b_2 - a_2)B_M b_z + m_M + n_{Mz}$$

where m_M is a fixed effect for MSA *M*.

We estimate two parameters showing whether each group helps itself more than it helps the other group. First, the coefficient (b_1-a_1) shows how much the effect of whites on blacks exceeds the white own effect. We estimate this to be negative and significant, indicating that white population raises white reading shares more than white population raises black reading shares. Second, the coefficient (b_2-a_2) shows how much the black own-effect exceeds the effect of blacks on whites. We estimate this to be positive and (at least marginally) significant,

indicating that black population increases the black reading share more than black population increases the white reading share. The fixed effects estimates confirm the asymmetry of effects documented in table 5: black and white populations each exert larger positive effects on their own tendencies to read than they exert on the reading tendency of their population complement.

VI. Product Positioning

We have documented in the sections above that newspaper readership depends positively on the size of an individual's own group and negatively or not at all on the size of the remaining population. We have suggested that the mechanism for the operation of these preference externalities is product positioning. In this section we examine this explicitly using data on newspaper characteristics. The first question we must address is whether blacks and whites prefer newspapers targeted in different ways that are detectable in our data.

We characterize product positioning using the numbers of reporters assigned to different beats. Burrelle's provides newspaper-level data on reporters employed by individual newspapers and the areas they cover. Burrelle's identifies over 200 beats covered by daily newspapers, which we aggregate into six major categories: news, economy (markets, finance, labor, etc.), industry (industry-specific coverage), entertainment (music, movies, theater, etc.), lifestyle (fashion, fitness, decorating, recreation, etc.) and sports. Using these beats we can calculate the fraction of each paper's reporting in "hard" and "soft" news. We classify news, economy and industry as "hard" news; and we classify entertainment, lifestyle and sports as "soft" news. We aggregate these data across papers to the MSA level. According to our classifications, 43% of reporters are assigned to hard news (32% to news, 4% to economy and 7% to industry), and 30% cover soft news (8% cover entertainment, 15% cover lifestyle, and 7% cover sports). The remaining 27% cover photography, advertising, classifieds and other areas that we label production staff.

Do blacks and whites have different preferences for types of reporting? Recall from table 4 that blacks and whites have substantially different preferences for daily newspapers in Boston, Chicago, Philadelphia, and Washington. Table 7 shows the distributions of reporting resources assigned to the five major beats for the dominant and competing papers in these cities. In general, the papers preferred by black readers assign a larger fraction of reporters to lifestyle and entertainment than the papers preferred by whites. The papers preferred by whites assign a greater fraction of reporters to business and news topics, although the *Boston Herald* appears to assign a greater fraction of reporters to business topics than the *Globe*. In each case the ratio of hard news to total staff is higher for papers preferred by white readers and the ratio of soft news to total staff is higher for papers preferred by blacks.

If blacks prefer more soft news than whites, and if product positioning is the mechanism underlying the pattern of preference externalities documented above, papers should contain more soft news as their populations contain proportionately more black residents. Table 8 reports regressions of the fraction of reporters in the MSA assigned to hard news beats on the proportion black in the MSA. The second column includes an MSA population term to control for possible effects of market size on product positioning independent of percent black. In both specifications the fraction black bears a negative (and at least borderline significant) relationship with the fraction of reporters assigned to hard news. The latter two columns perform the analogous exercise with the fraction of reporters assigned to soft news beats as the dependent variable, with consistent results: MSA's with proportionately more blacks have daily papers with proportionately more soft news.[25] These results provide evidence that publishers pitch their papers differently when facing different mixes of potential readers, which can explain why blacks in markets with larger numbers of whites are less likely than blacks in other markets to purchase a daily paper.

[25] Because of production staff, hard and soft news do not make up 100 percent of reporting and editorial staff.

VII. Conclusion

Markets are generally thought to avoid distributional problems that pervade allocations made by collective choice. Yet, this stark dichotomy between market and political allocation schemes can break down in the presence of supply-side nonconvexities. With fixed costs and differing product preferences, potential consumers can exert positive or negative preference externalities on each other. Thus, an effect analogous to the tyranny of the majority in voting arises in the market context as well, in the sense that individuals' welfare as product consumers depends on the distribution of product-preferring types in their markets.

We have documented the pattern of preference externalities among black and white consumers of daily newspapers in the US. We find that, in their capacity as newspaper consumers, members of each group benefits themselves and either harm or confer no benefit on each other through the product market preference externality mechanism. Further, because newspaper markets support few products, the theoretical scope for negative preference externalities is large, and the negative cross effects that we document are large compared to other studied contexts (Waldfogel, 1999). Finally, we present evidence that product positioning provides a mechanism underlying our results.

Friedman (1962) argues that "the use of political channels… tends to strain the social cohesion essential for a stable society," while, by contrast, "widespread use of the market reduces the strain on the social fabric by rendering conformity unnecessary." Mounting evidence on media markets suggests otherwise. More research is necessary to determine whether these effects operate in a broader class of markets. If so, then collective and market allocation processes may not differ so much as is conventionally thought.

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Table 1: Newspaper and Population Summary Statistics

		N	Mean	5%	25%	50%	75%	95%
Population Statistics (1990 Census)								
5-Digit Zips	Total Population	11,763	13,605	516	2,702	8,372	21,191	41,504
	Black Fraction	11,763	0.087	0.000	0.002	0.014	0.081	0.481
	Hispanic Fraction	11,763	0.055	0.000	0.004	0.012	0.041	0.265
	Asian Fraction	11,763	0.016	0.000	0.001	0.005	0.015	0.062
	Total Households	11,763	5,071	183	940	2,974	8,028	15,593
Hybrid Zips	Total Population	7,397	18,130	695	3,975	11,805	25,333	54,296
	Black Fraction	7,397	0.093	0.000	0.003	0.020	0.096	0.486
	Hispanic Fraction	7,397	0.056	0.000	0.005	0.013	0.045	0.271
	Asian Fraction	7,397	0.017	0.000	0.001	0.005	0.016	0.064
	Total Households	7,397	6,773	241	1,392	4,332	9,607	20,127
MSA's	Total Population (Millions)	269	0.574	0.086	0.131	0.239	0.513	2.444
	Black Population (Millions)	269	0.072	0.000	0.004	0.019	0.054	0.395
	Black Fraction	269	0.100	0.004	0.022	0.066	0.145	0.310
	Hispanic Population (Millions)	269	0.046	0.000	0.002	0.006	0.023	0.214
	Hispanic Fraction	269	0.069	0.004	0.008	0.019	0.048	0.339
	Asian Population (Millions)	269	0.016	0.000	0.001	0.003	0.007	0.057
	Asian Fraction	269	0.017	0.003	0.006	0.010	0.017	0.045
Circulation Statistics (Audit Bureau of Circulations)								
5-Digit Zips	Total Circulation	11,763	2,852	31	397	1,546	4,468	9,344
	Circulation Per Capita	11,763	0.31	0.02	0.12	0.19	0.27	0.48
	Circulation Per Household	11,751	0.89	0.06	0.35	0.53	0.71	1.30
	Circulated Papers	11,324	2.31	1	1	2	3	5
Hybrid Zips	Total Circulation	7,397	4,665	29	515	2,269	5,674	18,327
	Circulation Per Capita	7,397	0.32	0.01	0.12	0.20	0.30	0.58
	Circulation Per Household	7,392	0.97	0.02	0.34	0.54	0.79	1.57
	Circulated Papers	7,397	2.92	1	1	2	4	7
MSA's	Total Circulation	269	129,735	21,092	30,989	50,946	104,769	540,584
	Circulation Per Capita	269	0.23	0.15	0.20	0.23	0.26	0.33
	Circulation Per Household	269	.59	0.42	0.53	0.59	0.65	0.78
	Circulated Papers	269	8.72	2	4	6	10	22
	Paper Equivalents[1]	269	1.68	1.01	1.1	1.35	1.92	3.41
Newspaper Statistics[2] (Burrelle's, Editor & Publisher)								
	Newspaper Price	728	0.48	0.25	0.50	0.50	0.50	0.50
	MSA Average Newspaper Price	234	0.49	0.35	0.48	0.50	0.50	0.57
	Newspaper Pages	776	35	14	22	30	42	69
	MSA Average Newspaper Pages	259	42	24	30	38	48	71
	Newspaper Staff	830	17	4	8	11	16	51
	MSA Average Newspaper Staff	267	23	8	13	19	44	150

[1] Inverse squared sum of MSA market share, $\frac{1}{\left(\sum_n s_i\right)^2}$. Note that because ABC generally combines data for jointly-owned newspapers we generally underestimate the number of paper equivalents in each market.

[2] MSA statistics are circulation-weighted. Newspaper characteristics calculated from *Burrelle's Media Directory,2000* and *Editor and Publisher International Yearbook* (1999). Newspaper characteristics not available in all markets.

Table 2: Overall Evidence of Preference Externalities

	Circulation per Capita						*Circulation per Household*		
	5-Digit Zips		Hybrid Zips		MSA Total		5-Digit Zips	Hybrid Zips	MSA Total
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
MSA Pop (Mil.)	0.005	0.003	0.009	0.005	0.003	0.002	0.015	0.027	0.014
	(2.74)**	(1.99)*	(3.09)**	(1.99)*	(1.80)	(0.88)	(2.88)**	(3.11)**	(2.57)*
MSA Median Inc. (000)		-0.001		0.002		-0.001			
		(0.96)		(1.68)		(0.46)			
MSA Fr. College Degree		0.230		0.098		0.144			
		(3.43)**		(1.21)		(2.00)*			
MSA Fr. Under Age 30		-0.884		-0.303		-0.319			
		(7.47)**		(2.77)**		(1.11)			
MSA Fr. Over Age 65		4.1603		2.2409		2.988			
		(10.61)**		(5.12)**		(2.59)*			
Constant	0.199	0.206	0.238	0.192	0.220	0.232	0.532	0.632	0.553
	(41.41)**	(6.45)**	(34.08)**	(4.01)**	(45.46)**	(7.64)**	(42.50)**	(33.71)**	(41.73)**
Observations	11,763	11,763	7,397	7,397	269	269	11,751	7,392	269
MSA's	269	269	269	269	269	269	269	269	269

Note: All regressions population-weighted with robust standard errors. Zip-level regressions clustered by MSA.

Table 3: Newspaper Characteristics and Market Size

	Circulation-Weighted Newspaper Characteristics		
	Mean MSA Pages	Mean MSA Prices	Mean MSA Staff
	(1)	(2)	(3)
MSA Pop (Mil.)	8.70	-0.013	18.88
	(9.84)**	(1.84)	(17.61)**
Constant	36.82	0.49	11.99
	(37.15)**	(63.44)**	(10.02)**
MSA's	259	234	267

Note: Mean prices, pages and reporters are circulation weighted. Newspaper characteristics not available in all markets.

Table 4: Do Newspaper Preferences Vary By Race?

Newspaper Market Share by Race, Markets with Competing Daily Papers (Hybrid Zips)

	Chicago Tribune (Chicago Sun-Times) (19% Black)		Philadelphia Inquirer (Philadelphia Daily News) (19% Black)		Boston Globe (Boston Herald) (6% Black)		Washington Post (Washington Times) (27% Black)	
% Black	-0.455	-0.298	-0.522	-0.278	-0.359	-0.125	-0.100	-0.068
	(14.54)**	(9.18)**	(10.93)**	(5.29)**	(3.58)**	(1.25)	(3.18)**	(1.84)
Median Income (000)		0.002		0.006		0.002		0.001
		(2.63)**		(2.21)*		(2.02)*		(1.55)
% College Degree		0.638		0.076		0.503		-0.053
		(9.14)**		(0.44)		(5.92)**		(1.02)
% Over Age 65		-0.126		-0.923		-1.023		-0.339
		(0.44)		(1.42)		(3.66)**		(1.84)
% Under Age 30		0.279		-0.940		-0.653		-0.307
		(1.36)		(1.37)		(2.70)**		(2.02)*
Constant	0.621	0.100	0.825	1.067	0.632	0.668	0.923	1.072
	(42.18)**	(0.69)	(53.16)**	(2.46)*	(54.02)**	(4.10)**	(150.21)**	(11.36)**
Observations	185	185	170	170	158	158	150	150

Note: All regressions population-weighted with robust standard errors.

Table 5: Who Benefits Whom among Blacks and Whites?

	Five-Digit Zips				*Hybrid Zips*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
MSA White Pop (α_1)	0.0086	0.0085	0.0116	0.0085	0.0136	0.0095	0.0059	0.0093
	(5.68)**	(5.06)**	(2.57)*	(4.91)**	(3.63)**	(2.44)*	(3.30)**	(2.26)*
MSA Black Pop (α_2)	0.0025	-0.0004	0.0156	-0.0005	0.0133	0.0264	0.0106	0.0259
	(0.32)	(0.05)	(0.74)	(0.06)	(0.71)	(1.32)	(1.18)	(1.22)
Zip Black Fr.	-0.1367	-0.1120	-0.0931	-0.1990	-0.1556	-0.0942	-0.1068	-0.1014
	(19.45)**	(15.44)**	(5.91)**	(6.16)**	(9.82)**	(6.00)**	(15.11)**	(0.91)
Zip Black Fr.* White Pop (β_1-α_1)	-0.0426	-0.0419	-0.0712	-0.0397	-0.0687	-0.0726	-0.0397	-0.0665
	(6.11)**	(5.95)**	(3.58)**	(4.54)**	(3.17)**	(3.44)**	(5.81)**	(2.34)*
Zip Black Fr.* Black Pop (β_2-α_2)	0.1505	0.1221	0.1724	0.1172	0.2258	0.1791	0.1075	0.1755
	(4.99)**	(4.05)**	(1.84)	(3.18)**	(2.21)*	(1.80)	(3.70)**	(1.24)
MSA Median Inc. (000)			0.002				-0.0009	
			(2.04)*				(1.97)*	
MSA Fr. College Degree			0.084				0.2201	
			(1.35)				(8.13)**	
MSA Fr. Under Age 30			-0.264				-0.8052	
			(2.45)*				(9.96)**	
MSA Fr. Over Age 65			2.163				3.9438	
			(4.93)**				(12.94)**	
β_1	-0.034	-0.033	-.061	-0.031	-0.055	-0.063	-.034	-0.057
	(5.37)**	(5.16)**	(3.17)**	(3.86)**	(2.72)*	(3.17)**	(5.41)**	(2.15)*
β_2	0.153	0.122	.188	0.117	0.239	0.205	.112	0.201
	(5.16)**	(4.48)**	(2.14)*	(3.50)**	(2.52)**	(2.19)*	(4.48)**	(1.53)
Regions	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Interacted Region (Zip)	No	No	No	Yes	No	No	No	Yes
Constant	0.2122	0.2479	0.1128	0.2521	0.2525	0.3237	0.2054	0.3239
	(112.52)**	(51.48)**	(4.72)**	(48.12)**	(61.31)**	(26.34)**	(16.41)**	(25.19)**
Observations	11763	11763	11763	11763	7397	7397	7397	7397

Note: All regressions population-weighted with robust standard errors.

Table 6: Preference Externalities by Race: MSA Fixed Effects

	Circulation Per Capita	
	Five-Digit Zips	*Hybrid Zips*
	(1)	(2)
Zip Black Fr. (β_0-α_0)	-0.120	-0.087
	(15.28)**	(4.72)**
Zip Black Fr.* MSA White Pop (β_1-α_1)	-0.028	-0.059
	(3.87)**	(2.64)**
Zip Black Fr.* MSA Black Pop (β_2-α_2)	0.068	0.113
	(2.25)*	(1.82)
Observations	11763	7397
MSA's	269	269

Table 7: Product Position in Two-Paper Cities

	Chicago (19% Black)		Philadelphia (19% Black)		Boston (6% Black)		Washington (27% Black)	
	Tribune	Sun-Times	Inquirer	Daily News	Globe	Herald	Post	Times
Hard News								
News	57%	40%	37%	37%	39%	28%	49%	35%
Economy	6%	2%	10%	5%	6%	8%	8%	2%
Industry	5%	5%	11%	7%	7%	10%	9%	9%
Soft News								
Entertainment	6%	13%	15%	19%	9%	17%	7%	12%
Lifestyle	9%	11%	20%	16%	16%	16%	15%	23%
Sports	6%	15%	4%	9%	14%	13%	9%	4%
Production[*]	11%	14%	3%	7%	8%	8%	4%	15%
Total Staff	322	145	107	22	224	64	284	27
Hard News/Total Staff	***68%***	***47%***	***58%***	***49%***	***53%***	***46%***	***66%***	***46%***
Soft News/Total Staff	***21%***	***39%***	***39%***	***44%***	***39%***	***46%***	***30%***	***40%***

* Includes photography, advertising, classifieds, and other production-related beats.

Table 8: Does Product Position Vary by Market Composition?

	Fraction Hard News		*Fraction Soft News*	
Fraction Black	-0.081	-0.121	0.162	0.158
	(1.48)	(2.28)*	(3.52)**	(3.39)**
MSA Pop (Mil.)		0.027		0.003
		(5.02)**		(0.61)
Constant	0.431	0.419	0.283	0.282
	(55.25)**	(53.67)**	(43.31)**	(41.17)**
Observations	269	269	269	269

Note: The fraction hard and soft news can be separately estimated because production staff may vary across markets.

Figure 1: Newspaper Targeting and Group Preferences