ABSTRACT

Title: USING A MULTIREGIONAL FORECASTING AND SIMULATION MODEL TO GAUGE THE EFFECTS OF THE MILITARY BUILDUP ON STATE ECONOMIES, 1981-1985.

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The paper describes the construction of a multiregional version of the TFS regional forecasting and policy simulation model. An example of the application of the expanded model is provided by a multiregional simulation of the effects of the 1981-1985 defense buildup on the 50 states (plus D.C.) in comparison with a more "normal" distribution of equivalent expenditures across states in a normal pattern of consumption, investment, and government spending. The model captures the total effects of intrastate and interstate purchases due to both military and civilian expenditures and thereby provides a measure of the total differential effects among states of alternative patterns of expenditures.

USING A MULTI-REGIONAL FORECASTING AND SIMULATION MODEL TO ESTIMATE THE EFFECTS OF THE MILITARY BUILDUP FROM 1981-1985 ON STATE ECONOMIES*

by

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* The simulations reported here were undertaken for Employment Research Associates, Marion Anderson, Director. A report of the findings is published in "The Empty Pork Barrel: Employment Cost of the Military Buildup, 1981-1985" by Marion Anderson, Michael Frisch and Michael Oden, Employment Research Associates, 115 West Allegan, Suite 810, Lansing, Michigan 48933.

The primary purpose of this paper is to present the essentials of a multi-area forecasting and simulation model, which is based on the TFS regional modeling methodology,[1] and to demonstrate the value of this model through the analysis of the U.S. military buildup from 1981-1985. The annual rate of increased expenditures over and above inflation was $21, $41, $54 and $74 billion dollars in 1982, 1983, 1984 and 1985 respectively. The expenditures had substantial effects on the relative economic performance of state economies.

First the model is described. Next, the estimates of the effects of military buildup on all states are described and presented for one state. Finally, the difference between these effects and the effects of an equivalent amount of normal civilian expenditures are presented for one state and for all major regions. The estimates of the direct military spending were provided by Employment Research Associates; the model is the work of Regional Economic Models, Inc. (REMI).

Regional Analysis of Defense Expenditures

In regional analysis, especially, there is a long tradition of studies of defense expenditures among states. As early as 1962, Isard and Ganschow (1962) investigated the extent of this inequality, at least in the awards of prime military contracts. Bolton (1966) applied more rigorous analysis in an attempt to capture the effects of subcontracting and to determine regional multiplier effects, but he did not have the advantage of the multiregional models that are now available.

Most more recent studies, too numerous to completely review here, have come to the

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1. See Treyz and Stevens (1985) for a description and references to the other literature about this modeling approach.

same general conclusions as the earlier research: defense expenditures in the U.S. have significant and unequivocal differential effects on the health and growth of state economies. Most recently, Kort, Beemiller, and Harmon (1986) use BEA's Regional Impact Modeling System (RIMS II) and the NIRES Model to measure the state impacts of two specific weapons systems. To the extent that their combined models really capture effects of subcontracting and interregional purchases of goods and services, their results merely reinforce most previous conclusions.

The attempt in the present paper is not to reiterate the unarguable, but rather to provide a more definitive and convincing comparison between the defense buildup and a more normal regional distribution of an equivalent amount of spending. Rather than viewing defense expenditures as an exogenous and fortuitous disburbance to otherwise quiescent state economies, the multi-regional model is also used to generate an alternative "neutral" forecast in which consumption, investment, and government in each state grow by an amount equal to the cost of the defense buildup. This amount is distributed among states in accordance with their "normal" shares of the national economy in the absence of the exogenous defense disturbance. Such a neutral alternative forecast permits a much less ambiguous basis for the evaluation of the differential effects of defense expenditures.

A neutral alternative forecast is less controversial than an alternative forecast in which nondefense federal programs are distributed by some formula method among states. In this case, the results depend on the programs and their allocation formulas. Theoretically they can be designed to have neutral interstate effects, but in practice their actual neutrality will quite reasonably be subject to question.

The REMI Multi-area Forecasting and Simulation Model

In order to stimulate the total effects of military buildup on all states, a multi-area model was required. We constructed this model to incorporate four major types of linkages: (1) demand and supply, (2) wage determination, (3) costs, and (4) migration. We will discuss each linkage in turn.

In Figure 1 the demand and supply linkages are shown for a single state. While in practice it is necessary to find the simultaneous solution of the models of all states it will simplify the exposition if we consider a single state first.

------ Figure 1 follows here ------

For each of the 53 industries in the state in question, changes in demand come from three different sources. The first is the direct disturbance (1). This is the direct effect on the state[2] (e.g. direct military contracts and salaries for military and military-related personnel , or direct increases in spending in civilian sectors, etc.).

The second source of changes in outside demand on a state comes from changes in demand from the sum of all the other states (2) within its major region.[3] The third source of changes in demand is the change in demand from all of the major regions (3) besides the region in which the state is located.

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2. In the case of pay changes for military and military military related personnel, they would be entered directly into state income (7).

3. The major regiona are New England, Mideast, Southeast, Great Lakes, Plains, Southwest, Rocky Mountains, Far West, Alaska and Hawaii.

Assuming that these changes in demand are known, the initial effect will be a change in demand for state output (4) in a particular industry. This increase in output will in turn increase demand for intermediate inputs to that industry (5) which will in turn increase state total demand (6). This increase in demand is then multiplied by the regional purchase coefficient (the RPC is the proportion of local use supplied locally[4]) to determine the increase in local demand that will be supplied locally (9). This, then leads to a further increase in state output (4). The other causal chain effect leads from increases in state output (4) to increases in state income (7) then to changes in state final demand (8) and finally back through the loop to state output (9 and 4).

Each time that total state demand (6) changes, the proportion of this change that is not satisfied locally (1-RPC) will lead to changes in imports into the state. The first source for these imports are the other states within its major region (10). For a particular industry some states in the region will be suppliers of this good or service to the other states in the region. The proportion of major regions output that is used to satisfy demand within it's own major region can be predetermined by using the RPC for the major region and its counterpart, the estimated proportion of output for any industry in the major region that stays within the region[5].

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4. Stevens, B.H., G.I. Treyz, D.J. Ehrlich and J.R. Bower (1983) Treyz, G.I. and B.H. Stevens (1985)

5. The amount available in any one state to supply to other states in the major region is determined by first calculating the major region's estimate of the proportion of the production of the commodity output that stays in the region (PS) as implied by the transportation census data for the major region. Then this proportion is multiplied by the output of that commodity in the state in question to determine the total quantity available for intra state and intra major region shipment. This quantity, less the state RPC, times the state demand, determines the supply for intra regional shipment. This is used in turn to calculate the proportion of import demand from other states in the region that is supplied by the state in question.

The other source of new imports to the state will be from all of the other major regions in the U.S. All major regions will contribute to meeting this new import demand based on the proportion of this commodity that they ship to interregional regional trade.

The sum of the changes in import demand shown in (10) and (11) when summed across all other states are the source for the changes in demand for an individual state shown in boxes (2) and (3). The total effect for any major region or for the nation as a whole can be obtained by summing up the effects on each of the states within the major region or within the nation.

We next turn to effects on wage rates as shown in Figure 2.

------ Figure 2 follows here ------

Employment changes by industry (1) are combined with an occupational matrix to yield employment changes in each of 94 occupations in the state in question. These changes in demand along with predicted changes in the state's labor supply (2) lead to wage rate changes by occupation. These changes combined with the changes in wage rates from other state and regions (3), then yield changes in the state's relative wage rates (6). Obviously a simultaneous solution of the system for all states is required to find the relative wage for the state in question.

The next set of linkages is through costs as shown in Figure 3. When wage costs change (1), as shown in Figure 2, this leads to a change relative to other state factor costs (4). Relative factor cost changes, in turn, lead to changes in the labor used per unit of output (5) and to

changes in state employment (11).

- - - - - - Figure 3 follows here - - - - - -

The change in state wage costs (1) also leads to a change in the states total production costs (6). These, combined with changes in production costs for other states within the major region (2) result in changes in the state's production costs relative to those of other state's in the major region (7). This, in turn, changes the state's share of intraregional trade flows. Likewise, the relative costs in the major region (2) combined with the costs in all of the other regions (3) change that major region's costs relative to the rest of the nation (7). This alters the state's share of extra regional markets (8), thus changing state output (9) and employment (11).

The final set of linkages are the population linkages shown in Figure 4.

- - - - - - Figure 4 follows here - - - - - -

The change in state employment (1) together with the change in employment (2) in the rest of the country changes the state's relative employment ratio (3). If this ratio goes up, it will cause a flow of people into the state from the rest of the United States (4). The change in population (5) caused by this in-migration will mitigate wage increases (8) and it will lead to changes in demand for government services (6). These changes will in turn affect employment (7). This restarts the cycle and also generates changes in state population (5) and employment (7). This later change becomes an input to the changes in (2) for the other states.

While the four figures show the major links among states and major regions it must be

remembered that all of the linkages in the model occur simultaneously. The results for all of the states must then be combined to obtain the national totals. Since each state model contains over 2000 variables the simultaneous solution presents computational problems.

However, initial national and major region effects can be obtained by entering the disturbances in a national or eight major region multi-regional model. The approximate results from the eight major regional multi-regional model then give inputs from the other major regions for the simultaneous solution of the multi-state models within each major region. Thus, while the system is a bottom-up system and obtains national totals by adding up all of the states, with current available computers (IBM-AT), the simultaneous solution is facilitated by using initial results from a model linking the major regions. In the simulations reported here, we found that results with the eight major region model were very close to the results obtained by summing all of the states. The difference in result is expected due to differences in wage rates, labor intensity and other variables in various states.

- - - - - - Diagram 1 follows here - - - - - -

Since the simulation was over an historical period and since our model is non linear, we had to calculate a set of multiplicative adjustments that would make the model track the actual data[6] exactly when it was used for an unconstrained forecast starting in 1982. We then created a baseline forecast by entering the military disturbances with a negative sign. The resulting baseline is shown on Diagram (1) as the baseline without military buildup. The differences between the actual time path and this baseline are shown for a typical state in Tables 1 and 2

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6. See Treyz (1972) for an explanation of why in a non-linear system historical simulation results can be in error if adjustments for stochastic elements are not included.

below as the effect of the military buildup. Next we took the total cost of the military buildup that exceeded normal inflation and allocated it across the civilian sectors by state according to the amount of spending in these sectors indicated in the baseline (without defense buildup). These additional amounts of civilian expenditures made up the disturbance vector used to forecast the civilian spending alternative shown in Diagram (1). In the tables we also show the military buildup less the civilian spending alternative.

The Simulation Results

For each state the two sets of comparisons are available for each of the over 2000 variables in each state model. Here we will show the effects on a selected set of variables. We will show these first for Ohio as an example of a typical state and then we will present tables for all of the major regions.[7]

The effects of the military buildup on Ohio are shown in the first two tables below. All of the effects shown are in an expansionary and positive direction with one exception: population. The reason that population decreases is that Ohio does not experience as large a relative gain in employment, in comparison to the baseline, as do other states. This leads to a population shift away from Ohio.

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7. The employment effects for all industries for the U.S. and for the major industries for all states, a description of the way that the military buildup above normal inflationary increases was calculated and how these disturbances were distributed by state is described on pages 15-17 of Anderson et. al. (1986).

The drop in the Ohio's employment to population ratio relative to that in the rest of the United States and its less than proportional growth in occupational demand, leads to wage increases that are less than those caused elsewhere by military buildup. This in turn leads to drops in production cost decreases that make Ohio more competitive, it also causes a slight increase in relative labor intensity. Thus while labor intensity actually decreases in Ohio due to the wage increases, it decreases less than elsewhere in the nation.

- - - - - - Tables 1 and 2 follow here - - - - - -

The detailed employment table shows large increases in the rest of transportation equipment. By 1985 this increase has reached 25 thousand jobs. Increases in employment in the Ohio industries supplying inputs to this industry are also notable.

Out of this total increase of about 114 thousand in private non-farm employment, about 30 thousand were due to intermediate demand, 17 thousand to consumption demand, 4 thousand to investment activity and 63 thousand to the combined result of increased direct demand and increased net exports due to the import demand from other states. This latter category includes any export employment increases due to the relative drop in Ohio's production costs.

- - - - - - Tables 3 and 4 follow here - - - - - -

The next set of tables shows the effect of the military buildup less the effect of equal expenditures in normal civilian activities. As was typical for 70% of the states, this comparison indicates a net loss of jobs in Ohio. This occurred even though the net effect on state GRP (Gross Regional Product) is very small and even positive in the last year. Such an apparently

anomolus result is due to the change in the composition in GRP. Looking at 1985 when there was a net increase in GRP, we note that consumption was reduced by 1 billion, investment by 0.3 billion, civilian government by 0.3 billion. This was offset by an increase of 1.6 billion for direct military purchases and for changes in net exports which was to meet demands from other states. The employment to value added ratios are higher in the civilian sectors than in the military production thus explaining the employment decline. It should also be noted that even when GRP is not affected, that civilians pay the cost of increased military spending in terms of lost consumption, investment and civilian government services.

In Tables 5 and 6 we show the employment effects expressed as a percent of the employment in each of the major regions. Table 6 shows that when the military buildup is compared with normal civilian spending of the same funds that only two areas of the country have a net gain, New England and the Far West.

- - - - - - Tables 5 and 6 follow here - - - - - -

Information for the military less civilian simulations, as we did for the Ohio tables, is available for all major regions and for all states[8]. From these tables we find that only in three years for the Far West was the consumer, investment and civilian government spending higher under this combined scenario. All other major regions suffer a loss to the civilian sectors in comparison with a situation in which all civilian sectors would have been sufficiently stimulated to increase spending by an amount equal to the military buildup expenditures for the military buildup.

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8. See Anderson et. al. for state data and contact the authors for the major region tables.

Conclusion

Using a multi-regional model that includes demand from other states and regions for intermediate inputs, as would be expected for military subcontracts, the defense spending build-up appears to have had important differential effects on the economic performance on states and major regions of the country. These differential effects are large enough so that any appraisal of the relative performance of state economies over this period would be incomplete if they were not taken into account.

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FIGURE 1
DEMAND AND SUPPLY LINKAGES

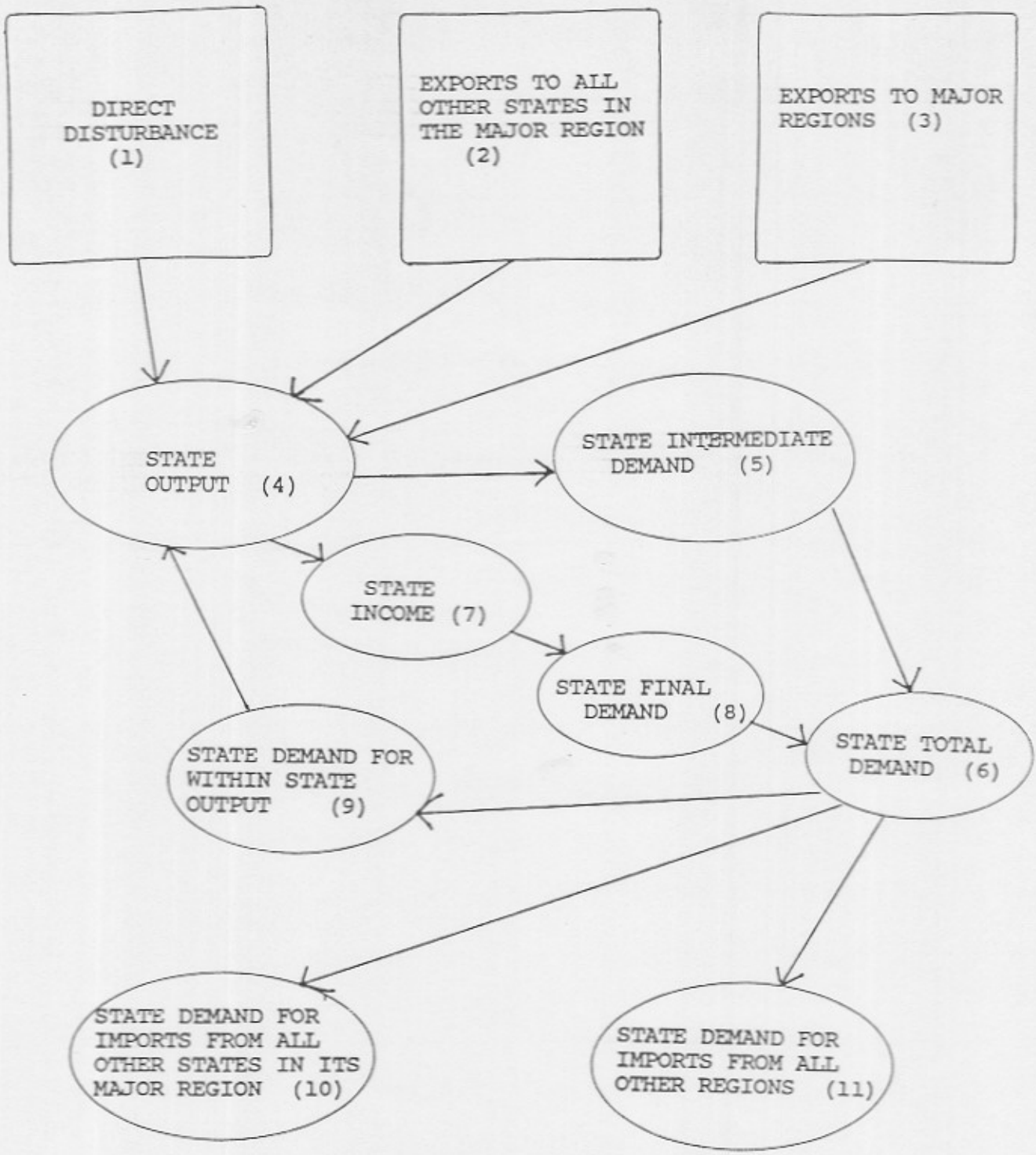

FIGURE 2
WAGE DETERMINATION LINKAGES

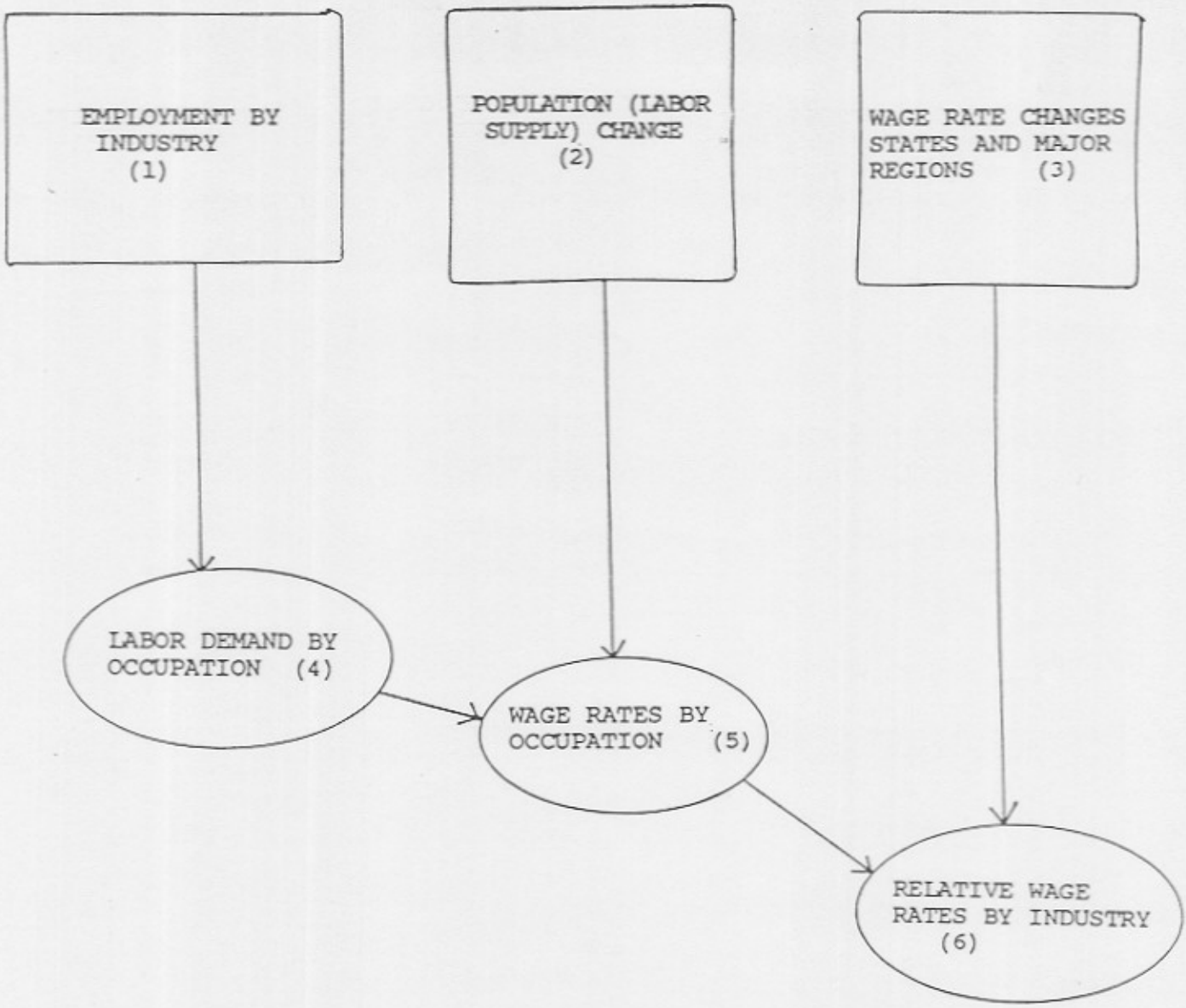

FIGURE 3
COST LINKAGES

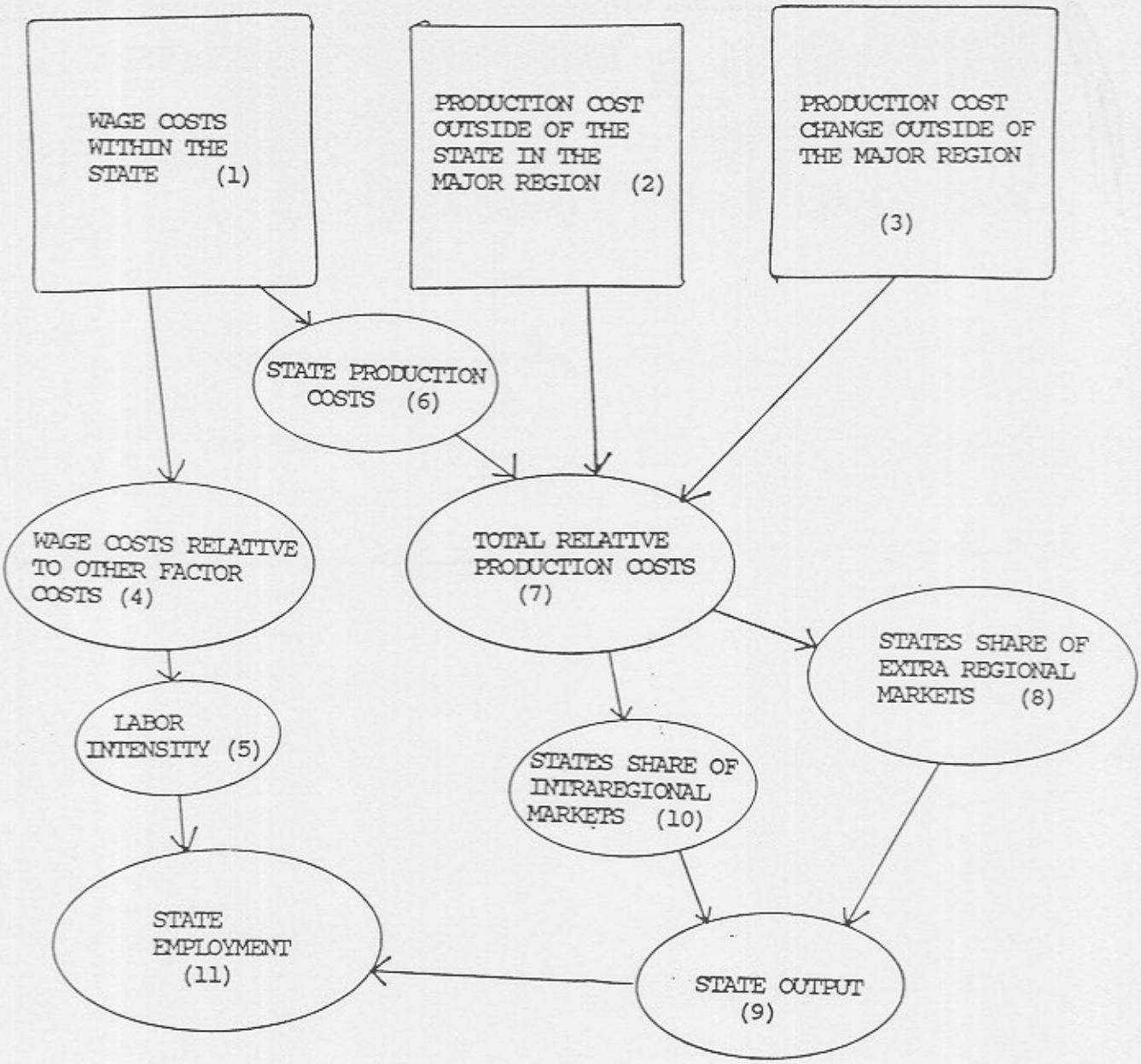

FIGURE 4
POPULATION LINKAGES

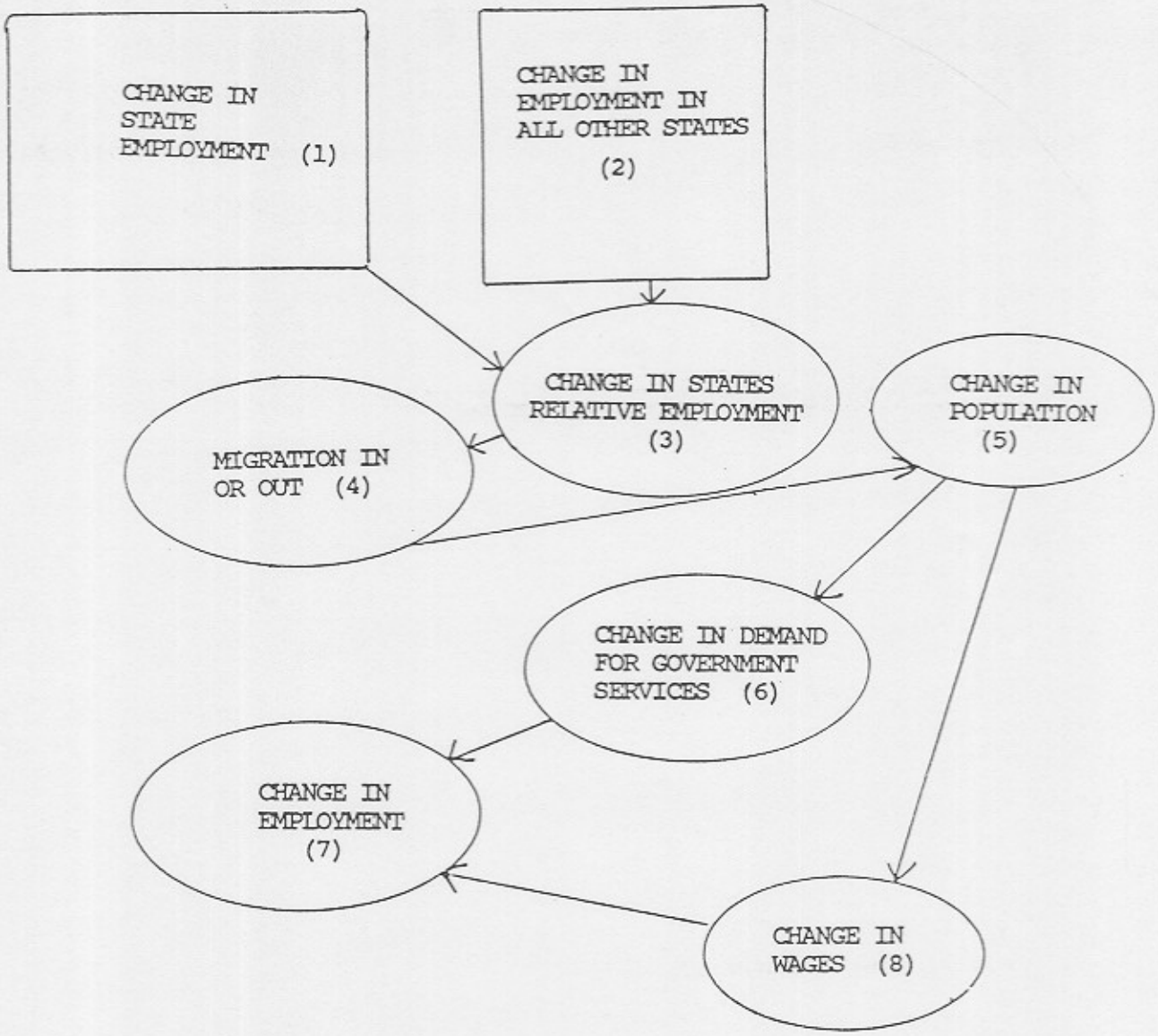

DIAGRAM 1

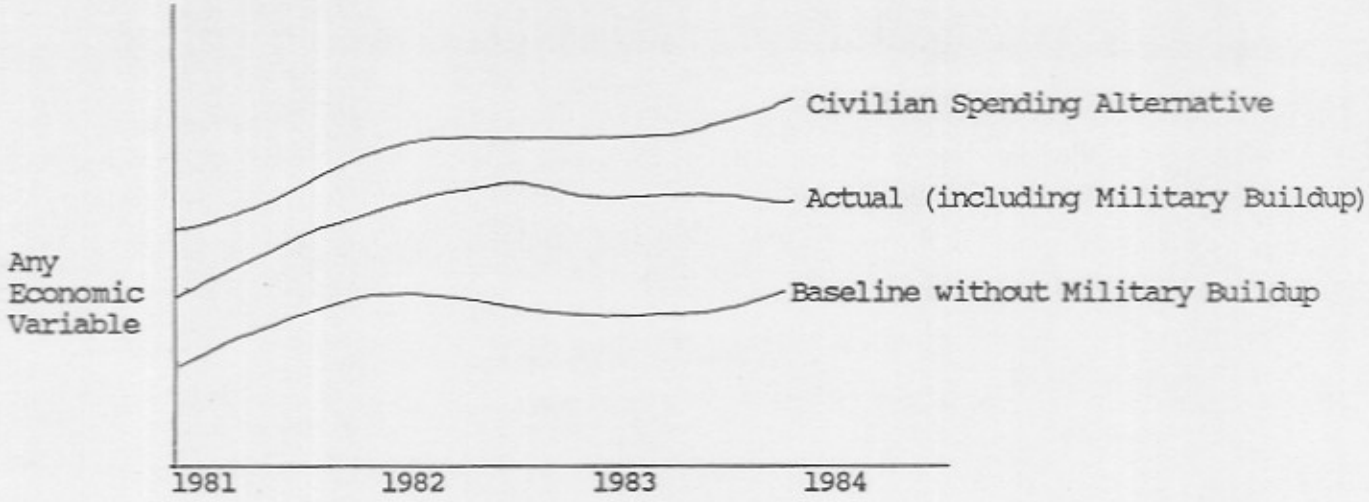
Civilian Spending Alternative
Actual (including Military Buildup)
Baseline without Military Buildup
Any
Economic
Variable
1981
1982
1983
1984

TABLE 1

OHIO: EFFECT OF MILITARY BUILD-UP 1981-1985

TABLE 1: SUPER SUMMARY TABLE

	1982	1983	1984	1985
TOTAL EMPLOYMENT (THOU OF JOBS)	38.365	62.675	67.229	119.150
TOT PRIV NF EMPLYT (THOU OF JOBS)	39.223	60.902	62.165	113.593
GRP BIL 77 $	.731	1.429	1.564	2.854
TOTAL CONSUMPTION	.235	.486	.409	.770
TOTAL FIXED INVEST	.138	.208	.196	.340
CBI NET IVA + MISC	.021	.032	.033	.058
TOTAL GOVERNMENT	.000	.002	-.006	-.019
MIL PUR + NET EXPORTS	.338	.701	.933	1.705
GRP NOMINAL BIL $	1.099	2.161	2.246	4.305
PERSONAL INCOME (BIL $)	.618	1.373	1.552	2.889
DISPOSABLE INCOME (BIL $)	.484	1.104	1.256	2.321
PCE-PRICE INDX-77 (1977 = 100)	.140	.422	.749	1.225
REAL DISP INCOME (BIL 77 $)	.270	.548	.472	.889
POPULATION (THOUSANDS)	.000	1.961	-5.816	-18.194

TABLE 2

OHIO: EFFECT OF MILITARY BUILD-UP 1981-1985

TABLE 18: PRIVATE NONFARM EMPLOYMENT (IN THOUSANDS OF JOBS)

	1982	1983	1984	1985
LUMBER(24)	.087	.157	.199	.306
FURNITURE(25)	.117	.192	.244	.370
STONE,CLAY,ETC.(32)	.491	.756	.874	1.306
PRIMARY METALS(33)	2.134	3.421	4.382	5.821
FABRICATED METAL(34)	2.600	4.046	4.849	6.187
NON-ELEC MACHINE(35)	2.259	2.976	3.293	6.199
ELECT. EQUIPMENT(36)	1.459	1.826	1.819	4.220
MOTOR VEH.(371)	.402	.347	.247	.918
REST TRANS EQUIP(R37	8.449	11.683	10.367	25.381
INSTRUMENTS(38)	.278	.410	.509	1.064
MISC. MANUF.(39)	.041	.060	.075	.169
FOOD(20)	.319	.546	.549	.819
TOBACCO MANUF(21)	.000	.000	.000	.000
TEXTILES(22)	.033	.052	.066	.102
APPAREL(23)	.083	.126	.147	.302
PAPER(26)	.262	.474	.612	.855
PRINTING(27)	.379	.692	.808	1.276
CHEMICALS(28)	.683	1.093	1.146	2.040
PETRO PROD(29)	.059	.100	.103	.165
RUBBER(30)	.874	1.514	2.079	3.047
LEATHER(31)	.015	.003	-.019	.002
MINING	.254	.429	.526	.764
CONSTRUCTION	1.653	2.036	1.652	3.500
RAILROAD(40)	.183	.288	.324	.411
TRUCKING(42)	.684	1.213	1.451	2.032
LOCAL/INTERURBAN(41)	.041	.065	.056	.114
AIR TRANSP.(45)	.062	.104	.115	.184
OTHER TRANSP.	.054	.106	.130	.197
COMMUNICATION(48)	.388	.668	.713	1.106
PUBLIC UTILITIES(49)	.289	.521	.557	.971
BANKING(60)	.351	.593	.568	1.078
INSURANCE(63+64)	.473	.897	.939	1.381
CREDIT&FINANCE(61+62	.200	.395	.382	.668
REAL ESTATE(65,69)	.532	.924	.849	1.528
EATING & DRINKING(58	1.538	2.812	2.911	4.680
REST OF RETAIL(R52)	2.767	5.099	4.879	7.943
WHOLESALE	1.878	2.889	3.023	5.468
HOTELS(70)	.264	.473	.574	.690
PER. SERV. & REPR.	.465	.891	.883	1.537
PRIVATE HOUSEHOLD	.242	.497	.422	.760
AUTO REP/SERV(75)	.181	.336	.362	.679
MISC. BUSI. SERV.(73	1.793	2.651	2.710	5.867
AMUSE.&RECREATION(79	.237	.441	.425	.724
MOTION PICTURES(78)	.021	.038	.040	.057
MEDICAL(80)	1.195	2.437	2.190	3.700
MISC. PROF. SERV.(81	1.231	1.830	1.744	3.649
EDUCATION(82)	.538	.727	.505	1.517
NON-PROFIT ORG.(83)	.630	.996	.832	1.716
AGRI/FOR/FISH SERV.	.055	.072	.053	.119

TABLE 3

OHIO: EFFECT OF MILITARY BUILD-UP 1981-1985

TABLE 1: SUPER SUMMARY TABLE

	1982	1983	1984	1985
TOTAL EMPLOYMENT (THOU OF JOBS)	13.344	-27.730	-43.622	-19.357
TOT PRIV NF EMPLYT (THOU OF JOBS)	-7.423	-20.166	-37.285	-10.591
GRP BIL 77 $	-.228	-.332	-.681	.018
TOTAL CONSUMPTION	-.452	-.743	-1.048	-1.009
TOTAL FIXED INVEST	-.113	-.228	-.335	-.306
CBI NET IVA + MISC	.001	-.003	-.009	.007
TOTAL GOVERNMENT	-.103	-.180	-.225	-.300
MIL PUR + NET EXPORTS	.439	.822	.935	1.626
GRP NOMINAL BIL $	-.344	-.561	-1.203	-.094
PERSONAL INCOME (BIL $)	-.185	-.191	-.596	-.016
DISPOSABLE INCOME (BIL $)	-.144	-.143	-.475	-.011
PCE-PRICE INDX-77 (1977 = 100)	-.036	-.098	-.196	-.240
REAL DISP INCOME (BIL 77 $)	-.083	-.051	-.217	.098
POPULATION (THOUSANDS)	.000	-1.420	-10.394	-21.703

TABLE 4

OHIO: EFFECT OF MILITARY BUILD-UP LESS CIVILIAN ALTERNATIVE

TABLE 18: PRIVATE NONFARM EMPLOYMENT (IN THOUSANDS OF JOBS)

	1982	1983	1984	1985
LUMBER(24)	-.068	-.156	-.207	-.208
FURNITURE(25)	-.075	-.139	-.185	-.163
STONE,CLAY,ETC.(32)	-.213	-.403	-.488	-.399
PRIMARY METALS(33)	.827	1.305	1.739	2.442
FABRICATED METAL(34)	.759	.949	.977	1.170
NON-ELEC MACHINE(35)	.117	-.451	-1.158	.356
ELECT. EQUIPMENT(36)	.541	.218	-.267	1.383
MOTOR VEH.(371)	-.788	-1.888	-2.659	-2.674
REST TRANS EQUIP(R37	8.198	11.180	9.624	24.245
INSTRUMENTS(38)	.062	-.006	-.117	.135
MISC. MANUF.(39)	-.113	-.231	-.320	-.349
FOOD(20)	-.417	-.726	-.919	-.973
TOBACCO MANUF(21)	.000	.000	.000	.000
TEXTILES(22)	-.023	-.047	-.058	-.055
APPAREL(23)	-.118	-.231	-.313	-.292
PAPER(26)	-.094	-.152	-.182	-.149
PRINTING(27)	-.286	-.484	-.656	-.577
CHEMICALS(28)	.077	.024	-.137	.366
PETRO PROD(29)	-.038	-.070	-.093	-.082
RUBBER(30)	.020	-.055	-.056	.244
LEATHER(31)	-.045	-.101	-.141	-.153
MINING	-.027	-.042	-.063	.025
CONSTRUCTION	-.826	-2.043	-3.321	-2.450
RAILROAD(40)	-.026	-.033	-.046	-.025
TRUCKING(42)	-.176	-.294	-.430	-.323
LOCAL/INTERURBAN(41)	-.030	-.059	-.097	-.068
AIR TRANSP.(45)	-.024	-.051	-.076	-.054
OTHER TRANSP.	-.028	-.047	-.067	-.057
COMMUNICATION(48)	-.308	-.509	-.683	-.646
PUBLIC UTILITIES(49)	-.167	-.266	-.372	-.207
BANKING(60)	-.280	-.489	-.701	-.539
INSURANCE(63+64)	-.490	-.790	-1.061	-1.097
CREDIT&FINANCE(61+62	-.273	-.477	-.686	-.625
REAL ESTATE(65,69)	-.189	-.354	-.670	-.243
EATING & DRINKING(58	-1.471	-2.445	-3.467	-2.777
REST OF RETAIL(R52)	-4.758	-7.702	-10.505	-10.419
WHOLESALE	-.663	-1.375	-2.171	-1.086
HOTELS(70)	-.012	.001	.000	.057
PER. SERV. & REPR.	-.819	-1.426	-1.921	-1.931
PRIVATE HOUSEHOLD	-.640	-.983	-1.317	-1.297
AUTO REP/SERV(75)	-.246	-.431	-.621	-.618
MISC. BUSI. SERV.(73	.437	.054	-.830	1.324
AMUSE.&RECREATION(79	-.403	-.706	-.908	-.910
MOTION PICTURES(78)	-.028	-.045	-.056	-.059
MEDICAL(80)	-2.893	-4.842	-6.367	-7.233
MISC. PROF. SERV.(81	-.107	-.604	-1.257	-.170
EDUCATION(82)	-.281	-.788	-1.330	-.790
NON-PROFIT ORG.(83)	-.931	-1.750	-2.352	-2.331
AGRI/FOR/FISH SERV.	-.088	-.203	-.294	-.311

TABLE 5

EMPLOYMENT EFFECT OF MILITARY BUILDUP AS A PERCENT OF TOTAL EMPLOYMENT

	1981	1983	1984	1985
New England	1.48	1.94	2.70	3.23
Mideast	.80	1.45	1.70	2.13
Great Lakes	.52	.90	1.19	1.18
Plains	.70	1.12	1.73	2.22
Southeast	.57	1.51	1.53	2.02
Southwest	.31	.86	1.30	1.82
Rocky Mountains	.57	.88	1.27	1.44
Far West	1.46	2.76	3.11	3.25

TABLE 6

EMPLOYMENT EFFECT OF THE MILITARY LESS THE CIVILIAN SPENDING ALTERNATIVE AS A PERCENT OF TOTAL EMPLOYMENT

	1981	1983	1984	1985
New England	.44	.11	.50	.43
Mideast	-.21	-.33	-.39	-.48
Great Lakes	-.53	-.94	-1.00	-.98
Plains	-.21	-.47	-.13	-.09
Southeast	-.39	-.19	-.46	-.46
Southwest	-.66	-.84	-.69	-.65
Rocky Mountains	-.36	-.73	-.61	-.90
Far West	.51	1.07	1.13	.78