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ALTERNATIVE INSURANCE ARRANGEMENTS
AND THE TREATMENT OF DEPRESSION:
WHAT ARE THE FACTS?

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ABSTRACT

Using insurance claims data from nine large self-insured employers offering 26 alternative health benefit plans, we examine empirically how the composition and utilization for the treatment of depression vary under alternative organizational forms of insurance (indemnity, preferred provider organization networks or PPOs, and mental health carve-outs), and variations in patient cost-sharing (copayments for psychotherapy and for prescription drugs).

Although total outpatient mental health/substance abuse (MHSA) expenditures per treated individual do not vary significantly across insurance forms, the depressed outpatient is more likely to receive anti-depressant drug (ADD) medications in PPOs and carve-outs than under indemnity insurance. Those individuals facing higher copayments for psychotherapy are more likely to receive ADD medications. For those receiving ADD treatment, increases in prescription drug copay tend to increase the share of ADD medication costs accounted for by the newest (and more costly) generation of drugs, the selective serotonin reuptake inhibitors.

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by

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I. Introduction

Among the objectives of managed care organizations are encouraging the use of cost-effective treatments and discouraging less cost-effective procedures. In the mental health context, managed care has been shown to reduce the use of hospitalization and long term therapy, and to employ short term psychotherapy more frequently. Anecdotal evidence has led some observers and writers to suspect that drug treatment is also substituting for psychotherapy (Wall Street Journal, 1995a,b), but that has not been established empirically. Such treatment substitutions are controversial, and reflect in part long-standing controversies in the mental health field concerning the relative effectiveness of psychotherapy and drug treatment. To some, psychoactive drugs may be over-prescribed. At the same time, researchers have also argued that for certain conditions such as depression, drug therapy may be underutilized (Katon et al. [1992]).

In this paper we report results from a study in which we make use of insurance claims data to investigate empirically the composition of utilization and spending for the treatment of depression under different approaches to organizing the management of mental health care. We focus on depression because it is the most prevalent and costly mental illness in the employed US population. We compare utilization and spending for treating depression in traditional indemnity plans, preferred provider organization arrangements, and specialty behavioral health care carve-outs; we also examine the effects of alternative patient-insurer cost-sharing arrangements.

Our principal findings are that patterns of care for depression differ among alternative insurance arrangements. Although total outpatient mental health/substance abuse expenditures per treated individual does not vary significantly across alternative insurance forms, the depressed outpatient is more likely to receive anti-depressant drug medications in PPOs and carve-outs than under indemnity insurance. Those individuals having higher copayments for non-drug treatments (e.g., psychotherapy) are more likely to receive anti-depressant drug medications. In addition, for those receiving anti-depressant drug treatment, there is evidence suggesting that prescription drug copay increases tend to increase the share of anti-depressant drug medication costs accounted for by the newest (and more costly) generation of drugs, the selective serotonin reuptake inhibitors (SSRIs).

The paper is organized into five sections. In the second section we present some background on the treatment of depression, and briefly summarize previous research that has addressed patterns of utilization and spending for mental health care. In the third section we describe the data and the statistical methods used in our empirical research. We report results of the statistical analysis in the fourth section of the paper. In the fifth and final section, we discuss implications of the research.

II. Background

Depression is the most prevalent of the mental disorders. The one year prevalence of depression in the Epidemiological Catchment Area Survey is 5.8% (Regier et al. [1993]). More recent analysis of the National Comorbidity Survey estimates the one year prevalence of major depression to be 7.7%. Furthermore, depression causes impairment and disability which are associated with lost productivity, suicide, and higher rates of other illness (Greenberg et al. [1993,1996]).

Within the last decade enormous advances have been made in the technology of treating depression, particularly in the area of psychopharmacology (see for example Elkin et al. [1989], Kupfer et al. [1992], and American Psychiatric Association [1993]). Nevertheless, a substantial segment of individuals with depression who are treated in the health care system does not share in the gains of advances in the technology of treatment. This occurs in part because some patients are treated using strategies that have not been shown to be effective (Sturm and Wells [1995], Katon et al [1992]).

There is modest agreement that depression is often "undertreated" due in part to the failure of some primary care physicians to recognize depression, and in part to the infrequent use of aggressive drug treatment in the more severely ill cases. Beyond these general statements, there are no clear criteria for what patterns of treatments "should" be observed in a population. Research has not contributed answers to questions such as: "What percent of a population 'should' be on anti-depressants?" "What percentage 'should' be hospitalized?" Thus, in this paper we are not in a position to judge which pattern of care is more or less appropriate. Our goal is simply to document facts concerning observed variations in treatment patterns across alternative insurance arrangements.

A rather sparse amount of systematic information on the patterns of treatment for depression across insurance arrangements has been reported in the literature to date. The most comprehensive analysis of such issues was that conducted within the Medical Outcomes Study (Rogers et al. [1993]). In that study the investigators found that at baseline, depressed patients of psychiatrists under prepaid plans were more likely to be treated with anti-depressant medication than were patients of psychiatrists paid under fee-for-service arrangements. Those differences disappeared after two years of follow-up. For patients treated by other mental health professionals and

general medical physicians, no significant differences in the use of anti-depressant medication were observed. Other data from the Medical Outcomes Study shows that depressed patients in prepaid plans tend to have shorter therapeutic relationships with providers than do otherwise similar fee-for-service patients (Sturm, Meredith and Wells [1994]); this result persists when the speciality and discipline of the provider is also taken into account.

The American Psychiatric Association and the Agency for Health Care Policy and Research have recently developed and published guidelines for the treatment of depression (American Psychiatric Association [1993] and Depression Guideline Panel [1993]). Both sets of guidelines accept a rather wide range of treatment strategies that may be appropriate for treating a specific case of depression. The recognized treatment approaches range from psycho-dynamic approaches to psychotherapy to the use of anti-depressant medication alone. The guidelines are agnostic about whether less severely ill patients (the large majority) should be first treated with drugs or with psychotherapy. In contrast, for the more severe forms of depression, the guidelines recommend drug treatments, possibly in combination with psychotherapy. Thus a wide range of practices may be consistent with standards of care endorsed by expert panels.

III. Data and Methods

Sample: The analysis presented below makes use of data on privately insured populations; these data have been collected and maintained by Mercer, an employee benefits consulting firm. The data are drawn from a population of about 450,000 employees and dependents of nine large self-insured firms having a total of 26 different health benefit plans. We have obtained demographic and claims data for calendar years 1992 and 1993 for enrollees who were insured through the policy holder's place of employment, as well as cost-sharing provisions of the benefit plans. All users of mental health and

substance abuse services (MH/SA) during 1992 and 1993 were identified and included in the database.

The following enrollees were excluded from the sample: (1) those who participated in group health plans (HMOs) -- since their claims data were outside the firms' self-insured data base; (2) those who had Medicare coverage; (3) those over the age of 65; and (4) those who entered the sample after the start of 1992, or left before the end of 1993. All patients with ICD-9 diagnoses of depression in 1993 (ICD Code 296) were selected for inclusion in the sample. (CHECK) This resulted in a sample of 3470 individuals treated for depression in 1993.

Construction of Dependent Variables: In this paper we focus on outpatient treatment for depressed patients who were not hospitalized. Insurance claims data for inpatients bundles drug charges and ancillary charges with other hospital services, and thus does not permit identification of the specific components of inpatient care. For this reason we limit our analysis here to the impact of insurance and demographic factors on the likelihood of being hospitalized, but do not attempt further decomposition of inpatient utilization.

There are five key dependent variables in the analysis reported below: (i) whether an individual with depression was hospitalized (INPAT) or was only an outpatient; (ii) for outpatients, whether an individual with depression received and filled a prescription for anti-depressant medication (ADRX); (iii) the level of total outpatient MH/SA spending; (iv) the percentage of MH/SA outpatient spending accounted for by anti-depressant drugs (ADD); and (v) the percentage of outpatient ADD spending accounted for by selective serotonin reuptake inhibitors (SSRIs).

The measure of 1993 MH/SA expenditures was constructed using the following components of care: outpatient hospital, drug claims, and office-based clinician claims. For each component, expenditures are computed as the

sum of patient copay plus insurer payment. Thus expenditures are transactions costs rather than charges ("list prices"). A multi-stage algorithm was used to define MH/SA expenditures (the description is available from the authors). This data construction procedure was used to calculate total expenditures, outpatient spending, spending on ADD, on SSRIs, and on proportions involving ADD, SSRI and MH/SA expenditures.

Explanatory Variables: The focus of our research is on the organizational aspects of insurance, cost sharing, and the treatment of depression. We characterize the 26 insurance arrangements via two sets of variables. The first set defines the organizational dimension of insurance. Three major insurance arrangements are distinguished: indemnity coverage (INDEM), preferred provider organizations (PPO) and behavioral health care carve-outs (CARVE). Next we characterize cost sharing alternatives by constructing three variables: (a) whether there are special limits that apply to within-network MH/SA coverage over and above those limits involving non-MH/SA coverage (e.g., six 50-minute psychotherapy treatments). If there are no such limits, NOLIM = 1, else NOLIM = 0; (b) the patient co-payment percentage for non-drug MH/SA services, such as psychotherapy (MHCOP); and (c) the patient co-payment amount for each drug prescription, typically a flat dollar amount (RXCOP).

In our multi-variate models of utilization and expenditure patterns, we include several other covariates. We describe patients by their age and the square of age (AGEDEV and AGEDEV2, each in deviations from its mean), sex (MALE), whether they had a diagnosis of depression in 1992, the previous year (DEPDX92), and whether they have any co-occurring substance abuse diagnoses in 1993 (SUBAB). A variable measuring the average service sector salary in each state (WAGE) is included to account for cost of care differences in the states. Finally, to control for industry and employer-specific effects, we

create dummy variables for six of the nine firms (FIRM_i). Because three additional firms offered a single benefit plan including a carve-out, to avoid singularity the reference or base-case employer is defined as consisting of these three firms; thus the coefficient on the CARVE variable defined in the previous paragraph refers to individuals employed by firms for which there is a choice among alternative plans (including carve-outs), and that on the FIRM_i variables is relative to the three firms having no carve-out alternative.

In Table 1 we present descriptive statistics for all variables used in the analysis, separately for those in indemnity (n=2332, 67.2%), preferred provider networks (n=986, 28.4%), and those in carve-out insurance arrangements (n=152, 4.4%). Note that these sample means are unconditional. PPOs have the largest percentage of inpatient claims, while carveouts are most likely to have limits on mental health coverage and also have the highest prescription drug copay.

Approach to Analysis: The analysis of utilization and expenditure patterns presented below focuses primarily on outpatient care for depression. Thus our analysis makes use of a sub-sample comprised of 2617 of the 3470 individuals with diagnosed depression in 1993 who were not hospitalized. The analysis consists of some simple descriptions of utilization and expenditures and a series of regression equations on each of the several dimensions of utilization and expenditure. The regression models are estimated so as to control for factors that may confound the impacts of organizational structure and cost sharing on MH/SA spending and utilization. We recognize, however, that the variables for which we can control are limited in number and scope, and therefore that, for example, an individual's choice of type of insurance plan may be correlated with unobserved factors affecting patterns of care, i.e. selectivity issues may still remain.

Multi-Variate Analysis: The first equation is a logistic regression examining factors affecting whether a depressed individual is hospitalized in 1993. The second equation examines the impact of the organization of insurance and other variables on the level of spending for MH/SA treatment for depression, conditional on the depressed individual being only an outpatient in 1993. The third equation is a logistic regression model of the likelihood that an individual who receives only outpatient treatment for depression will be prescribed an anti-depressant medication. The fourth equation consists of a model which estimates the impacts of insurance organizational form and cost-sharing arrangements, inter alia, on the percent of outpatient spending for MH/SA that is accounted for by anti-depressant medications, conditional on the outpatient receiving an anti-depressant medication. A fifth equation estimates the impact of the same explanatory variables on the percent of outpatient spending for anti-depressant medications accounted for by selective serotonin reuptake inhibitor (SSRI) drugs, conditional on the outpatient receiving an anti-depressant medication. A square root transformation is employed in the second, fourth and fifth equations to account for the skewed distribution of the dependent variable (the square root transformation was preferred to the logarithmic transform because of the impact of heteroskedasticity). White's robust standard errors are used in making statistical inference on the estimated parameters.

IV. Results

Table 2 presents descriptive information on spending patterns stratified by type of insurance, conditional on the amounts being greater than zero (by contrast, entries in Table 1 are unconditional). Specialty mental health carve-out programs have lower levels of spending on inpatient MH/SA care (\$1332 per treated case of depression) for individuals with depression than do either the PPO (\$2478) or indemnity insurance (\$2407). In terms of outpatient

MH/SA expenditures, indemnity programs spend more than either the carve-out or PPO plans. All three modes of insurance structure spend comparable amounts on anti-depressant medication (around \$160 per depressed enrollee receiving anti-depressant medications), and on the SSRI class of anti-depressant drugs (about \$115, or 72% of total anti-depressant drug medication charges). The standard deviations indicate a great deal of variation around the estimated means for all categories of spending under all insurance structures.

In Table 3 we present two sets of logistic regression results. Initially we focus on the first column, in which we report the estimated relative odds of being hospitalized for selected dichotomous variables included in the model, and elasticities for certain continuous variables (evaluated at sample means). The estimates on hospitalization indicate that treated cases of depression are considerably more likely to be hospitalized under carve-out arrangements, and are less likely to be hospitalized under PPOs, than are otherwise similar individuals enrolled in an indemnity insurance plan. The magnitudes of the estimates indicate that depressed carve-out enrollees who obtain treatment are more than three times as likely to be hospitalized for MH/SA care, and PPO plan members are about 40% less likely to be hospitalized, than are depressed enrollees in indemnity insurance plans. In interpreting this finding, recall that the intercept term includes the impact of three firms for whom the only benefit plan provided a carve-out, and that the CARVE coefficient captures the cost impact of carve-out plans at firms providing a choice of plan; the estimated intercept term is insignificantly different from zero.

The results in the first column of Table 3 also indicate that individuals with comorbid substance abuse are 13 times more likely to be hospitalized than are similar depressed individuals without such dual diagnoses. This result is striking and while it accords with anecdotal

evidence and other research (see Garnick et al. [1996]), it may in part be due to the tendency for inpatient settings to report comorbid conditions more reliably. Nevertheless, we will note below that comorbid substance abuse also has strong impacts on outpatient spending for individuals never hospitalized.

Furthermore, having been treated for depression in the previous year is associated with a significantly lower probability of hospitalization relative to individuals not treated in the prior year. This may reflect the fact that individuals in treatment over a prolonged period have been stabilized and are less likely to relapse and require hospitalization than are those with depression who had not been under care in the previous year.

Finally, the relative odds of being hospitalized are not statistically significantly affected by the absence of overall MH/SA limits, or by the extent of MH/SA or Rx copay.

We now turn to results from our analysis examining total MH/SA charges, given that the individual is not hospitalized, i.e., is an outpatient. As seen in the first column of Table 4, the (square root of the) cost of treating depression on an outpatient basis is unaffected by type of insurance arrangements (standard errors on PPO and CARVE are much larger than coefficient estimates). However, individuals with comorbid substance abuse are significantly more costly to treat than are depressed cases without such co-occurring disorders (107% more costly, other things equal), as are those who had a depression diagnosis in the previous year (39% more costly). Coefficient estimates on NOLIM, MHCOP and RXCOP are each insignificantly different from zero, indicating that these forms of cost sharing have no impact on overall MH/SA outpatient spending.

While organizational form of insurance and cost share arrangements have no statistically significant effect on total MH/SA outpatient spending, they do appear to be related to the composition of treatment. In the second column

of Table 3 we present estimates for a logistic equation in which the dependent variable is whether the outpatient received an anti-depressant medication. As seen there, the estimated odd ratios show that enrollees treated for depression as outpatients in both PPO and carve-out forms of insurance are more likely to receive treatment with anti-depressant medication under their health plan than are similar people enrolled in indemnity plans, although the carve-out p-value is only 0.145. The magnitude of the PPO coefficient suggests that PPO enrollees are 3.2 times more likely to be treated with anti-depressants than are similar indemnity enrollees. A history of depression also increases the likelihood of receiving anti-depressant medication.

A striking finding in Table 3 is that as the non-drug MH/SA copay percentage increases, the likelihood of the individual receiving ADD medications increases significantly; this suggests some substitutability in treatment between psychotherapy and drug therapy. Interestingly, the coefficient estimate on RXCOP is insignificantly different from zero, while that on NOLIM is positive and barely significant.

Given that the probability of ADD treatment is affected by organizational form of insurance and cost-sharing, we now examine whether the composition of spending is similarly affected, conditional on the individual receiving ADD treatment. In the middle column of Table 4 we report regression results in which the (square root of the) percent of total MH/SA spending accounted for by ADD treatment is the dependent variable. The results indicate that conditional on receiving anti-depressant medication, PPO and carve-out enrollees do not devote significantly different shares of treatment dollars to medication compared with indemnity enrollees; the ADM share is also unaffected significantly by overall limits, or copays on non-drug and drug MH/SA treatments. Thus differences in the use of anti-depressant medication across insurance plans appear to be primarily the result of a differential

probability of receiving any such treatment, rather than on the share of spending on medication conditional on receiving ADD treatment. The only factors significantly affecting this ADD share of MH/SA spending are DEPDX92 (positive) and SUBAB (negative). These latter results may reflect the impacts of ongoing anti-depressant drug treatment for those depressed in 1992, and increased use of non-drug treatment for those dealing with comorbid substance abuse.

In the final column of Table 4 we examine composition of treatment on an even more detailed basis. Specifically, given that the patient is receiving anti-depressant drug treatment, we assess what factors affect the (square root of the) percent of ADD treatment charges accounted for by the newest generation of ADDs, namely, the SSRIs. As is seen there, while organizational differences across insurance plans do not affect the SSRI cost share, ceteris paribus, patients diagnosed for depression in the previous year have a lower SSRI percentage, reflecting perhaps the ongoing successful treatment by older tricyclic anti-depressant drugs and a hesitation to change drugs when treatment is efficacious. By symmetry, this negative coefficient estimate implies that newly diagnosed depressed patients in 1993 tend to have larger SSRI cost shares. The positive and significant estimate on MHCOP implies that as overall MH/SA copays increase, patients increasingly are prescribed SSRIs, consistent with substitutability between psychotherapy and SSRI drug treatment. Finally, in interpreting the positive and significant coefficient estimate on RXCOP, note that the copay amount may well be the same for tricyclic and SSRI drug treatments, and if SSRIs are less responsive to cost-sharing than are the older generations of anti-depressant drugs, increases in the RXCOP will result in a slightly larger SSRI cost share.

V. Discussion

The rapid growth of managed care arrangements has sparked concern regarding quality and access to MH/SA care. Anecdotal evidence suggests that mental health professionals principally supplying psychotherapy have seen demand for their services fall precipitously in the last few years. Expert guidelines would seem to accommodate a substitution of medication treatment for speciality care. To what extent is this substitution of treatments taking place? Using 1993 insurance claims data, in this paper we have estimated the impact of insurance structure on patterns of care.

These results indicate that spending and the composition of spending are generally not very responsive to cost-sharing arrangements for either drug or other mental health care treatments. This should not be interpreted as being inconsistent with previous research on the demand for mental health services (Newhouse et al. [1993]), since our results may suggest a proportional response of the demand for services with respect to differences in cost-sharing.

Our results show that total spending for outpatient treatment of depression is unaffected by the organizational structure of insurance. The data also show that 37% of all individuals treated for depression in outpatient settings receive anti-depressant medication. The results from our logistic regression model indicate that individuals treated for depression in PPOs and behavioral health carve-out programs are significantly more likely to receive anti-depressant medication than are indemnity enrollees.

However, conditional on receiving ADD treatment, the portion of all MH/SA treatment dollars going for ADD treatments, as well as the portion of ADD treatments accounted for by SSRI drugs, is not statistically different across insurance types.

In the plans we examined based on 1993 data, there does not appear to be the extreme patterns of substitution under managed care that some have suggested. Furthermore, the data available for this work does not permit us to make judgments concerning whether use of anti-depressant drug medication is too high under managed care or too low under indemnity plans.

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TABLE 1

DESCRIPTIVE STATISTICS OF SAMPLE OF DEPRESSED PATIENTS

VARIABLE NAME	VARIABLE DESCRIPTION	MEAN			STANDARD DEVIATION		
		INDEM	PPO	CARVE	INDEM	PPO	CARVE
INPAT	Has any MHSA inpatient claims	0.23	0.29	0.21	0.42	0.46	0.41
MHSA	Total \$ MHSA covered claims	9152	6946	8530	15165	9978	13852
DRUG	Total \$ Rx drug covered claims	438	561	664	1056	949	972
ADRX	Any anti-depressant drug Rx	0.31	0.47	0.49	0.46	0.50	0.41
ADD	\$ Anti-depressant drug claims	166	185	195	365	333	292
SSRI	\$ SSRI drug claims	123	133	136	320	286	242
AD/MHSA	ADD divided by MHSA	0.08	0.14	0.15	0.18	0.24	0.23
SSRI/AD	SSRI divided by ADD	0.20	0.29	0.34	0.39	0.44	0.45
WAGE	Index of state wage rates	1.05	0.92	0.94	0.13	0.09	0.08
AGE	Age as of 12/31/93	40.16	36.92	39.15	11.78	13.42	12.49
MALE	Person is male	0.35	0.37	0.35	0.48	0.48	0.48
DEPDX92	Had 1992 depression diagnosis	0.50	0.40	0.38	0.50	0.49	0.49
SUBAB	Has substance abuse diagnosis	0.09	0.10	0.07	0.29	0.30	0.26
NOLIM	No limit in network MHSA plan	0.79	0.48	0.15	0.41	0.50	0.36
RXCOP	\$ Copay per drug Rx	5.96	4.82	13.27	1.83	3.01	4.01
MHCOP	Copay % in-network outpatient	0.25	0.18	0.20	0.12	0.11	0.00
non-drug MHSA benefits							
FIRM1	Employed by Firm 1	0.11	0.00	0.00	0.31	0.00	0.00
FIRM3	Employed by Firm 3	0.03	0.00	0.00	0.16	0.00	0.00
FIRM6	Employed by Firm 6	0.01	0.49	0.00	0.00	0.50	0.00
FIRM12	Employed by Firm 12	0.10	0.16	0.00	0.30	0.37	0.00
FIRM17	Employed by Firm 17	0.01	0.10	0.00	0.11	0.30	0.00
FIRM19	Employed by Firm 19	0.08	0.25	0.00	0.26	0.43	0.00

Note: Total n = 3470, INDEM n = 2332, PPO n = 986, and CARVE n = 152.

TABLE 2

1993 CONDITIONAL SPENDING PER DEPRESSED ENROLLEE
BY INSURANCE FORM

TOTAL DOLLAR SPENDING	N	MEANS			STANDARD DEVIATIONS		
		<u>INDEM</u>	<u>PPO</u>	<u>CARVE</u>	<u>INDEM</u>	<u>PPO</u>	<u>CARVE</u>
Inpatient	853	2407	2478	1332	7065	6075	3674
Outpatient	2617	1588	589	657	3713	1040	1030
Anti-depressant Drugs	977	157	160	161	352	297	250
SSRI Drugs	977	118	115	112	311	256	204
N	3470	2332	986	152	2332	986	152

TABLE 3

SELECTED RESULTS FROM LOGISTIC REGRESSIONS
 EXPRESSED AS ODDS RATIOS OR ELASTICITIES AT MEANS
 (χ^2 p-Values of Parameter Estimates in Parentheses)

Explanatory Variable	OUTCOME VARIABLE*	
	Hospitalized	Received ADD Medication
PPO	0.578 (0.0120)	3.163 (0.0001)
CARVE	3.692 (0.0018)	2.245 (0.1450)
SUBAB	13.079 (0.0001)	1.047 (0.8538)
DEPDX92	0.547 (0.0001)	1.738 (0.0001)
NOLIM	2.963 (0.1625)	10.709 (0.0434)
MHCOP	-0.085 (0.7420)	0.852 (0.0158)
RXCOP	-0.269 (0.4553)	0.798 (0.0685)
Model χ^2	655.789 (0.0001)	405.207 (0.0001)

*Other covariates include WAGE, DEVAGE, DEVAGE2, MALE and FIRM effects.

TABLE 4

CONDITIONAL REGRESSION MODELS
 SQUARE ROOT TRANSFORMATION OF DEPENDENT VARIABLE
 (White's Robust Standard Error in Parentheses)

Explanatory Variable	DEPENDENT VARIABLE		
	Outpatient Charges	Percent ADM/MHSA	Percent SSRI/ADM
PPO	-0.837 (3.032)	0.022 (0.046)	-0.106 (0.085)
CARVE	4.792 (14.631)	0.109 (0.097)	-0.035 (0.172)
SUBAB	15.722** (3.443)	-0.123** (0.029)	-0.051 (0.083)
DEPDX92	3.269* (1.445)	0.084** (0.014)	-0.118** (0.028)
NOLIM	-0.831 (10.065)	-0.056 (0.083)	0.613** (0.067)
MHCOP	-19.553 (19.972)	0.003 (0.196)	1.136** (0.202)
RXCOP	-0.523 (1.612)	-0.010 (0.012)	0.069** (0.018)
N	2617	977	977
R ²	0.0849	0.1492	0.0454
Effron Pseudo R ²	0.0794	0.1578	0.0899
F	14.176**	9.892**	2.683**

Notes: *Significant at 0.05 level **Significant at 0.01 level
 Other covariates include WAGE, DEVAGE, DEVAGE2, MALE and FIRM effects.