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TRENDS IN THE LEVEL AND DISTRIBUTION OF INCOME IN METROPOLITAN AREAS, 1959-1969

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ABSTRACT

This paper presents an overview of the level and distribution of income for a sample of Standard Metropolitan Statistical Areas during the period 1959-1969 using data on pretax pretransfer incomes published by the Internal Revenue Service. It is shown that although the degree of inequality varies widely among SMSAs, a majority experienced an increase in inequality during the period. However, there has been convergence in both the degree of inequality and the level of income across the sample.

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I. Introduction

If personal satisfaction with living standards is based on a comparison of one's own income with the incomes of other residents of the metropolitan area, then the distribution of income as well as its level is an important indicator of the economic welfare of the area's residents. Smolensky and Gomery (1972) emphasize the importance of the level and distribution of income in the metropolitan area in an analysis of urban housing problems. Bateman and Hochman (1972, p. 346) state that the urban crisis can be traced to the dissatisfaction of the lower classes which

> is based on their perception that the conditions in which they live are unacceptable in relation to what they would like them to be. The problem thus posed is primarily an urban one for two reasons: (1) the poor have tended more and more to concentrate in urban areas, and (2) the disparities between income and wealth are much more obvious in urban areas where the very rich and the very poor live in physical proximity. If either of these conditions did not hold, there would be no urban crisis per se.

However, neither of these papers presents data on urban area income distributions that could be used to test hypotheses.[1]

This paper presents an overview of the level and distribution of income for a sample of Standard Metropolitan Statistical Areas (SMSAs) during the period 1959-1969 using data published annually by the Internal Revenue Service (U.S. Department of the Treasury). The data sources and the summary measures used to describe the data are described in the next section. In the final section, the trends in the level and

distribution of income are analyzed. While this paper does not attempt to test the hypothesis that inequality in the distribution of income is a determinant of urban problems, the data presented here can be used for such a purpose in future research.

II. The Internal Revenue Service Data

The Internal Revenue Service (IRS) publishes data on the level and distribution of income for SMSAs beginning with 1959. The data are published biennially for the 125 largest SMSAs (the largest 100 until 1967), but data are available for each of the six years in the 1959-1969 period for only 86 of the SMSAs. These 86 SMSAs form the sample analyzed in this paper.[2]

Any analysis of the degree of inequality in the size distribution of income is sensitive to the choice of income concept, unit of analysis, and population coverage. IRS data for SMSAs are available for six years in the 1959-1969 period and census data for the two endpoints. However, the differences in income concept, unit of analysis, and population coverage prevent direct comparability.[3]

The IRS data forms a pretax, pretransfer distribution of tax returns, while the census data forms a pretax, posttransfer distribution of families and unrelated individuals. IRS data measure adjusted gross income for all tax returns filed. Adjusted gross income excludes transfer income, but includes realized capital gains and losses. Census money income includes cash transfers but excludes capital gains and losses. In addition, there is not a unique correspondence between income tax filing units and the Census Bureau's

definition of families and unrelated individuals. Significantly, the IRS coverage is not universal since those not required to file tax returns are excluded from the data.[4]

The Gini coefficient is the measure of income inequality and the mean adjusted gross income in current dollars is the measure of income level used in this paper.[5] Table 1 presents the Gini coefficients for each of the six years and the percentage change in the Gini coefficient between 1959 and 1969.[6] Table 2 presents the mean income for each year and the change in mean.

Two important conclusions emerge from Tables 1 and 2. First, there is a wide variation in both the Gini coefficient and mean income for SMSAs. The average Gini coefficients range from a low of .3796 for Youngstown to .5126 for Miami; the average mean income from $5078 in Wilkes Barre to $7936 in San Jose.[7] Second, only eleven of the SMSAs have exhibited a decrease in inequality during this ten-year period. In the next section, these results are analyzed.

II. Trends in the Level and Distribution of Income

The average Gini coefficient and average mean income for the SMSA sample are compared to the U.S. aggregates in Table 3. Between 1959 and 1969 the Gini coefficient for the U.S. increased by 4.8 percent, while that for the SMSA sample increased by 6.1 percent. Most of the increase in inequality occurred during the 1963-1969 economic boom. A regression of a time trend on the Gini coefficient produces the following results:[8]

TABLE 1 : GINI COEFFICIENTS FOR EACH SMSA

SMSA	1959	1961	1963	1965	1967	1969	%CHNG
AKRON	.3585	.4225	.4037	.4045	.4190	.4096	14.23
ALBANY	.3991	.4439	.4206	.4050	.4279	.4279	7.24
ALLENTOWN	.4044	.3929	.4022	.3979	.4112	.4269	5.58
ATLANTA	.4392	.4451	.4472	.4554	.4683	.4687	6.70
BAKERSFIELD	.4269	.4765	.4280	.4580	.4665	.4772	11.78
BALTIMORE	.4301	.4304	.4261	.4295	.4469	.4416	2.67
BEAUMONT	.4213	.4233	.4192	.4112	.4296	.4529	7.51
BIRMINGHAM	.4354	.4293	.4364	.4372	.4464	.4414	1.39
BOSTON	.4489	.4448	.4471	.4752	.4680	.4686	4.39
BRIDGEPORT	.3703	.4073	.3900	.4481	.4136	.4078	10.10
BUFFALO	.4001	.4038	.3880	.4124	.4056	.4174	4.32
CANTON	.3931	.3833	.3888	.3875	.4154	.4633	17.87
CHARLOTTTE	.4460	.4685	.4641	.4461	.4456	.4813	7.93
CHATTANOOGA	.4555	.4489	.4423	.4465	.4960	.4348	-4.55
CHICAGO	.4205	.4308	.4412	.4451	.4464	.4565	8.57
CINCINNATI	.4211	.4529	.4312	.4465	.4448	.4498	6.81
CLEVELAND	.4036	.4109	.4186	.4389	.4385	.4436	9.91
COLUMBUS,O	.4318	.4219	.4145	.4313	.4224	.4522	4.73
DALLAS	.4527	.4736	.4702	.4775	.4818	.4723	4.32
DAVENPORT	.3669	.3835	.3785	.4301	.4549	.4721	28.67
DAYTON	.4107	.3975	.4024	.4082	.4242	.4357	6.07
DENVER	.4265	.4343	.4313	.4357	.4406	.4578	7.35
DESMOINES	.4348	.4060	.4388	.4298	.4685	.4720	8.55
DETROIT	.4031	.4164	.4157	.4299	.4280	.4536	12.54
FORTH WORTH	.4238	.4453	.4324	.4332	.4389	.4427	4.46
FRESNO	.4534	.4546	.4641	.4785	.4788	.4655	2.67
GARY	.3510	.3713	.3620	.3919	.3939	.4180	19.06
GRAND RAPIDS	.4019	.3883	.4145	.4224	.4540	.4490	11.72
HARRISBURG	.4032	.3943	.3954	.3917	.4067	.4080	1.19
HARTFORD	.4347	.4349	.4355	.4592	.4773	.4643	6.82
HONOLULU	.4461	.4712	.4494	.4708	.4721	.4989	11.84
HOUSTON	.4540	.4472	.4645	.4615	.4726	.4863	7.13
INDIANAPOLIS	.4262	.4342	.4340	.4350	.4398	.4681	9.84
JACKSONVILLE	.4442	.4296	.4468	.4354	.4868	.4325	-2.63
JERSEY CITY	.3508	.3603	.3886	.3868	.4163	.4049	15.42
KANSAS CITY	.4216	.4270	.4156	.4298	.4345	.4553	8.00
KNOXVILLE	.4353	.4669	.4585	.4801	.4684	.4256	-2.23
LANCASTER	.4539	.4133	.4123	.4095	.4244	.4290	-5.48
LANSING	.4112	.4028	.4304	.4171	.4169	.4010	-2.48
LOS ANGELES	.4314	.4370	.4483	.4550	.4736	.4653	7.87
LOUISVILLE	.4256	.4219	.4420	.4196	.4402	.4088	-3.94
MIAMI	.4673	.4775	.5008	.5321	.5549	.5428	16.14
MILWAUKEE	.3706	.4100	.4114	.4105	.4396	.4447	19.98

TABLE 1 (CONT.)

SMSA	1959	1961	1963	1965	1967	1969	%CHNG
MINN ST. PAUL	.4188	.4270	.4281	.4300	.4547	.4563	8.93
MOBILE	.3909	.4351	.4528	.4693	.4358	.4298	9.95
NASHVILLE	.4531	.4427	.4947	.4771	.4679	.4442	-1.98
NEW HAVEN	.4303	.4300	.4398	.4112	.4462	.4596	6.81
NEW ORLEANS	.4729	.4446	.4643	.4584	.4497	.4882	3.24
NEW YORK CITY	.4746	.4707	.4665	.4796	.4979	.4941	4.11
NEWARK	.4311	.4500	.4489	.4653	.4658	.4868	12.93
NORFOLK	.4133	.4161	.4440	.4246	.4211	.4210	1.87
OKLAHOMA CITY	.4401	.4514	.4347	.4750	.4681	.4862	10.46
OMAHA	.4193	.4120	.4265	.4535	.4536	.4573	9.06
PATERSON	.4156	.4310	.4140	.4442	.4588	.4669	12.33
PEORIA	.3925	.4237	.4069	.4079	.4225	.4480	14.15
PHILADELPHIA	.4165	.4141	.4227	.4315	.4475	.4536	8.90
PHOENIX	.4702	.4435	.4479	.4653	.4459	.4784	1.76
PORTLAND, ORE	.4245	.4237	.4159	.4336	.4681	.4547	7.12
PROVIDENCE	.4164	.4147	.4125	.4323	.4557	.4500	8.08
READING	.4376	.4177	.3832	.3829	.4095	.4438	1.42
RICHMOND	.4149	.4289	.4590	.4388	.4719	.4502	8.51
ROCHESTER,NY	.4196	.4113	.4256	.4429	.4497	.4348	3.62
SACRAMENTO	.3912	.3820	.4110	.4360	.4242	.4704	20.27
ST LOUIS	.4137	.4147	.4240	.4253	.4470	.4374	5.72
SALT LAKE CT	.4333	.4136	.4297	.4469	.4528	.4565	5.35
SAN ANTONIO	.4458	.4587	.4704	.4834	.4937	.4625	3.77
SAN BERNADINO	.3931	.4230	.4314	.4311	.4242	.4624	17.64
SAN DIEGO	.4023	.4238	.4541	.4495	.4319	.4363	8.45
SAN FRANCISCO	.4232	.4245	.4400	.4504	.4606	.4512	6.60
SAN JOSE	.4014	.4296	.3843	.4103	.4112	.4169	3.87
SEATTLE	.3949	.4037	.3981	.4229	.4184	.4397	11.34
SHREVEPORT	.4733	.4849	.4459	.4798	.4474	.4204	-11.18
SPRINGFIELD,MA	.3877	.4059	.4088	.4152	.4281	.4293	10.72
SYRACUSE	.3979	.4087	.4162	.4244	.4159	.4480	12.60
TACOMA	.4008	.3891	.3977	.4169	.4121	.4418	10.23
TAMPA	.4620	.4584	.4628	.4584	.4661	.4734	2.48
TOLEDO	.4206	.4223	.3993	.4293	.4378	.4440	5.56
TULSA	.4301	.4640	.4715	.4518	.4698	.4005	-6.89
UTICA ROME	.3936	.3898	.4096	.3945	.4312	.4000	1.62
WASHINGTON	.4376	.4211	.4387	.4689	.4769	.4715	7.74
WICHITA	.4022	.4177	.4255	.4347	.4481	.4314	7.26
WILKSBARRE	.4182	.4254	.3833	.3912	.4004	.3988	-4.63
WILMINGTON	.4938	.4926	.4921	.5319	.5043	.4854	-1.71
WORCESTER	.4175	.4410	.4179	.4387	.4731	.4535	8.62
YOUNGSTOWN	.3731	.3703	.3764	.3431	.3964	.4183	12.12
PITTSBURGH	.4276	.4305	.4226	.4260	.4387	.4337	1.42
MEAN	.4228	.4270	.4285	.4371	.4465	.4486	6.54
(Std. Dev.)	(.0353)	(.0269)	(.0279)	(.0307)	(.0278)	(.0261)	(7.37)

TABLE 2 : MEAN INCOMES FOR EACH SMSA

SMSA	1959	1961	1963	1965	1967	1969	%CHNG
AKRON	6065	5907	6475	7452	7682	8847	45.85
ALBANY	5270	5342	5868	6578	7377	8314	57.75
ALLENTOWN	4976	5647	5879	6729	6971	8195	64.69
ATLANTA	5279	5695	6214	6896	7632	8642	63.68
BAKERSFIELD	5855	5548	6106	6447	7134	8036	37.25
BALTIMORE	5315	5222	5896	6758	7166	8087	52.16
BEAUMONT	5118	5544	6027	6624	7162	7283	42.29
BIRMINGHAM	5086	5457	5772	6320	6857	7750	52.38
BOSTON	5315	5584	6050	6532	7592	8579	61.41
BRIDGEPORT	5692	5765	6585	6761	8342	9215	61.90
BUFFALO	5658	5631	6081	6697	7508	8157	44.16
CANTON	5429	5797	6177	6984	7270	7628	40.50
CHARLOTTTE	5200	5739	5889	7120	7792	8056	54.90
CHATTANOOGA	4718	4958	5179	5860	6071	7431	57.51
CHICAGO	6110	6471	6800	7505	8329	9284	51.94
CINCINNATI	5657	5718	6195	6673	7194	8297	46.66
CLEVELAND	5969	6192	6627	7436	8039	9100	52.45
COLUMBUS,O	5350	5977	6258	6699	7723	7947	48.53
DALLAS	5680	5956	6274	6738	7619	9085	59.95
DAVENPORT	5877	5900	6495	6602	7320	7467	27.04
DAYTON	5878	6057	6553	7463	7942	8587	46.08
DENVER	5689	6309	6469	6711	7572	8513	49.62
DESMOINES	5509	6205	5987	6944	7401	8704	58.00
DETROIT	5976	6055	6828	7591	8409	9260	54.94
FORTH WORTH	5235	5414	5765	6105	7381	7936	51.58
FRESNO	4429	5205	5443	6141	6593	6664	50.47
GARY	5602	5969	6593	7048	7155	8493	51.61
GRAND RAPIDS	5460	5876	5924	6531	7251	8107	48.49
HARRISBURG	4975	5018	5633	6567	6975	8537	71.61
HARTFORD	5948	6415	7140	7488	8008	8875	49.21
HONOLULU	5234	6041	6027	6723	7545	8470	61.81
HOUSTON	5631	6147	6275	6808	7856	8522	51.33
INDIANAPOLIS	5681	5807	6305	6891	7872	8130	43.09
JACKSONVILLE	4806	5069	5254	6395	6609	7548	57.06
JERSEY CITY	4825	5220	5520	6032	6263	7871	63.12
KANSAS CITY	5535	5910	6416	7003	7533	8443	52.53
KNOXVILLE	4545	4896	5237	5934	6503	7838	72.45
LANCASTER	4676	4923	5636	6501	6825	7531	61.05
LANSING	5141	5961	6399	7069	7591	9393	82.70
LOS ANGELES	6163	6524	6897	7480	8042	8786	42.55
LOUISVILLE	5213	5464	5869	6604	7108	8417	61.45
MIAMI	5138	5333	5370	5911	6560	7701	49.88
MILWAUKEE	5977	5934	6328	7235	7718	8372	40.06

TABLE 2 (CONT.)

SMSA	1959	1961	1963	1965	1967	1969	%CHNG
MINN ST. PAUL	5663	6172	6413	7052	7719	8761	54.69
MOBILE	5092	4640	5077	5749	6327	7120	39.84
NASHVILLE	5137	5330	5254	5950	6880	8377	63.05
NEW HAVEN	5571	5865	6358	7319	8014	8823	58.38
NEW ORLEANS	5123	5261	5530	6259	7395	7933	54.85
NEW YORK CITY	6016	6447	6895	7539	8542	9441	56.91
NEWARK	6244	6406	6883	7753	8566	9525	52.55
NORFOLK	4764	4769	5337	5905	6563	7548	58.45
OKLAHOMA CITY	5201	5327	5841	5842	7129	7633	46.75
OMAHA	5200	5922	5916	6201	7400	7670	47.50
PATERSON	6100	6606	7209	7752	8884	9351	53.28
PERORIA	5683	5875	6485	6840	7526	8115	42.79
PHILADELPHIA	5423	5748	6183	6799	7458	8319	53.41
PHOENIX	5201	5680	5956	6109	7109	7750	49.00
PORTLAND, ORE	5502	5623	6198	6878	7249	8263	50.19
PROVIDENCE	4666	5145	5511	6044	6552	6996	49.94
READING	4872	5002	5585	6313	6895	7557	55.10
RICHMOND	4995	5878	5708	7198	7468	8028	60.73
ROCHESTER,NY	6147	6409	6563	6939	8190	9219	49.97
SACRAMENTO	6060	6730	6789	7516	7693	8398	38.59
ST LOUIS	5648	5987	6221	6938	7749	8698	53.99
SALT LAKE CT	5422	5614	5968	6303	6912	7593	40.03
SAN ANTONIO	4627	4767	5065	5487	6292	7317	58.14
SAN BERNADINO	5201	5467	6051	6714	7106	7434	42.92
SAN DIEGO	6121	5920	5878	6444	7582	8206	34.05
SAN FRANCISCO	6295	6779	6965	7622	8292	9051	43.77
SAN JOSE	6363	6847	7892	7649	8726	10139	59.34
SEATTLE	6028	6419	6878	7348	8347	9103	51.00
SHREVEPORT	5539	5087	5712	5920	6446	7667	38.41
SPRINGFIELD,MA	5455	5473	5731	6530	6981	8365	53.34
SYRACUSE	5203	5584	5750	6564	7410	7427	42.73
TACOMA	5296	5688	5974	6167	7537	8173	54.32
TAMPA	4555	4587	5026	5356	6041	6920	51.92
TOLEDO	5659	5836	6494	6706	7468	8559	51.24
TULSA	5401	5776	5975	6970	7051	8580	58.85
UTICA ROME	4867	4986	5640	6453	6841	7759	59.42
WASHINGTON	6132	6616	7120	7920	8466	9897	61.39
WICHITA	5436	5894	5895	6372	6731	7830	44.04
WILKSBARRE	3999	4225	4659	5199	5681	6703	67.58
WILMINGTON	6389	7004	7196	8694	8324	9015	41.10
WORCESTER	4780	5321	5707	6133	6509	7646	59.95
YOUNGSTOWN	5235	5612	6019	7183	6860	7899	50.88
PITTSBURGH	5568	5562	6195	6917	7199	8126	45.95
MEAN	5428	5718	6098	6723	7368	8245	52.26
(Std. Dev.)	(498)	(552)	(578)	(621)	(659)	(708)	(9.03)

TABLE 3: INCOME LEVEL AND INCOME DISTRIBUTION FOR SMSA SAMPLE AND FOR UNITED STATES, 1959-1969

Year	SMSA SAMPLE Gini Coefficient		SMSA SAMPLE Mean Income		U.S. Gini Coefficient	U.S. Mean Income
	Mean*	Standard Deviation	Mean*	Standard Deviation		
1959	.4228	.0353	$5428	$498	.4457	$5062
1961	.4270	.0269	5718	552	.4462	5364
1963	.4285	.0279	6098	578	.4496	5767
1965	.4371	.0307	6723	621	.4583	6350
1967	.4465	.0278	7368	659	.4652	7045
1969	.4486	.0261	8245	708	.4669	7959
1959-1969 percent change	6.1%		51.9%		4.8%	57.2%

* For each year, this is the unweighted average of the 86 Gini coefficients (mean incomes) displayed in Table 1 (Table 2).

$$\text{SMSA Gini} = .4154 + .0056\ \text{Trend} \qquad R^2 = .953$$
$$(9.00)$$

$$\text{US Gini} = .4374 + .0030\ \text{Trend} \qquad R^2 = .908$$
$$(9.42)$$

This trend toward greater inequality is significant for both series. The average mean income of the SMSA sample exceeds the mean income of the U.S. in each of the six years. Table 3 reveals that average SMSA income grew at a slower rate, 51.9 percent, than mean U.S. income, 57.2 percent.

For each SMSA, a time trend was regressed on the Gini coefficient for the six data points in the 1959-1969 period. It was hypothesized that although the trend in the sample average and the U.S. aggregate Gini coefficients were similar (as shown in Table 3), individual SMSAs might have experienced divergent trends. Of the 86 time trends, 79 were positive (fifty of these were significant) and 7 were negative (only one of these was significant). While the degree of inequality varies widely among the SMSAs in any given year, the trend in inequality was similar for the great majority.[9]

The size of the trend, however, does vary across the SMSAs. Table 4 presents the Gini coefficient and mean income for 1959 and 1969 and the percentage change in each for the entire SMSA sample and for selected subsamples. The subsamples are based on the tails of the distribution for the 1959 mean income, 1959 Gini coefficient, and the changes in the Gini coefficient and mean income. Because the regression coefficient for the trend in the Gini coefficient (mean income) is highly correlated with the percentage change in the Gini (mean), and because the percentage change is more easily

TABLE 4: INCOME LEVEL AND INCOME DISTRIBUTION FOR SELECTED SUBSAMPLES

	1959 Gini	1969 Gini	1959 Mean	1969 Mean	%Chng Gini	%Chng Mean
N= 86, ALL SMSAs	.423	.449	5428.0	8244.9	6.54	52.26
	(.035)	(.026)	(498.4)	(708.2)	(7.37)	(9.03)
Poorest 10 in 1959	.454	.441	4576.3	7259.9	-1.69	58.75
	(.061)	(.023)	(229.3)	(411.3)	(9.59)	(7.21)
Richest 10 in 1959	.428	.457	6207.0	9247.7	7.03	48.99
	(.026)	(.023)	(108.5)	(547.5)	(4.30)	(8.54)
10 Most Equal 1959	.371	.430	5588.4	8205.1	16.05	47.22
	(.015)	(.025)	(430.3)	(626.4)	(5.98)	(11.19)
10 Most Unequal in 1959	.484	.477	5274.5	7905.0	-0.74	50.14
	(.049)	(.033)	(630.7)	(871.0)	(11.09)	(6.22)
10 Largest Trends Toward Equality	.457	.422	4847.2	7777.6	-6.88	60.75
	(.060)	(.020)	(476.0)	(837.1)	(6.84)	(12.01)
10 Largest Trends Toward Inequality	.383	.454	5586.1	8032.9	18.34	44.24
	(.034)	(.040)	(428.7)	(484.0)	(4.25)	(9.48)
10 Slowest Income Growth	.414	.456	5776.6	7950.6	10.94	37.69
	(.042)	(.022)	(394.7)	(559.5)	(11.64)	(4.26)
10 Fastest Income Growth	.413	.428	4980.8	8324.4	3.95	67.26
	(.033)	(.033)	(457.8)	(759.6)	(6.97)	(6.64)

NOTE: Standard deviations appear in parentheses below sample means.

interpreted than the size of the regression coefficient, the percentage change is used to examine the size of the trend in Table 4.[10]

Table 4 reinforces the neoclassical view of the convergence of interregional income differentials. The convergence of levels of income has been a familiar focus of study;

> ... a state that has previously achieved a high per capita income may have great difficulty in achieving a further increase of the same percentage size as a low-income state particularly when the larger absolute increases in the high-income states may be smaller percentage increases ...The very notion of the allocation of scarce resources should lead us to expect a comprehensive measure such as per capita income, to regress toward the mean (Hanna, 1957, p. 133).

Table 4 also reveals a convergence in the distribution of income, a result not previously examined in the literature.

Mean incomes in the poorest SMSAs grew by 58.75 percent while incomes in the richest grew by only 48.99 percent. The poorest SMSAs also show a slight trend toward greater equality (-1.69 percent) while the richest moved toward greater inequality (7.03 percent). The most equal SMSAs in 1959 exhibit a large trend (16.05 percent) toward greater inequality while inequality in the most unequal remained almost constant (-0.74 percent). Thus, while incomes in the poorest SMSAs were 74 percent of those in the richest in 1959 (4576.3/6207.0), they had risen to 79 percent by 1969 (7259.9/9247.7). The convergence in income inequality was even greater. The most unequal in 1959 had Gini coefficients that were 30 percent greater than those in the most equal SMSAs (.484/.371), but by 1969 this differential had been reduced to 11 percent (.477/.430).

Movements toward greater equality are associated with higher than average increases in income, while movements toward greater inequality are associated with smaller than average increases in income. In the SMSAs where inequality decreased by the largest amount

(-6.88 percent), incomes grew by 60.75 percent, while in those where inequality greatly increased (18.34 percent), incomes grew by only 44.24 percent. Similarly, those with the slowest income growth rates (37.69 percent) had greater than average increases in inequality (10.94 percent), while those which experienced rapid increases in income (67.26 percent) had **smaller** increases in inequality (3.95 percent). During this period, greater equality is associated with faster income growth; there does not seem to be a trade-off between equity and efficiency.

The convergence hypothesis and the relationship between the change in income inequality and the change in mean income can be tested within a regression framework. As mentioned earlier, a time trend was regressed on both the Gini coefficient and the mean income for each of the 86 SMSAs, so that

$$\text{Gini}_t = a_1 + b_1 \text{ Trend}$$

$$\text{Mean}_t = a_2 + b_2 \text{ Trend}$$

$$\text{For}_t = 1959, 1961, 1963, 1965, 1967, 1969.$$

The regression coefficients for the time trends were then expressed as a percentage of the average Gini coefficient and mean income,

$$\text{GINITREND} = \frac{(b_1 \cdot 100)}{\frac{1}{6} \cdot \sum_{t=1}^{6} \text{Gini}_t}$$

$$\text{MEANTREND} = \frac{(b_2 \cdot 100)}{\frac{1}{6} \cdot \sum_{t=1}^{6} \text{Mean}_t} \cdot^{11}$$

Thus, GINITREND (MEANTREND) is the average percentage change in the gini coefficient (mean income) per two-year period. GINITREND and

TABLE 5: REGRESSION RESULTS FOR TRENDS IN THE LEVEL AND DISTRIBUTION OF INCOME

	(1) MEANTREND	(2) GINITREND
Constant	11.39	10.71
Gini 59 (X1000)		-.0205 (6.59)*
Mean 59 ($000's)	-0.651 (3.01)*	0.373 (1.64)
MEANTREND		-0.343 (3.14)*
Northeast	1.201 (3.86)*	0.195 (0.58)
South	0.905 (2.89)*	0.201 (0.62)
Northcentral	0.367 (1.22)	0.205 (0.65)
R^2	.337	.537
Mean of dependent variable	8.53	1.31

* Denotes significance at the 5% level; t-statistics appear in parentheses below the regression coefficients. Number of observations is 86 for each regression.

MEANTREND are the dependent variables in the two regressions shown in Table 5.

The two equations are modeled recursively so that the level of income and its trend affect the degree of inequality, but inequality does not affect the income level or the income trend. Equation 1 shows that convergence in mean incomes occurred between 1959 and 1969. An increase of $1000 in the 1959 mean income of an SMSA lowers its MEANTREND by 0.651 percent. Differences in regional growth rates also support the convergence hypothesis. SMSAs in the two highest income regions in 1959, the Pacific and Northcentral (with average mean incomes of $5658 and $5641), grew at a slower rate than those in the other two regions, the Northeast and the South (with average mean incomes of $5316 and $5197).

Equation 2 shows significant convergence in Gini coefficients--an increase of .010 in the 1959 Gini results in a decrease of 0.205 percent in the GINITREND. Faster rates of income growth holding constant the 1959 mean income significantly lower GINITREND. A 1 percent increase in MEANTREND lowers the GINITREND by 0.343 percent.

These results are consistent with a model in which poorer residents of lower-income metropolitan areas migrate to higher-income SMSAs. The average income of the destination SMSA then falls and its level of inequality rises; in the SMSA of origin, average income levels increase and inequality falls. This pattern conflicts with the conventional notion that higher-educated, more-skilled residents of depressed areas migrate to more prosperous SMSAs. However, the contradiction may arise from the fact that the data analyzed

here refer to the largest SMSAs and, thus, do not present a comprehensive view of migrating streams.

IV. Summary

This paper has presented a time series on the income level and income distribution for a sample of SMSAs. Several interesting results have been described. First, the level and distribution of income vary widely among the SMSAs. Second, a majority of the SMSAs experienced an increase in inequality during the 1959-1969 period. Third, differences among the SMSAs in both income level and degree of income inequality narrowed. Finally, higher rates of growth of income were associated with smaller increases in inequality.

While this paper has been descriptive, it is hoped that the data set will be useful for testing theories that relate the income level and income distributions of metropolitan areas to their urban problems. For example, can increases in SMSA crime rates or the incidence of urban riots or urban fiscal problems be explained by changes in the level and distribution of metropolitan area incomes? The data should also be useful for testing models of interregional migration.

NOTES

[1]Farbman (1975) analyzes metropolitan area income distributions for 1959, but his cross-sectional sample is unsuited for examining the trend in the level and distribution of income.

[2]The smallest SMSA in the sample has a 1969 population of 266,000.

[3]Budd (1970) compares the IRS data on the size distribution of income with that from other sources.

[4]Persons accounted for on tax returns--the sum of all exemptions for taxpayers and dependents less the double exemptions of the elderly and the blind--as a percentage of the total population ranged from 93 to 97 percent during the 1959-1969 period.

[5]The Gini coefficient ranges from unity, perfect inequality, to zero, perfect equality. Gastwirth (1972) discusses the measurement of the Gini coefficient from IRS data. The method used in this paper produces lower bound estimates of the Gini coefficient since the class mean is assigned to all tax returns in each income interval. The number of income intervals for each year were: 15 for 1959 and 1961; 16 for 1963, 1965 and 1967; and 13 for 1969.

[6]The percentage change in the variables for all tables is defined as:

$$(X_{1969} - X_{1959}/X_{1959}) \cdot 100.$$

[7]These are the arithmetic means for the six Gini coefficients and mean incomes shown in Tables 1 and 2.

[8]The regressions for the U.S. are based on annual (not biennial) observations; t-statistics appear below the regression coefficients in parentheses.

[9]A similar regression was performed for each SMSA in which the mean current income was the dependent variable. The direction of the trend, positive and significant for all SMSAs, is not of interest. However, the size of the trend varies, and is discussed below.

[10]The simple correlation coefficient between the regression coefficient from the Gini regression and the percentage change in the Gini is .95; for the regression coefficient from the mean regression and the percentage change in the mean it is .96.

[11]A positive GINITREND represents an increase in inequality; a negative, a decrease.

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