Should I Stay or Should I go? An Estimated Model of Exit from the German Magazine Market

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Abstract: This paper develops and estimates a structural model of exit from the German magazine market makes it possible to study the effects of changes in production cost and demand on exit. I derive a system of three equations for magazine demand, advertising demand and a first–order–condition for profit maximization that determines marginal cost. Magazines are assumed to exit if the sum of revenue from magazine sales and advertising revenue is smaller than fixed cost. The exit decision hence comes down to a binary choice model. I use a rare event logit model to estimate unobserved fixed cost.
The analysis is based on a publicly available panel data set that covers the entire German magazine market between the first quarter of 1990 and the first fourth quarter of 2002.
Main results are that market exits are associated with (i) positive shocks in both marginal and fixed cost, (ii) negative demand shocks, (iii) negative changes in magazine profit (net fixed cost) and negative changes in circulation. These results indicate that publishing houses reach exit decisions based upon 'hard facts' instead of a strategic repositioning of the publishing houses' product portfolio.
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1 Introduction

The German magazine market, just like any other magazine market worldwide, has been characterized by high industry turnover: 131 magazines entered the market between 1972 and 2002, a total of 30 exited (see Figure 1). More exits will soon follow since as the German magazine market currently undergoes a period of consolidation. The economic downturn in which Germany finds itself since right now has caused advertising volumes to considerably decrease and, by the same token, is made responsible for a general decline in magazine demand.
What are the reasons for magazines' market exit? Is it a repositioning of the publishing house, a concentration on core competencies, that drives the withdrawal of established products or are 'hard facts' such as cost or demand shocks that cause exit? Except for 'Jahreszeitenverlag', all major publishing house produce more than one magazine title for each of the 28 magazine groups present on the German magazine market as displayed in Table **??**.[1] One strategy of the publishing houses might hence be to withdraw underperforming magazines from submarkets where the publishing house still is present even after the exit. Table **??** partial asserts this strategy: most exits occur in magazine groups where the publishing house still is represented. At the same time, as also shown in Table **??**, most entries occur in magazine groups where the publishing house at least is positioned with one title. The descriptive evidence is therefore equivocal with respect to the driving forces of exit. In the remainder of this paper I shall therefore use econometric methods to study the magnitudes of cost and demand shocks and their correlation with the exit decision.
From a societal point of view, print media are in the center of attention since they at least partially determine the way we politically think, the way we vote and the way we shop. Indeed, the 'demand interdependence' (Rosse, 1978, as cited by Chaudrhi, 1998, p. 60) in the sense that print media firms serve magazine buyers by producing the print media and advertising clients by placing their ads into the magazine makes print media industries challenging to study within an economic framework. In addition, another feature that distinguishes print media industries from other sectors is that fixed cost of production are very high compared to marginal cost, a fact that is well documented for the U.S., the British and the German newspaper market by Wagner (1981).

Special features of print media markets

These two specificities have important consequences for the analysis of print media markets. First, publishers have incentives to distribute fixed production — setup and maintenance cost of the printing technology equipment as well as labor cost for the staff and freelance writers — across various magazines and magazine groups. Second, the pricing behavior of print media firms deviates from the usual

[1] My definition of magazine groups follows industry convention. I shall come back to that issue in Section 3.

prices–equal–marginal–cost–plus–a–markup since excessive pricing is ruled out by subsequent decrease in both magazine demand and advertising demand (Kaiser 2002a).

Cost and demand shock as reasons to exit

These two special features of the magazine market are taken into account in this paper. I choose a structural econometric framework where the identification of estimated parameters follows economic theory. The main advantage of this approach is that cost components and, more importantly, demand and cost shocks can be analyzed. In comparison, most existing empirical studies of firm exit use ad–hoc empirical specifications ad–hoc (Audretsch 1991; Audretsch and Mahmood 1995; Harhoff et al. 1995; Honjo 2000; Klepper ???). My model in fact is more closely related to existing models of entry (Berry 1992; Berry and Waldfogel 1999; Breshnahan and Reiss 1990; Seim 2002) than to existing studies of exit. In these entry models, entry occurs if firms make profits after they entered. I invert the argumentation and assume that magazines exit in period $t+1$ if they make negative profits in period t. I also somewhat generalize existing models of entry since I do not impose homogeneity of products as entry models do.

The ability to identify demand shocks and cost shocks as reasons to exit comes at a cost: since market exit rarely occurs in comparison to the number of magazines staying in the market (only 0.27 per cent of the total number of observations are exits), my fixed cost estimation suffers from the problem that I severely underestimate fixed cost. This problem is due to the very construction of binary choice models model that I apply here. Even the 'rare event' logit model (King and Zeng 2000) that I also apply and that improves the estimation results has the same drawback as the simple logit model: it always predicts — by construction — the more likely event (e.g. staying in the market) much better than the less likely event (e.g. exiting). As a consequence, I obtain negative fixed cost estimates. Clearly, the unreasonable estimation results for the fixed cost are simply due to the fact that ratio of exiting to remaining magazines is too low. The precision of the fixed cost estimation improves (again by construction of binary choice models, see King and Zeng 2000, p. ???) if more failures occur.[2]

By contrast, my estimated marginal cost meet very well with data obtained from industry sources, indicating that my model of magazines' pricing behavior meets very well with reality.

Model identification and results

The estimation of my model for magazine exit requires to identify the parameters of magazines' profit functions. Key elements are magazine demand, which I specify by a 'nested logit' model for differentiated product demands (Berry ???), inverse demand for advertising, which relies on a constant elasticity framework, marginal cost, which are derived from a first–order–condition of profit maximiza-

[2]To be precise: the information–maximizing ratio of failures to non–failures is 0.5 as it is well known for binary choice models.

tion and fixed cost, which are obtained from making a parametric assumption on the distribution of the unobserved fixed cost component.
Main results of this paper are that market exit is associated with (i) positive shocks in marginal cost, (ii) negative shocks in fixed cost, (iii) negative magazine demand shocks, (iv) negative changes in magazine demand and (v) negative changes in advertising demand. These results imply that market exit is indeed driven by 'hard facts', that is ny changes in the demand and cost structure, rather than by a strategic repositioning of the publishing houses' product portfolio.

2 The model

My model of exit adopts a simple exit rule: magazine j stays in the market in period $t+1$ if it makes positive or zero profits in period t and exits if its profits in period t are negative. The indicator variable for exit is hence coded as follows,

$$E_{jt+1} = \begin{cases} 1 & \text{if } \Pi_{jt} < 0 \\ 0 & \text{if } \Pi_{jt} <\geq 0, \end{cases} \tag{1}$$

where Π_{jt} denotes magazine j's profits at time t. Equation (1) visualizes that the exit rule is just a simple binary choice problem.
Following Kaiser (2002b), I specify magazine j's profit function as follows:

$$\Pi_{jt} = (p^c_{jt} - mc_{jt}) M_t s[\boldsymbol{p_t}, \boldsymbol{x_t}, \boldsymbol{\xi_t}, \boldsymbol{\theta}] + p^a_{jt} ADP_{jt} - F_{jt}, \tag{2}$$

where p^c denotes the cover price, mc denotes marginal cost, M_t denotes total market size,[3] $s[.]$ denotes market share, p^a denotes the price per advertising page, ADP denotes the number of advertising pages per issue and F denotes fixed cost. The arguments in $s[.]$ include a vector of prices ($\boldsymbol{p}$, magazine j's price and the prices of the other magazines), vectors of observed ($\boldsymbol{x}$) and unobserved ($\boldsymbol{\xi}$) magazine characteristics (again including magazine j's characteristics and the characteristics of the other magazines) and a parameter vector $\boldsymbol{\theta}$ that relates the observed quality characteristics (including price) to magazine demand.[4]
The ingredients of profit function (2) that remain to be specified are (i) marginal cost, mc, (ii) market share, $s[.]$, (iii) inverse advertising demand, p^a, and (iv) fixed cost.
Marginal cost are derived by estimating a first–order condition for profit maximization. I assume that the market equilibrium is Nash in prices, an assumption

[3] I set market size equal to the German population older than 13 years.

[4] Marginal cost are basically paper and printing cost, fixed cost are cost that led to the 'intellectual' production of the magazine such as labor cost.

that seems to be justified with respect to the feedback of cover prices to advertising demand. The first–order condition of profit maximization is:

$$\frac{\partial \Pi_{jt}}{\partial p^c_{jt}} = M_t s[.] + M_t(p^c_{jt} - mc_{jt})\frac{\partial s[.]}{\partial p^c_{jt}} + \frac{\partial p_{jt}}{\partial p^c_{jt}} ADP_{jt} = 0. \tag{3}$$

Market shares, $s[.]$, are estimated using a 'nested logit' model of differentiated product demands as in Kaiser (2002b). The baseline idea here is to place products into different groups such that products within a group are similar to one another and products of different groups are dissimilar. The correlation between magazines within the same group is represented by parameter σ, a parameter that is to be estimated. By differentiating between products of different subgroups, a gain in flexibility compared to the standard logit–type model of differentiated products demand (Anderson et al. 1992, Ch. ???) is obtained since own–price and cross–price elasticities no longer only depend upon own market shares but also upon within–group market shares and the correlation coefficient σ.
The nested logit demand model is given by:

$$ln(s_{jt}) \; - \; ln(s_{0t}) = \boldsymbol{x_{jt}\beta} + \alpha p^c_{jt} + \sigma ln(\bar{s}_{j|g}) + \tau_t + \xi_{jt}, \tag{4}$$

where $\bar{s}_{j|g}$ denotes the market share of magazine j at time t in magazine group g and τ_t denotes demand shocks that are the same for all magazines. The market share of the outside good, s_0, is $s_0 = 1 - \sum_j s_{jt}$.[5]
Finding an appropriate product grouping clearly is important since a misspecification of magazine demand leads to a misspecification of marginal cost. Fortunately, a somewhat 'natural' grouping of magazines exist since industry sources provide classifications of magazines. I follow the industry–wide accepted classification of the 'Association Media Analysis' ('Arbeitsgemeinschaft Media–Analyse', AG.MA), an association of the German advertising industry for the research of mass communication. The purpose of the AG.MA is to gather and to supply data for media audience measurement. A total of 27 magazine groups is distinguished. My specification for advertising demand follows Berry and Waldfogel (1999). I extent their approach by letting the 'circulation elasticity of advertising demand', e.g. the reaction of advertising demand due to changes in magazine circulation, to be different for different magazine groups. My inverse demand for advertising specification hence is:

$$p^a_{jt} = \lambda_{jt} \prod_g (M_t s[p^c_{jt}, \boldsymbol{x_t}, \boldsymbol{\xi_t}])^{D_g \eta_g} = \lambda_{jt} \; (M_t \; s[.])^{\sum_g D_g \eta_g}, \tag{5}$$

where D_g denotes a dummy variable that is coded one if magazine j is in subgroup g and zero otherwise.

[5]Note that the framework chosen here allows consumers to purchase more than one magazine as long as the magazine purchase decision is uncorrelated with the number of magazines bought.

The demand–shift parameter λ is assumed to depend upon a vector of observed variables that influence advertising prices summarized by vector $\boldsymbol{w_{jt}}$, and an unobserved (to the econometrician) component that is denoted by ψ_{jt}:

$$\lambda_{jt} \;=\; exp(\boldsymbol{w_{jt}\kappa} + \psi_{jt}). \tag{6}$$

Specifying marginal cost by $mc_{jt} = \boldsymbol{z_{jt}\gamma} + \omega_{jt}$, where $\boldsymbol{z_{jt}}$ denotes marginal cost components that are observed by the econometrician and ω_{jt} denotes an unobserved marginal cost component, leads to the following joint estimation problem:

$$\begin{array}{rcl} ln(s_{jt}) \;-\; ln(s_{0t}) & = & \boldsymbol{x_{jt}\beta} + \alpha p^c_{jt} + \sigma ln(\bar{s}_{j|g}) + \tau_t + \xi_{jt} \\ p^c_{jt} - mc_{jt} & = & \underbrace{-\sum_g \eta_g D_g \frac{p^a_{jt} ADP_{jt}}{M_t s[.]}}_{\substack{(-) \\ \text{markup} \\ \text{deterioration}}} \qquad \underbrace{-\frac{s[.]}{\partial s[.]/\partial p^c_{jt}}}_{\substack{(+) \\ \text{`usual'} \\ \text{markup}}} . \\ ln(p^a_{jt}) & = & \boldsymbol{w_{jt}\theta} + \sum_g D_g \eta_g \; ln(M_t \; s[.]) + \psi_{jt} \end{array} \tag{7}$$

The first stage of the estimation procedure consists of estimating the system of equations (**??**). Once this system is estimated, I plug in the estimates of $\hat{mc}_{jt}$ into the profit function (2).

The important difference between print media markets and traditional markets is the (negative) 'markup deterioration' that depends upon the circulation elasticity of advertising demand and advertising revenue per copy: the less circulation–elastic advertising demand (given advertising revenue per copy) and the higher given advertising revenue (given the circulation elasticity of advertising demand), the higher is the cover price (and vice versa). Magazines hence cannibalize cover prices in order to increase advertising sales. Marginal cost might even exceed cover prices if advertising demand is very circulation elastic and/or if magazines make large revenues from advertising sales. Below marginal cost pricing is a well documented phenomenon in the newspaper industry (Blair and Romano 1993; Wagner 1981) and it also turns to be present for some segments of the German women's magazines market (Kaiser 2002c).

Magazine demand is estimated using a random effects AR(1) model.[6] Estimating an AR(1) model with decomposed error terms has the advantage of circumventing traditional instrumental–variables models as Kaiser (2002c) demonstrates for the demand for women's magazines. Prices and within–group markets shares are endogenous since both consumers and producers know the unobserved quality component ξ_{jt}, producers take it into account in their pricing decision. Hence, prices and the unobserved product quality component are correlated, leading

[6]Note that fixed effects are not identified separately from the coefficient vectors in differentiated product demand models since there exists a one–to–one mapping between mean utility (e.g. $\boldsymbol{x_{jt}\beta} + \alpha p^c_{jt} + \sigma ln(\bar{s}_{j|g}) + \tau_t$) and market shares s_{jt} (Berry ???, p. ???).

to a simultaneity bias. By the same token, within–group market shares are endogenous as well.
The AR(1) identification idea rests upon the following error term decomposition (**??**): $\xi_{jt} = \gamma_j + \varepsilon_{jt}$. If it ε_{jt} follows an AR(1) process with correlation coefficient ρ, then $\varepsilon_{jt} = \rho\varepsilon_{jt-1} + \varsigma_{jt}$. If, in addition, ς_{jt} is orthogonal to magazine prices (and quality characteristics), the price coefficient α is identified without IV technique. Error component γ_j can either be treated as a random effect.
Inverse advertising demand is estimated by a fixed effects model. A Hausman (????) test of fixed effects vs. random effects cannot reject the presence fixed effects.
Fixed cost are assumed to depend upon a set of observable factors that are summarized in vector $\boldsymbol{v_{jt}}$ and an unobserved fixed cost component ν_{jt} that I assume to be independently, non–identically normal distributed with zero mean and variance $\sigma^2_{jt} = 1$, implying that I assume homoscedasticity and normality of the error terms. The fixed cost equation hence reads: $F_{jt} = \boldsymbol{v_{jt}}\boldsymbol{\phi} + \nu_{jt}$
In the second stage of the estimation procedure, I estimate the parameters of the fixed cost. The estimation comes down to estimating a binary logit model with unobserved magazine profits being the latent variable:

$$\Pi_{jt} = (p^c_{jt} - \hat{mc}_{jt})M_t s[.] + p^a_{jt} ADP_{jt} - \boldsymbol{v_{jt}}\boldsymbol{\phi} - \nu_{jt}. \tag{8}$$

The log–likelihood function is given by:

$$\ell = \sum_{i=1}^{N}\sum_{t=1}^{T}\Big[(E_{jt}=1)F(\boldsymbol{v_{jt}}\boldsymbol{\phi} - R^n_{jt}) + (E_{jt}=0)\Big(1 - F(\boldsymbol{v_{jt}}\boldsymbol{\phi} - R^n_{jt})\Big)\Big], \tag{9}$$

where F denotes the cumulated density function of the exponential distribution (thus constituting a logit model), R denotes magazines' revenue from selling print copies and advertising space, N denotes the number of observations per period and T denotes the total number of periods. This formulation implies that I pool over all observations and all periods. Note that an error decomposition, a decomposition of ν_{jt} into an magazine specific component (a constant term for all N magazines) and an idiosyncratic component that varies across time and magazines is ruled out here due to the fact that exiting observations are not observed after their market exit.
Note that the usual identification problem in binary logit and probit models also holds here. In order to identify the model, the standard error of the unobserved fixed cost component is normalized to one. The coefficient estimates are hence only identified up to this scale parameter.

3 Data and empirical specification

I use publicly available data that I downloaded from http://medialine.focus.de/. The original source of this information is 'Information Association for the Determination of the Spread of Advertising Media' ('Informationsgemeinschaft zur Feststellung der Verbreitung von Werbeträgern e.V', IVW). IVW ascertains, monitors and publishes circulation and magazine dissemination information.
The data initially span the period I/1972 to IV/2002. Due to the German reunification and the associated structural changes in magazine and advertising demand, I discard observations prior to the first quarter of 1990.

Magazine quality characteristics $\boldsymbol{x_{jt}}$

The vector of observed quality characteristics of the magazines, $\boldsymbol{x_{jt}}$, consists of the following variables: the natural logarithm of the number of editorial pages and its square (since I expect an 'optimal' number of editorial pages', three dummy variables for the first to third quarter (with the fourth quarter being the comparison quarter) and a full set of year dummy–variables. Initially, my demand specification also included advertising share and its square. Advertising share did not, however, turn out not to have a significant effect — neither jointly nor separately — on magazine demand and was hence removed from the specification.
The random effect approach that I use here allows me to take in to account unobserved quality components. In case of magazine demand, this unobserved component can be thought of as being composed of style and content. The same interpretation can be given to the fixed effect in the advertising demand equation while management abilities are what the fixed effect in the marginal cost equation stands for.

Magazine advertising shifters $\boldsymbol{w_{jt}}$

The following variables are treated as advertising demand shift variables, e.g. as elements of $\boldsymbol{w_{jt}}$: the total number of pages and its square, advertising share and its square and the same set of quarter and year variables as in the magazines demand specification.
I expect an 'optimal' total number of pages in the advertising demand specification since a large number of pages might be regarded as a quality signal from the advertisers' perspective. At the same time, an increasing number of pages increases the possibility that the own advertising page is overlooked. Similar arguments hold for the inclusion of both a linear and a quadratic term of advertising share: advertisers value advertising pages up to a certain extent and dislike it thereafter.
There is a difference in the timing of magazine purchase and the advertising decision. While the magazine purchaser decides upon buying in period t, the advertiser decides in period $t-1$ so that her decision is conditional of variables at time $t-1$. My empirical specification takes this into account by lagging all explanatory variables by one period.

Marginal cost components $\boldsymbol{z_{jt}}$

My specification of marginal cost, $\boldsymbol{z_{jt}}$, includes the natural logarithm of the total number of pages and its square, the natural logarithm of the the total number of printed copies, the natural logarithm of number of titles published by the own publishing house and its square, the natural logarithm of number of titles published by the own publishing house in the same magazine group and its square as well, again, the full set of time dummy variables. Including the total number of pages and the total number of copies is a natural choice: the higher the number of pages is, the higher are marginal production cost. The effect of the total number of printed copies is unclear a priori since it depends on the printing technique (that I do not observe in my data). Printing cost decrease in the number of copies if offset print is chosen. They increase if photogravure is chosen.
The inclusion of the number of titles published by the same publishing house is straightforward since returns to scope can be expected in magazine production. These returns to scope might be larger if the number of titles within the same group is large.
Fixed cost components $\boldsymbol{v_{jt}}$
The fixed cost specification includes the number of titles produced by the own publishing house within the same magazine group since it is very likely that there are spillovers between the editorial staffs of magazines that are published by the same publisher. My fixed cost specification also includes advertising share since cost to produce advertising pages are zero (there are, however, acquisition cost) and a full set of time dummy variables.

4 Estimation results

Estimation results for the system of equations (**??**) are displayed in Table **??**. Table **??** shows for the fixed cost estimation.
Magazine demand
The number of editorial pages has a U–shaped effect on magazine demand. The demand–minimizing number of editorial pages is 39 (the mean number of editorial pages is 93, the median is 84). The within–group correlation of magazines is large and highly significant, indicating that substitution elasticities between groups are low and that substitution elasticities within groups is high. The coefficient on price also is highly significant (and negative); price–elasticities cannot be directly inferred from the estimate of α, however, I shall return to this issue below.
Highly significant effects of common demand shocks, as represented by the year dummies and quarter dummies, exist. The 'best' years have been 1991–1993 while 'best' quarters are the first and third quarters of each year.
The autocorrelation coefficient ρ is large and highly significant, indicating a high first–order serial correlation.

Advertising demand

The total number of pages has an U–shaped effects on inverse advertising demand with a *minimum* reached at a total of 103 pages (mean total number pages: 136, median: 112), indicating that advertisers either like voluminous or few–paged magazines. Advertising share has a U–shaped effect on advertising demand. The maximum is, however, reach at a share of 1.6 per cent so that advertising share factually has a negative effect on inverse advertising demand. Common demand shocks also play a highly significant role in inverse advertising demand. Advertising is most lucrative in the fourth quarter, the Christmas quarter, and advertising prices have been steadily increasing since 1990. The circulation elasticities of advertising demand, the η'S, are estimated with high precision and carry, with one exception, ??? magazines, the expected positive sign. Highly significant fixed effects are found in the inverse advertising demand equation.

Marginal cost

The total number of pages has a highly significantly effect on marginal cost. Marginal cost reach a maximum at a total number of 36 pages. The number of titles published by the own publishing group has a significantly negative effect on marginal cost. By contrast, the number of titles published by the own publishing group within the same magazine group has a U–shaped effect with a minimum reached at a number of titles of 2.5 (mean: 2.1, median: 1). Marginal cost increase with the number of printed copies, suggesting that most magazines are printed by photogravure, something that is supported by industry sources (???). The time dummy variables that marginal cost have been steadily increasing since 1990 and that production in the fourth quarter of each year is cheapest. Highly significant fixed effects are found in the marginal cost specification. Marginal cost are measured in Euros so that, for example, marginal cost are — ceteris paribus — 0.0422 Euros higher in the first quarter of each year than in the fourth quarter.

Fixed cost

Magazine revenue from magazine and advertising sales are in one million Euros so that the scale of the fixed cost estimates also is in one million Euros. The number of magazine titles in the own magazine groups published by the own publisher has an U–shaped effect on fixed cost. The minimum is reached at 1.4 titles. Advertising share has the expected highly significant negative effect on fixed cost while the total number of editorial pages has a highly significant negative impact. Fixed cost are lowest in the fourth quarter of each year. There is no clear time trend present in the data.

These results hold true both for the rare event specification and the standard logit model. Unfortunately, both approaches lead unreasonable, since negative, estimates for fixed cost. This is due to the simple fact that there are 'too few' market exit to properly predict exit. Hence, negative fixed cost estimates are obtained by construction of the logit model. Even though the rare event logit model considerably increases estimated fixed cost, they still do not become positive.

Estimation quality

The model quality of the specification of magazine demand, advertising demand and marginal cost, as measured by the adjusted R^2 and the tests for joint significance, is quite satisfactory for time–series, cross–sectional model.

More importantly, a somewhat natural test of the validity of my model is to check if my marginal cost estimates are basically in line with marginal cost estimates gathered from industry sources. Cost data are, however, extremely difficult to obtain and if they are obtained, they are often to be treated as a business secret. Indeed, these are the reasons why economists wish to estimate marginal cost in the first place. After several inquiries at publishing houses and at firms from the printing industry, I obtained data on marginal cost for two German magazines.[7] Due to business secrecy, the true identity of those two magazines cannot be revealed so that I shall refer to them as magazine 'X' and magazine 'Y'. My industry sources estimate printing and production cost at 4 Euro for magazine 'X' and at ??? for magazine 'Y'. Both data refer to the third quarter of 2001. My marginal cost estimate for magazine 'X' is 4.82 Euros and ??? for magazine Y, slightly above the estimate obtained from industry sources.

(hier!)

Apart from the apparent problem that the predictive power of the fixed cost estimation is low due to the low share of exits, the equation seems to be specified quite well: it is jointly significant at the five percent level (???) and yields an pseudo R^2 of ???. The estimated coefficients also carry the expected sign. Test for non–normality and homoscedasticity, where it is assumed that the same variables that affect the conditional mean function also affect the conditional variance, cannot reject normality and homoscedasticity (???). I apply Lagrange Multiplier tests that are based on generalized residuals (Chesher and Irish ???).

Demand and cost shocks as reasons to exit?

As noted earlier, I treat the unobserved (to the econometrician) components of magazine demand, advertising demand, marginal cost and fixed cost as demand and cost shock components respectively. Magazine demand, advertising demand and marginal cost shocks are calculated as simple residuals from the linear regressions. Since actual fixed cost are unobserved, residuals cannot be directly obtained from the rare event logit model. I use generalized residuals instead.

Table 1 displays demand and cost shocks for all of the exiting magazines. The '+' and '-' columns indicate if the respective demand or cost shock was 'significant', that is +/- one time the standard deviation from the mean. Both means and standard deviations are calculated for each of the exiting magazines. The descriptive evidence of Table 1 is suggestive: magazine exit is associated with (i) positive marginal cost shocks, (ii) positive fixed cost shocks and (iii) negative magazine demand shocks (e.g. negative changes in unobserved magazine quality). Surprisingly, magazine exit also goes along with positive shocks in inverse

[7] I owe this information to Ulrike Hasslöcher and Jörg Hüner.

advertising demand.
The descriptive evidence from Table 1 is supported by unpaired t–tests with unequal variance for identity of means between exiting and non–exiting magazines: the means of marginal cost and fixed cost shocks are highly significantly larger than those of magazines that stay in the market. Likewise, magazine demand shocks are highly significantly lower for market withdrawals than for those magazines remaining active.
Market exit also goes along with continuously negative changes in revenue from magazine sales and advertising sales and with a negative trend in magazine sales. These two main results, the apparent correlation between positive cost shocks and negative demand shocks as well as the correlation between declining magazine demand and advertising demand strongly suggest that market exit indeed is driven by 'hard facts' rather than by strategic decisions by the publisher's management.

Other characteristics of the market exiters

Two questions remain to be answered: (i) are market exiters particularly own–price elastic, i.e. are there many opportunities to substitute away from them? and (ii) is advertising demand highly cover price particularly own–cover price elastic?
The semi own–price elasticity in the nested logit model of differentiated product demand is given by:

$$\frac{\partial s[.]}{\partial p_{jt}} \frac{1}{s[.]} = \frac{\alpha}{1-\sigma}(1 - \sigma \bar{s}_{j|g} - (1-\sigma)) \tag{10}$$

The advertising price elasticity with respect to cover price is defined as:

$$\frac{\partial p^a_{jt}}{\partial p^c_{jt}} \frac{p^c_{jt}}{p^a_{jt}} = \sum_g D_g \eta_g p^a_{jt} \frac{\partial s[.]}{\partial p^c_{jt}} \frac{1}{s[.]} \frac{p^c_{jt}}{p^a_{jt}}. \tag{11}$$

Figure 1: Entry and exit on the German magazine market 1972–2002

Table 1: Market presence of publishing houses 1990, 1995 and 2000

	1990		1995		2000					
	Total # of titles	# of titles in same group	Total # of titles	# of titles in same group	Total # of titles	# of titles in same group	# of exits	# of exits in occu–pied groups	# of entries	# of entries into non occu–pied groups
Bastei	5	1-2	4	1-2	3	1-2	2	0	0	0
Bauer	25	1-5	30	1-5	31	1-6	4	3	12	3
Beltz	1	1	1	1	1	1	0	0	0	0
Burda	14	1-3	17	1-3	21	1-3	3	1	10	3
Conde	1	1	1	1	1	1	0	0	0	0
Delius	2	1	2	1	2	1	0	0	0	0
Deutscher Ärtze Verlag	1	1	1	1	1	1	0	0	0	0
DVA	2	2	2	2	2	2	1	1	0	0
Finanzen Verlag	1	1	1	1	3	1	0	0	2	1
Gong	5	1-3	5	1-3	5	1-3	1	1	1	0
Gruner + Jahr	18	1-2	23	1-2	23	1-2	2	1	8	5
Handelsblatt	3	1-2	3	1-2	3	1-2	0	0	1	1
Helberts	1	1	1	1	1	1	0	0	0	0
IDG	1	1	1	1	1	1	0	0	0	0
Intermedia	0	0	0	0	1	1	0	0	1	1
Jahreszeiten	6	1	6	1	6	1	0	0	0	0
Klambt	5	1-2	4	1-2	4	1-2	2	0	3	1
Magazinpresse	1	1	1	1	1	1	0	0	0	0
managermagazin	1	1	1	1	1	1	0	0	0	0
Milchstrasse	2	1	3	1	3	1	0	0	5	4
Motorpresse	7	1-6	7	1-6	7	1-6	0	0	2	1
MVG	2	1	3	1	3	1	1	0	1	1
Naturmedia	1	1	1	1	1	1	0	0	0	0
Neue Mediengesellschaft	0	0	1	1	1	1	0	0	1	1
New Magazines	1	1	0	0	0	0	1	0	0	0
Olympia	1	1	1	1	1	1	0	0	0	0
Premium	1	1	1	1	1	1	0	0	0	0
Reader's digest	1	1	1	1	1	1	0	0	0	0
Spiegel	1	1	1	1	1	1	0	0	0	0
Springer	10	1-3	11	1-4	11	1-4	1	0	5	3
Velber	1	1	1	1	1	1	0	0	0	0
Weck	1	1	1	1	1	1	0	0	0	0
Welt am Sonnabend	3	3	3	3	3	3	0	0	0	0
Weltbild	3	1	3	1	3	1	1	0	0	0

Note: ???.

Table 2: Estimation resulst for system of equations (**??**)

	Magazine demand		Advertising demand		Marginal cost	
	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.
α	-0.0471***	0.0084				
σ	0.9270***	0.0053				
ln(#of editorial pages)	-0.0437	0.0314				
ln(#of editorial pages)^2	0.0060	0.0037				
ln(total#of pages)			-0.3955***	0.0760	-0.8200***	0.0319
ln(total#of pages)^2			0.0427***	0.0081		
Advertising share			0.9769***	0.0738		
Advertising share^2			-1.0087***	0.1032		
η_1			0.2226**	0.0960		
η_2			0.4044***	0.0311		
η_4			0.2423***	0.0851		
η_5			0.1767***	0.0336		
η_7			-0.0363	0.0590		
η_8			-0.0174	0.1072		
η_9			0.2028***	0.0212		
η_10			0.0618	0.0480		
η_11			0.2141***	0.0533		
η_12			0.2717***	0.0338		
η_14			0.2033***	0.0546		
η_15			0.2038**	0.0934		
η_17			0.4001***	0.0650		
η_18			0.3526***	0.0280		
η_19			0.3875***	0.0231		
η_20			0.4077***	0.0604		
η_21			0.1937***	0.0161		
η_22			0.1180***	0.0363		
η_23			0.0714*	0.0432		
η_26			0.0068	0.0357		
η_27			-0.0633	0.0559		
η_28			0.4256***	0.0136		
η_29			0.5364***	0.0685		
η_30			0.1993***	0.0187		
η_31			0.4655***	0.0193		
η_32			-0.0435*	0.0265		
η_38			-0.0570	0.1674		
ln(#of titles)					-0.2361***	0.0865
ln(#of titles)^2					-0.0094	0.0203
ln(#of titles own group)					-0.2300***	0.0677
ln(#of titles own group)^2					0.1352***	0.0417
ln(#of printed copies)					0.2115***	0.0217
1. Quarter	0.0223***	0.0018	-0.0205***	0.0044	0.0422***	0.0132
2. Quarter	-0.0018	0.0016	-0.0044	0.0039	0.0267**	0.0128
3. Quarter	0.0133***	0.0013	-0.0181***	0.0042	0.0776***	0.0132
1991	0.0444***	0.0051	0.0181**	0.0078	0.0255	0.0236
1992	0.0307***	0.0074	0.0547***	0.0079	0.0445*	0.0236
1993	0.0334***	0.0093	0.0984***	0.0078	0.1011***	0.0237
1994	0.0161	0.0110	0.1175***	0.0078	0.1396***	0.0236
1995	0.0120	0.0125	0.1334***	0.0078	0.1840***	0.0239
1996	0.0122	0.0140	0.1593***	0.0079	0.2130***	0.0238
1997	0.0002	0.0154	0.1668***	0.0079	0.2290***	0.0239
1998	-0.0078	0.0168	0.1687***	0.0079	0.2578***	0.0242
1999	-0.0116	0.0182	0.1755***	0.0079	0.2929***	0.0246
2000	0.0024	0.0197	0.1852***	0.0080	0.3092***	0.0250
2001	-0.0037	0.0211	0.2101***	0.0081	0.3514***	0.0250
Constant	-3.1497***	0.0958	n.a.		n.a.	
ρ	0.9618***	0.0581	n.a.		n.a.	

Note: ???.

Table 3: Test statistics associated with Table 2

F–tests for joint significance						
	Test-stat.	p–val.	Test-stat.	p–val.	Test-stat.	p–val.
Specification	3238.73	0.00	97.47	0.00	63.57	0.00
ln(#of editorial pages)	5.76	0.06				
Elasticities			97.90	0.00		
ln(#of pages)			13.97	0.00		
Adshare			97.47	0.00		
ln(#of titles)					26.60	0.00
ln(#of titles own group)					6.12	0.00
Quarter–dummies	600.52	0.00	9.61	0.00	21.00	0.00
Year–dummies	125.97	0.00	123.89	0.00	34.40	0.00
# of obs., # of magazines and R^2						
# of obs.	6914		6737		6915	
# of magazines	178		178		178	
R^2	0.4477		0.4024		0.1592	
Test: all FE=0			167.63	0.00	335.07	0.00

Note: ???.

Table 4: Fixed cost estimation results

	Standard logit		Rare event logit	
	Coeff.	Std. err.	Coeff.	Std. err.
ln(#of titles own group)	1.4223	1.4749	1.2209	1.4708
ln(#of titles own group)^2	-2.1282**	1.2189	-1.8012*	1.2155
ln(#of advertising pages)	-0.8789**	0.3993	-0.9100***	0.3982
ln(#of editorial pages)	1.1073***	0.4444	1.1357***	0.4432
1. Quarter	-1.4071**	0.6486	-1.3259**	0.6468
2. Quarter	-1.025*	0.6868	-0.8836*	0.6849
3. Quarter	-1.2976**	0.6422	-1.2269**	0.6404
1991	0.9145	1.5614	0.9422	1.5572
1992	2.1974**	1.3458	1.8804*	1.3421
1993	1.2916	1.5252	1.3116	1.521
1994	1.6081	1.5219	1.6250	1.5178
1995	2.1426	1.3711	1.8514*	1.3674
1996	1.306	1.5445	1.3348	1.5402
1997	2.3695**	1.3681	2.0472*	1.3644
1998	2.3412**	1.3774	1.9992*	1.3737
1999	3.1417***	1.2781	2.6474**	1.2746
2000	1.7108	1.5497	1.6438	1.5455
2001	1.6869	1.5617	1.6441	1.5574
Constant	-9.1475***	2.2704	-8.4476***	2.2642
Wald–tests for joint signicance				
Specification	27.9591	0.0627		
ln(#of titles own group)	5.0725	0.0792		
Quarter–dummies	6.6102	0.0854		
Year–dummies	8.9924	0.6226		
# of obs. and pseudo R^2				
# of obs.	6915			
pseudo R^2				

Note: ???.

Table 5: Cost shocks and advertsing demand shocks of exiting magazines four quarters prior to their exit

		Marginal cost shock			Fixed cost shock		Mag. demand shock			Adv. demand shock		
	Quarter	Value	+	-	+	-	Value	+	-	Value	+	-
Bild + Funk	I/1996	-0.0981	0	1	0	0	-0.0070	0	0	-0.0297	0	0
Bild + Funk	II/1996	-0.0619	0	0	0	0	0.0200	0	0	-0.0270	0	0
Bild + Funk	III/1996	0.0452	0	0	0	0	0.0144	0	0	0.0127	0	0
Bild + Funk	IV/1996	0.1575	1	0	1	0	0.0266	0	0	0.0564	1	0
Carina	I/1995	0.5063	1	0	0	0	-0.0650	0	0	0.0431	0	0
Carina	II/1995	0.1267	0	0	0	0	-0.0906	0	1	0.0576	1	0
Carina	III/1995	0.2961	1	0	0	0	-0.0750	0	0	0.0870	1	0
Carina	IV/1995	0.2130	0	0	1	0	-0.1176	0	1	0.1479	1	0
Goldene Gesundheit	III/1996	0.2054	0	0	0	0	-0.2287	0	1	0.0161	0	0
Goldene Gesundheit	IV/1996	0.3296	1	0	0	0	-0.3095	0	1	0.0038	0	0
Goldene Gesundheit	I/1997	0.1301	0	0	0	0	-0.2161	0	1	0.0147	0	0
Goldene Gesundheit	II/1997	0.1968	0	0	1	0	-0.2150	0	1	0.0026	0	0
Hobby-Magazin der Technik	IV/1990	0.0765	1	0	0	0	0.0136	0	0	-0.0025	0	0
Hobby-Magazin der Technik	I/1991	-0.0200	0	0	0	0	-0.0328	0	1	0.0110	0	0
Hobby-Magazin der Technik	II/1991	-0.0081	0	0	0	0	-0.0179	0	0	0.0091	0	0
Hobby-Magazin der Technik	III/1991	-0.0731	0	1	1	0	-0.0364	0	1	0.0104	0	0
Ingrid	I/1994	0.9874	1	0	0	0	-0.0789	0	1	-0.0275	0	0
Ingrid	II/1994	0.7190	1	0	0	0	-0.1187	0	1	-0.0765	0	0
Ingrid	III/1994	0.8312	1	0	0	0	-0.1382	0	1	0.0304	0	0
Ingrid	IV/1994	0.7705	1	0	1	0	-0.1212	0	1	0.0421	0	0
KFT Die Auto-Zeitschrift	IV/1998	0.1008	0	0	0	0	-0.0450	0	1	0.1107	1	0
KFT Die Auto-Zeitschrift	I/1999	0.2608	1	0	0	0	-0.0213	0	0	0.0580	1	0
KFT Die Auto-Zeitschrift	II/1999	-0.6244	0	1	0	0	-0.0812	0	1	0.0490	0	0
KFT Die Auto-Zeitschrift	III/1999	0.1318	0	0	1	0	-0.0504	0	1	0.0136	0	0
Kosmos	II/1998	0.6761	1	0	0	0	-0.2043	0	1	0.1243	0	0
Kosmos	III/1998	0.6287	1	0	0	0	-0.2262	0	1	0.1219	0	0
Kosmos	IV/1998	0.4132	0	0	0	0	-0.2641	0	1	0.1174	0	0
Kosmos	I/1999	0.4148	0	0	1	0	-0.2723	0	1	0.1475	1	0
Lui	I/1990	0.0796	1	0	0	0	-0.0491	0	1	—	—	—
Lui	II/1990	-0.0320	0	0	0	0	-0.0044	0	0	0.0041	0	0
Lui	III/1990	-0.0505	0	0	0	0	0.0189	0	0	0.0110	0	0
Lui	IV/1990	0.0029	0	0	1	0	0.0346	0	0	-0.0151	0	1
Neue Mode	I/1993	0.1391	1	0	0	0	-0.0586	0	1	-0.0464	0	0
Neue Mode	II/1993	-0.0103	0	0	0	0	-0.0738	0	1	0.0525	1	0
Neue Mode	III/1993	0.0430	0	0	0	0	-0.0867	0	1	0.0708	1	0
Neue Mode	IV/1993	0.2557	1	0	1	0	-0.0876	0	1	0.1098	1	0
Pan	II/1991	0.2278	0	0	0	0	0.0125	0	0	0.0066	0	0
Pan	III/1991	0.4328	0	0	0	0	-0.0067	0	0	0.0403	0	0
Pan	IV/1991	0.2964	0	0	0	0	-0.0542	0	1	0.0636	1	0
Pan	I/1992	0.5044	1	0	1	0	-0.0322	0	1	-0.0123	0	0
Pop Rocky	IV/1997	-0.0892	0	0	0	0	-0.0142	0	0	-0.0528	0	1
Pop Rocky	I/1998	-0.1866	0	0	0	0	-0.0022	0	0	-0.0471	0	0
Pop Rocky	II/1998	0.0105	0	0	0	0	-0.0532	0	0	-0.0172	0	0
Pop Rocky	III/1998	-1.1849	0	1	1	0	-0.0593	0	0	-0.0188	0	0
Prima Carina	I/1999	0.2309	1	0	0	0	-0.1872	0	1	-0.2925	0	1
Prima Carina	II/1999	0.2037	1	0	0	0	-0.1572	0	1	-0.2174	0	1
Prima Carina	III/1999	0.2073	1	0	0	0	-0.1257	0	1	-0.1593	0	1
Prima Carina	IV/1999	0.2313	1	0	1	0	-0.1519	0	1	-0.2244	0	1
Quick	IV/1991	0.0189	0	0	0	0	0.0069	0	0	0.0284	1	0
Quick	I/1992	-0.0544	0	0	0	0	-0.0391	0	0	-0.0320	0	1
Quick	II/1992	0.1269	1	0	0	0	0.0544	1	0	-0.0192	0	0
Quick	III/1992	0.0619	0	0	1	0	0.0602	1	0	-0.0214	0	1

Note: ???.

Table 6: Cost shocks and advertsing demand shocks of exiting magazines four quarters prior to their exit

		Marginal cost shock			Fixed cost shock		Mag. demand shock			Adv. demand shock		
	Quarter	Value	+	-	+	-	Value	+	-	Value	+	-
Rallye Racing	I2000	0.1315	0	0	0	0	-0.1094	0	0	0.0451	1	0
Rallye Racing	II2000	0.1759	0	0	0	0	-0.1858	0	1	0.0590	1	0
Rallye Racing	III2000	0.1385	0	0	0	0	-0.1507	0	1	0.0362	0	0
Rallye Racing	IV2000	0.2102	0	0	1	0	-0.1653	0	1	0.0380	1	0
Sports	III/1998	0.0503	0	0	0	0	0.0921	0	0	-0.0200	0	0
Sports	IV/1998	0.1647	0	0	0	0	0.0640	0	0	-0.0084	0	0
Sports	I/1999	0.1649	0	0	0	0	0.0264	0	0	0.0233	0	0
Sports	II/1999	-0.1554	0	0	1	0	-0.0292	0	0	0.0578	1	0
Strick & Schick	III/1994	0.0152	0	0	0	0	-0.1520	0	1	0.0987	1	0
Strick & Schick	IV/1994	0.0608	0	0	0	0	-0.1424	0	1	0.0592	0	0
Strick & Schick	I/1995	0.2611	1	0	0	0	-0.0964	0	1	0.1091	1	0
Strick & Schick	II/1995	0.3146	1	0	1	0	-0.1111	0	1	0.1209	1	0
Verena kreativ	II/1996	0.0471	0	0	0	0	-0.0793	0	0	0.0069	0	0
Verena kreativ	III/1996	0.0581	0	0	0	0	-0.0831	0	0	-0.0376	0	0
Verena kreativ	IV/1996	0.0609	0	0	0	0	-0.1130	0	1	-0.0061	0	0
Verena kreativ	I/1997	0.0545	0	0	1	0	-0.1121	0	1	-0.0118	0	0
Weltbild	II2000	0.1614	0	0	0	0	-0.0618	0	1	0.1947	1	0
Weltbild	III2000	0.3150	1	0	0	0	-0.0545	0	1	0.1632	1	0
Weltbild	IV2000	0.2328	1	0	0	0	-0.0845	0	1	0.1194	0	0
Weltbild	I2001	1.0076	1	0	1	0	-0.0365	0	0	0.5540	1	0
YoYo	I/1998	0.1138	0	0	0	0	0.0294	0	0	0.0613	0	0
YoYo	II/1998	0.2644	0	0	0	0	-0.0191	0	0	0.0978	0	0
YoYo	III/1998	0.2809	0	0	0	0	-0.0009	0	0	0.0884	0	0
YoYo	IV/1998	0.3936	1	0	1	0	-0.0428	0	1	0.0977	0	0
Sum:			27	3	19	0		2	43		22	8

Note: ???.

Table 7: Profits net fixed cost and number of copies sold of exiting magazines four quarters prior to their exit

		Profits net fixed cost		Sold copies	
	Quarter	Value	Change (in %)	Sold copies	Change (in %)
Bild + Funk	I/1996	10.1606	-4.1	608,058	-4.9
Bild + Funk	II/1996	8.8993	-15.4	592,982	-2.5
Bild + Funk	III/1996	9.4253	8.6	530,326	-10.6
Bild + Funk	IV/1996	7.9306	14.3	467,669	-11.8
Carina	I/1995	5.6952	-23.8	272,527	0.5
Carina	II/1995	6.4024	51.1	231,096	-15.2
Carina	III/1995	5.6614	-38.4	216,100	-6.5
Carina	IV/1995	3.6209	3.6	172,554	-20.2
Goldene Gesundheit	III/1996	6.1451	-25.7	78,083	4.9
Goldene Gesundheit	IV/1996	5.0732	12.6	74,737	-4.3
Goldene Gesundheit	I/1997	5.7686	2.7	71,391	-4.5
Goldene Gesundheit	II/1997	3.9865	-26.4	72,125	1.0
Hobby-Magazin der Technik	IV/1990	5.4898	-11.4	109,346	-2.2
Hobby-Magazin der Technik	I/1991	5.6497	-12.9	115,676	5.8
Hobby-Magazin der Technik	II/1991	5.3848	13.5	110,110	-4.8
Hobby-Magazin der Technik	III/1991	4.5316	-15.2	111,808	1.5
Ingrid	I/1994	4.7414	-42.4	74,082	29.8
Ingrid	II/1994	4.9730	78.2	52,569	-29.0
Ingrid	III/1994	4.9673	-26.5	52,170	-0.8
Ingrid	IV/1994	3.1348	32.6	49,217	-5.7
KFT Die Auto-Zeitschrift	IV/1998	6.4523	74.6	46,375	3.3
KFT Die Auto-Zeitschrift	I/1999	6.2643	-38.9	74,695	61.1
KFT Die Auto-Zeitschrift	II/1999	6.2610	-14.6	42,004	-43.8
KFT Die Auto-Zeitschrift	III/1999	5.6022	190.9	44,893	6.9
Kosmos	II/1998	4.7715	5.1	53,245	2.7
Kosmos	III/1998	5.0591	-3.8	52,003	-2.3
Kosmos	IV/1998	4.2343	30.7	46,515	-10.6
Kosmos	I/1999	3.8461	-34.4	51,823	11.4
Lui	I/1990	7.3394	69.7	175,155	-28.5
Lui	II/1990	7.1350	3.2	170,128	-2.9
Lui	III/1990	7.1654	-18.6	189,745	11.5
Lui	IV/1990	5.6279	51.5	183,282	-3.4
Neue Mode	I/1993	6.5639	-52.5	303,135	-13.7
Neue Mode	II/1993	7.0583	50.3	273,534	-9.8
Neue Mode	III/1993	6.8432	-16.9	255,362	-6.6
Neue Mode	IV/1993	4.6457	12.8	273,534	7.1
Pan	II/1991	6.7108	62.7	122,827	-15.1
Pan	III/1991	6.2740	-36.0	124,619	1.5
Pan	IV/1991	5.8898	72.1	127,669	2.4
Pan	I/1992	4.3862	-44.2	144,633	13.3
Pop Rocky	IV/1997	3.0906	20.9	314,028	3.5
Pop Rocky	I/1998	3.2618	-57.3	315,813	0.6
Pop Rocky	II/1998	3.3832	71.8	267,588	-15.3
Pop Rocky	III/1998	2.1180	-84.4	303,418	13.4
Prima Carina	I/1999	4.6686	-26.1	246,144	-14.9
Prima Carina	II/1999	4.3444	4.6	224,381	-8.8
Prima Carina	III/1999	4.8966	13.4	237,387	5.8
Prima Carina	IV/1999	2.8795	4.8	218,710	-7.9
Quick	IV/1991	14.4646	83.7	702,473	-2.2
Quick	I/1992	10.6951	-36.6	714,527	1.7
Quick	II/1992	12.4533	30.0	702,997	-1.6
Quick	III/1992	8.5049	-33.9	718,438	2.2

Note: ???.

Table 8: Profits net fixed cost and number of copies sold of exiting magazines four quarters prior to their exit

		Profits net fixed cost		Sold copies		
	Quarter	Value	(in %)	Change copies	Sold (in %)	Change
Rallye Racing	I2000	5.8893	-28.1134	69,452	-5.9413	
Rallye Racing	II2000	5.9628	49.2281	72,756	4.7572	
Rallye Racing	III2000	6.0793	-9.8851	69,452	-4.5412	
Rallye Racing	IV2000	4.0796	11.3520	72,756	4.7572	
Sports	III/1998	6.8469	-36.5003	152,695	6.5108	
Sports	IV/1998	5.7082	5.1564	151,267	-0.9352	
Sports	I/1999	5.3144	-35.8521	150,630	-0.4211	
Sports	II/1999	5.6472	57.0175	143,361	-4.8257	
Strick & Schick	III/1994	5.4222	-15.7480	58,476	15.6018	
Strick & Schick	IV/1994	4.1666	-38.7851	45,131	-22.8213	
Strick & Schick	I/1995	4.8862	14.5038	50,264	11.3736	
Strick & Schick	II/1995	3.2470	-17.3333	50,584	0.6366	
Verena kreativ	II/1996	6.1159	33.3333	246,674	8.5336	
Verena kreativ	III/1996	5.9860	-26.2397	231,592	-6.1141	
Verena kreativ	IV/1996	5.6739	77.0308	201,735	-12.8921	
Verena kreativ	I/1997	4.3140	-48.5760	227,279	12.6622	
Weltbild	II2000	5.5723	20.2675	162,901	6.3461	
Weltbild	III2000	5.9981	-2.3097	165,339	1.4966	
Weltbild	IV2000	4.6321	-35.2890	166,332	0.6006	
Weltbild	I2001	4.9237	1.0825	156,117	-6.1413	
YoYo	I/1998	4.8686	-49.3671	161,070	1.1473	
YoYo	II/1998	6.4626	142.3750	164,058	1.8551	
YoYo	III/1998	6.2468	-15.8329	162,052	-1.2227	
YoYo	IV/1998	3.9444	-3.1863	154,137	-4.8842	

Note: ???.

Table 9: t–tests for differences in mean cost and demand shocks

	Mean		Difference between exit and stay		
	Exit	Stay	< 0	$= 0$	> 0
Magazine demand shock	-0.0800	0.0002	0.9997	0.0006	0.0003
Advertising demand shock	0.0576	-0.0002	0.0513	0.1025	0.9487
Marginal cost shock	0.1936	-0.0005	0.0126	0.0252	0.9874
Fixed cost shock	-3.7372	-5.8594	0.0000	0.0000	1.0000

Note: ???.

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