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ABSTRACT

Research has found a strong relationship between aggregate economic indicators and the number of individuals receiving services from mental health facilities. To examine the relationship between macroeconomics and health, the broad utilization patterns and demographic information on the aggregate number of individuals using the mental health center services of 13 community centers in Philadelphia, between July 1973 and May 1982, were analyzed. The six service modalities analyzed were inpatient, outpatient, partial hospitalization, emergency social rehabilitation, and vocational rehabilitation. Economic indicators were the monthly, seasonally adjusted unemployment rate, and the month-to-month, seasonally adjusted percent change of the Consumer Price Index, which was used as an index of inflation. An analysis of the results showed that the unemployment rate was significantly and directly related to use of several services, while the inflation rate was a poor predictor of service use. The services reacted to economic change in the following sequence: emergency, inpatient, partial hospitalization, social rehabilitation, and outpatient. Increased service utilization preceded increases in unemployment, suggesting that anticipation of job loss can be as stressful as the actual layoff. The findings suggest that mental health planners need to address the impact of economic change in the allocation of services and in prevention at both the individual and social policy levels. (BL)

ECONOMIC CHANGE AND DIFFERENTIAL SERVICE MODALITY UTILIZATION IN URBAN COMMUNITY MENTAL HEALTH CENTERS

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Economic change and differential service modality utilization in urban community mental health centers.

Problem or Major Purpose:

This paper explores the relationship between macroeconomic change and rates of mental health service utilization in a major urban setting. Prior research in this area has found an overarching relationship between aggregate economic indicators and the number of individuals receiving services from mental health facilities (Barling & Handal, 1980; Brenner, 1973; Catalano & Dooley, 1977; Dooley & Catalano, 1980; Frank, 1981). The complexity of interactions, and occasional inconsistent or counterintuitive findings, however, have impeded the emergence of policy recommendations from this literature. For example, consensus on whether rural and urban communities react in similar ways to economic change does not yet exist. Most prior research has used national (Brenner, 1973) state (Frank, 1981), or multi-county (Barling & Handal, 1980) economic or geographic boundaries. One study which contrasted an urban and rural community found different responses to economic change (Catalano, Dooley & Jackson, 1981). Therefore, additional analysis by specific community settings appears to be warranted.

Adequate planning for ameliorating the impact of macroeconomics on mental health is further complicated by the type of services which are utilized. Prior studies have examined two service modalities; inpatient and outpatient. Different utilization patterns have emerged between these two variables (e.g. Barling & Handal, 1980). Community mental health centers are required to have a broader range of services than inpatient and outpatient in order to qualify for their funding. Additional research on this full range of services is therefore needed.

On a more macro-planning level, the relative impact of different economic indicators merits further study. In particular, the relative predictive abilities of inflation versus unemployment is of interest. Finally, the role of economic upturns versus downturns in the development of subsequent pathology is unclear (e.g. Brenner, 1973; Eyer, 1977).

The present study is designed to contribute to refining and replicating the relationship between macroeconomics and health. The data based used had several characteristics which allowed for a contribution to model refinement. It covered a nine year period which was a longer time span than prior studies of a specific geographic setting. The data also allowed for examination of a major urban community; the City of Philadelphia. Finally, the data based allowed for analysis of all major services offered by community mental health centers.

Subjects:

Subjects were the aggregate number of individuals receiving services from community mental health centers in Philadelphia from July of 1973 to May of 1982. A limitation of the data base was that it could not be disaggregated by demographic subgroups. However, the purpose of this study was to examine broad utilization patterns and extensive demographic information was not considered central to the analysis. All 13 community mental health centers in Philadelphia were included in the analysis.

Procedure:

Mental health indicators consisted of monthly aggregate service contacts for all community mental health centers in the City of Philadelphia. Data was available from July of 1973 to May of 1982. Six service modalities were analyzed: inpatient, outpatient, partial hospitalization, emergency social

rehabilitation and vocational rehabilitation.

Economic indicators were the monthly, seasonally adjusted unemployment rate and the month-to-month, seasonally adjusted percent change of the Consumer Price Index which was used as an index of inflation. Both the unemployment rate and the inflation index were for the Philadelphia Standard Metropolitan Statistical Area. All mental health service data was deseasonalized by service modality using the U.S. Department of Commerce X-11 procedure. Time series analysis was then performed on each service modality using a standard autoregression procedure. This technique incorporates a control for autocorrelation. Regressions were run for all variables utilizing a lead of 11 months and a lag of 15 months. It was felt that a long lead-lag time frame would allow for a more comprehensive analysis of utilization patterns. Regressions were run separately for unemployment and inflation as independent variables. In both cases the dependent variables were the six service modalities. Finally, step-wise regressions were run for each dependent variable. Unemployment and inflation were allowed free entry during this procedure to determine which accounted for the most variance.

Results:

The unemployment rate was significantly and directly related to several services while the inflation rate was a poor predictor of service use. Only 8 of the regressions for inflation were significant of which 12 were in the wrong direction. Regressions for unemployment are summarized in Table 1.

A differential pattern did emerge between service modalities. In general terms, the services seem to react to economic change in the following sequence: emergency, inpatient, partial hospitalization, social rehabilitation and outpatient. The results from the step-wise regressions

also indicated that unemployment was more powerful as a predictor than inflation.

Implications and Conclusions:

The overarching relationship between macroeconomic change and the incidence of mental health utilization was replicated. Unemployment was a more powerful predictor of service utilization patterns than inflation. This is of significance to social policy in terms of contributing to a behavioral cost accounting of the relative impacts of inflation versus unemployment. The finding that increased service utilization led increases in unemployment merits some explanation. Prior studies have found these significant leads difficult to interpret (e.g. Frank, 1981). This very early response to economic downturns can be accounted for by several factors. The first is that economic instability and anticipation of layoffs occur prior to the actual increase in unemployment statistics. Kasl and Cobb (1970) have demonstrated that anticipation of job loss can be as stressful as the actual layoff. Secondly, it must be noted that the economy of Philadelphia has been declining for some time. Leim and Raymond (1982) have concluded that a surrounding depressed economy exacerbates the impact of job loss. A rationale can therefore be developed for leads up to approximately six months. It is more difficult to account for the extremely early leads of emergency visits. This may be a reaction to instability in the economy per se, spurious correlations with the prior economic cycle or it might support Eyer's contention (1977) that economic upturns contribute to subsequent pathology.

In summary, mental health planners would appear to need to more seriously address the impact of economic change in allocation of services and in

prevention both at the individual and social policy level.

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	LEAD											
TIME	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	SYN
INPATIENT	T=1.24 R^2=.06	T=0.56 R^2=.05	T=0.29 R^2=.05	T=0.63 R^2=.06	T=2.66 R^2=.13	T=1.73 R^2=.13	T=2.21 R^2=.14	T=0.99 R^2=.10	T=2.76 R^2=.14	T=1.58 R^2=.13	T=2.57 R^2=.16	T=1.21 R^2=.13
OUTPATIENT	T=-2.17 R^2=.09	T=-0.65 R^2=.05	T=-0.16 R^2=.04	T=-1.09 R^2=.05	T=-0.31 R^2=.03	T=0.24 R^2=.03	T=-0.23 R^2=.02	T=0.47 R^2=.03	T=1.19 R^2=.04	T=-1.57 R^2=.04	T=1.80 R^2=.04	T=-0.34 R^2=.01
PH	T=1.52 R^2=.69	T=1.53 R^2=.71	T=1.03 R^2=.73	T=1.28 R^2=.73	T=1.55 R^2=.75	T=2.23 R^2=.76	T=1.78 R^2=.76	T=1.48 R^2=.76	T=2.66 R^2=.76	T=1.31 R^2=.76	T=1.81 R^2=.75	T=2.04 R^2=.75
EMERGENCY	T=2.63 R^2=.36	T=4.18 R^2=.42	T=3.91 R^2=.43	T=3.94 R^2=.45	T=5.48 R^2=.50	T=5.29 R^2=.53	T=5.56 R^2=.53	T=5.26 R^2=.51	T=4.15 R^2=.45	T=3.73 R^2=.42	T=3.77 R^2=.41	T=3.75 R^2=.40
SOCIAL REHAB	T=0.35 R^2=.02	T=1.43 R^2=.04	T=0.98 R^2=.02	T=1.34 R^2=.03	T=1.07 R^2=.02	T=3.71 R^2=.13	T=0.22 R^2=.004	T=1.83 R^2=.03	T=0.24 R^2=.001	T=0.40 R^2=.002	T=2.04 R^2=.04	T=0.12 R^2=.0002
VOCATIONAL REHAB	T=1.43 R^2=.02	T=2.06 R^2=.04	T=2.16 R^2=.05	T=1.11 R^2=.02	T=1.09 R^2=.02	T=-0.08 R^2=.001	T=0.23 R^2=.01	T=-0.62 R^2=.02	T=-1.18 R^2=.03	T=-1.58 R^2=.05	T=-0.48 R^2=.03	T=-1.32 R^2=.05

*p < .05
**p < .01

	LAG													
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
T=1.85	T=2.65	T=1.54	T=2.10	T=1.88	T=0.21	T=2.68	T=1.31	T=1.17	T=1.32	T=0.62	T=1.15	T=0.48	T=1.19	T=1.17
R^2=.14	R^2=.1	R^2=.14	R^2=.15	R^2=.14	R^2=.12	R^2=.16	R^2=.12	R^2=.11	R^2=.11	R^2=.10	R^2=.10	R^2=.10	R^2=.10	R^2=.10
T=-0.45	T=1.58	T=-0.19	T=-0.02	T=0.84	T=1.03	T=0.62	T=2.04	T=1.31	T=1.72	T=203	T=1.76	T=2.05	T=2.20	T=2.86
R^2=.02	R^2=.04	R^2=.01	R^2=.01	R^2=.02	R^2=.02	R^2=.02	R^2=.05	R^2=.03	R^2=.04	R^2=.05	R^2=.05	R^2=.06	R^2=.06	R^2=.09
T=1.39	T=1.07	T=2.00	T=1.01	T=1.78	T=2.56	T=1.61	T=2.72	T=2.18	T=2.32	T=2.22	T=1.05	T=1.90	T=2.62	T=2.11
R^2=.74	R^2=.74	R^2=.74	R^2=.75	R^2=.76	R^2=.76	R^2=.77	R^2=.77	R^2=.77	R^2=.77	R^2=.76	R^2=.76	R^2=.76	R^2=.76	R^2=.76
T=3.21	T=3.54	T=2.80	T=2.00	T=2.01	T=1.60	T=0.93	T=1.20	T=1.40	T=0.85	T=0.10	T=1.12	T=-.72	T=0.36	T=0.83
R^2=.38	R^2=.37	R^2=.34	R^2=.29	R^2=.28	R^2=.26	R^2=.23	R^2=.24	R^2=.23	R^2=.22	R^2=.21	R^2=.22	R^2=.21	R^2=.20	R^2=.21
T=0.43	T=0.97	T=1.09	T=0.57	T=2.18	T=0.63	T=1.83	T=1.50	T=2.60	T=2.70	T=2.70	T=3.71	T=2.40	T=1.60	T=2.08
R^2=.002	R^2=.001	R^2=.01	R^2=.003	R^2=.04	R^2=.004	R^2=.03	R^2=.02	R^2=.06	R^2=.07	R^2=.07	R^2=.12	R^2=.05	R^2=.02	R^2=.04
T=-2.38	T=-1.32	T=-1.83	T=-1.20	T=-1.17	T=-0.82	T=-0.84	T=-1.59	T=0.10	T=-0.66	T=-0.88	T=-0.22	T=-0.99	T=-0.40	T=-0.14
R^2=.08	R^2=.05	R^2=.06	R^2=.04	R^2=.04	R^2=.03	R^2=.03	R^2=.05	R^2=.03	R^2=.03	R^2=.03	R^2=.03	R^2=.03	R^2=.03	R^2=.03