LAND VALUES AND POPULATION

By ARTHUR J. MERTZKE

TO find localities in which population and land values are both increasing is a very common experience. Indeed these two phenomena occur together so frequently that economists, as well as those who have not specialized in the study of business affairs, have without question accepted the idea that changes in land values are directly related to changes in population. Alfred Marshall expressed the current impression when he wrote, "Site value is expected to rise in consequence of a growth in population."[1]

To what extent is this general assumption scientifically valid? Is it merely a rule-of-thumb principle, based on casual observation? No adequate statistical analysis of the problem has come to the writer's attention. It may be appropriate, therefore, to place side by side changes of land values and of population in a number of communities over a period of years, in order to test the validity of this popular explanation of land values.

Scientific procedure means that we first look and see what the facts are, and then let an analysis of our findings lead to whatever conclusions are justified by the facts. Such an undertaking could scarcely lay claim to any degree of soundness if it took for its aim the proof or disproof of any particular proposition set down in advance, because in a field with such an abundance of facts of all varieties almost any conceivable view, however incorrect when held up in the light of *all* the facts, could be defended by selecting instances that would support it. The problem before us in this instance, therefore, can be stated merely as an open question: What functional relationship, if any, is there between changes in urban population and changes in urban land values?

In an endeavor to throw some light upon this question a statistical investigation of changes of land values over a period of 21 years, in 37 Wisconsin cities each having a population of 5,000 or more, was undertaken in order to measure the degree of correlation between the changes in population and the changes in land values in these cities.

Estimating Market Values of Land

It was necessary first of all to compile data showing the changes of the market values of land from 1902 to 1922, for the purpose of securing an objective measure of changes in land values during this period. No attempt was made to determine the earning power or income secured from the land, but merely to measure the actual changes in the capital value of the land itself as reflected in the market prices of land.

The method used for computing the estimated market value was as follows: In each city the first data secured were the annual assessed valuations of all land in the city, exclusive of improvements. With the exception of Kenosha and Racine, the area studied in each of the 37 cities was constant throughout the period of the investigation, and

[1] Marshall, Alfred, *Principles of Economics*, 5th edition, p. 442.

in most cases coincided with the legal boundaries of the cities.[2]

Since the assessed valuation of land frequently varies considerably from the selling value, it was necessary to find a method that would give an estimated market value of the entire land area of the city. This was done by means of sales records taken from the files of the State Tax Commission. All the selling prices of vacant properties upon which the Tax Commission had verified the considerations involved were totaled and compared with the total assessed valuation of the same properties. This method provided a ratio of assessed value to selling value, which was applied to the total assessed valuation of land in the city for the same year, on the assumption that the parcels sold in any year would, in general, reflect the value of all land in the city.[3] Granting, however, that many of the vacant parcels sold were not really representative sites, they would, in all probability, reflect *relative* changes in land values with sufficient accuracy for our purpose. When it was found, for example, that in a given year all vacant parcels sold in a given city had, on the average, been assessed at 90% of their selling value, this percentage was used to correct the assessed valuation of the land area included in the study. In this way the assessed valuation of the land, exclusive of improvements, in the city was corrected year by year.

In order to show the *relative* changes from year to year more clearly, the corrected or estimated market values of land for the city were then converted into percentages, using the first year of the period, 1902, as a base. By expressing the change of value from year to year in terms of percentages the picture is made clearer because the method employed was intended to bring out *relative* changes in value rather than accurate market values.

In this study no attempt has been made to correct changes in land values for changes in the purchasing power of money. In order to do this accurately it would be necessary to compute an index number for each city which would measure the local changes in the purchasing power of money, on the basis of which the index of the market values of land could be corrected. The necessity for doing that is obviated in this case because we are not comparing changes in land values with changes in population in one city alone. In reality we are comparing the ratios of changes in land values to changes in population *among* cities. Thus, if in city *A* land values in a given period have doubled while population has remained constant, whereas in city *B* land values have doubled while population has increased, let us say, 50%, we have evidence of a disproportionate change in land values as compared with the change in population.

[2] In Appleton, Madison, Milwaukee, and Superior, selected portions of the city were studied in order to compare changes in value of residential, industrial, and commercial districts.

[3] The author is indebted for this method of estimating land values to the late Mr. T. A. Polleys, Commissioner of Taxation of the Chicago and Northwestern Railway, who employed it extensively as a means of securing evidence to present to courts and commissions, by which these estimates were accepted as the most reliable.

In order to test this method the author secured from the American Appraisal Company and the Milwaukee Real Estate Board their appraisals of the sites of improved properties in Milwaukee year by year, and computed a ratio of assessed valuation to the appraised valuation as a means of correcting the general assessment figures. The relative estimates derived in this way were very similar to those computed on the basis of vacant land sales.

Comparison with Changes in Population

To facilitate comparison between changes in population and changes in land values, the cities covered by this investigation were grouped into six classes on the basis of the average increase or decrease in population per decade for the two decades from 1900 to 1920.

The indexes of land values in each city shown in Table I were grouped as indicated in Table II, and then an average annual change for each group of cities was calculated. This result is given in Chart I. Table III gives the data on which the chart is based.

Cities with Decreasing Population

It will be observed that in the group of cities with declining populations the average value of land fluctuated rather widely but never rose higher than 162 in comparison with the values of the base year, 1902. Table I shows that the indexes of the five cities comprising this group are very dissimilar. The index number for Ashland immediately after 1902 fell below 100 and never came up to this point again with the exception of one year, 1912, when it reached 106. Similar to the Ashland series is that of Baraboo shown in Table I. Land values in Baraboo fluctuated above and below the 100 point, ending in 1922 with 90. Markedly different are the series for Marinette and Merrill. In both these cities the indexes of land values rose with fair rapidity. Menomonee, however, is in a class by itself in this group, for its index of land values rose with approximately the same rapidity as those of cities like Madison and Milwaukee, as is shown by its place in Table IV, in which cities are grouped according to the average increase in their land values.

TABLE I. INDEXES OF ESTIMATED TRUE VALUE OF LAND EXCLUSIVE OF BUILDINGS IN 37 WISCONSIN CITIES, 1902-1922

Base: 1902

Year	Antigo	Appleton	Ashland	Baraboo	Beloit	Chippewa Falls	Cudahy	De Pere	Eau Claire	Fond du Lac	Green Bay	Janesville	Kaukauna	Kenosha	La Crosse	Madison	Marinette	Manitowoc	Marshfield
1902	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
1903	129	108	86	101	96	107	114	100	111	108	105	99	139	106	112	112	104	113	109
1904	156	111	75	101	95	95	128	109	138	151	109	111	170	109	110	117	110	118	114
1905	161	117	69	91	112	103	132	118	136	130	115	105	145	135	112	117	121	117	100
1906	163	112	82	111	121	114	172	235	185	188	125	116	142	145	111	131	122	111	97
1907	173	113	92	95	132	105	186	348	197	126	135	116	153	156	117	137	122	113	105
1908	185	119	76	104	138	89	193	314	218	89	149	120	146	157	114	136	119	97	95
1909	232	120	83	116	148	143	163	322	197	93	140	109	120	151	123	199	150	103	111
1910	201	126	84	106	159	154	186	414	195	95	129	117	104	163	115	169	145	80	108
1911	199	124	81	106	135	106	209	387	207	94	149	139	133	205	130	197	132	157	122
1912	188	115	106	111	128	103	167	339	231	94	168	147	219	274	106	199	132	95	105
1913	210	133	94	103	140	134	159	364	238	99	159	122	147	257	110	228	134	89	119
1914	246	130	92	115	136	108	191	348	206	108	154	128	163	265	122	199	146	75	108
1915	282	130	80	94	133	140	219	375	266	114	164	136	135	311	115	199	109	86	119
1916	247	141	77	119	125	132	210	471	278	119	151	123	139	339	126	224	131	84	111
1917	216	136	79	80	174	102	192	431	283	94	186	114	176	334	141	233	163	82	111
1918	194	134	79	111	162	89	221	443	306	126	204	133	188	365	126	229	157	94	128
1919	234	155	86	154	182	96	212	452	350	148	192	206	166	391	136	250	149	104	175
1920	251	162	87	117	182	83	281	436	542	162	198	245	171	551	157	245	151	110	207
1921	289	178	68	99	168	154	290	511	538	179	196	214	192	608	152	254	171	126	199
1922	227	207	79	90	224	200	394	445	509	168	201	270	211	525	152	268	157	126	195

Cities Having 0% to 15% Increase in Population per Decade

The average index number of land values in the 13 cities in which population increased from 0% to 15% per decade shows a decided upward movement between 1902 and 1910, followed by 8 years of very slowly rising values from 1910 to 1918, with a rapid upward movement from 1918 to 1922. Throughout the period of the investigation the average values in this group of cities rose with more than double the rapidity of the average values in the group declining in population.

Upon consulting the indexes of individual cities in Table I we observe again that in this group of 13 cities (see Table II) having relatively stationary populations, very different rates of increase in land values occurred. Thus while values in Chippewa Falls and Oshkosh showed a small increase, values in Appleton and Kaukauna moved upward with considerable rapidity, while those of De Pere, Eau Claire, Menasha, and Neenah increased very rapidly. In Table IV, showing cities grouped according to the average increase in land values, we find that cities with relatively stationary populations represent some of the smallest, as well as some of the largest, increases in land values.

Cities Having 15% to 30% Increase in Population per Decade

The average index from 1902 to 1922 of land values in the group of cities which increased in population per decade from 15% to 30% moves very curiously with respect to similar figures for the cities increasing from 0% to 15% per decade, as will be observed by comparing the curves on Chart I. The average index of land values for this group of 9 cities falls about midway between that of the group declin-

TABLE I *(Continued)*. INDEXES OF ESTIMATED TRUE VALUE OF LAND EXCLUSIVE OF BUILDINGS IN 37 WISCONSIN CITIES, 1902-1922

Base: 1902

Year	Menasha	Menomonee	Merrill	Milwaukee	Neenah	Oshkosh	Portage	Rhinelander	Racine	South Milwaukee	Sheboygan	Superior	Two Rivers	Watertown	Waukesha	Wausau	Wauwatosa	West Allis
1902	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
1903	114	112	104	104	144	105	105	117	106	106	105	95	120	96	118	125	90	116
1904	132	124	129	108	209	112	106	132	119	110	99	101	130	106	105	142	111	187
1905	146	100	127	120	210	109	118	156	121	103	108	92	126	111	118	164	113	233
1906	157	116	141	131	227	127	118	164	118	103	105	98	126	121	114	192	119	211
1907	165	149	113	140	222	123	114	174	128	106	97	115	128	140	113	203	106	265
1908	162	129	115	146	205	147	123	173	128	60	93	112	146	142	115	203	127	226
1909	134	140	147	141	177	132	114	218	120	84	97	128	126	124	83	217	110	238
1910	188	135	116	149	222	116	119	192	147	66	117	140	111	196	95	212	147	297
1911	193	126	85	153	246	149	153	224	189	92	113	126	88	162	114	212	153	267
1912	115	142	116	164	228	149	148	198	185	125	120	175	131	139	120	227	143	263
1913	154	143	103	158	249	114	124	237	207	95	129	180	132	169	100	187	163	282
1914	200	176	118	168	234	135	141	227	215	87	127	169	127	155	126	232	150	307
1915	214	204	164	177	264	126	163	211	221	99	127	167	124	174	127	302	156	276
1916	235	250	112	166	276	142	124	263	262	84	136	175	145	171	137	226	154	318
1917	262	146	128	172	257	121	121	269	260	96	147	197	139	175	146	256	185	264
1918	223	225	240	189	259	120	149	293	272	110	134	155	149	150	143	310	195	340
1919	317	192	206	176	309	152	126	307	291	103	158	178	198	147	166	262	222	419
1920	298	193	174	217	338	153	185	461	375	108	152	189	231	175	196	260	339	599
1921	346	166	179	176	367	145	163	419	356	118	180	164	208	190	196	317	328	610
1922	400	227	215	255	508	119	154	417	384	121	182	166	212	157	189	381	332	526

ing in population and that of the group increasing from 0% to 15% per decade. According to the generally accepted view of the relation of population growth to urban land values, the values in these cities should have risen more rapidly than those in the preceding group.

In this same group of cities (increasing in population from 15% to 30% per decade) we again note a wide divergence in the rates of increase in land values. In this group Manitowoc has the lowest rate of increase; its index number for 9 out of the 21 years of the period is below 100, and with the exception of one year, 1911, when it reached 157, never rose above 126, which is the figure for 1921 and 1922. At the other extreme in this group are Rhinelander and Wausau, whose values increased several hundred per cent from 1902 to 1922.

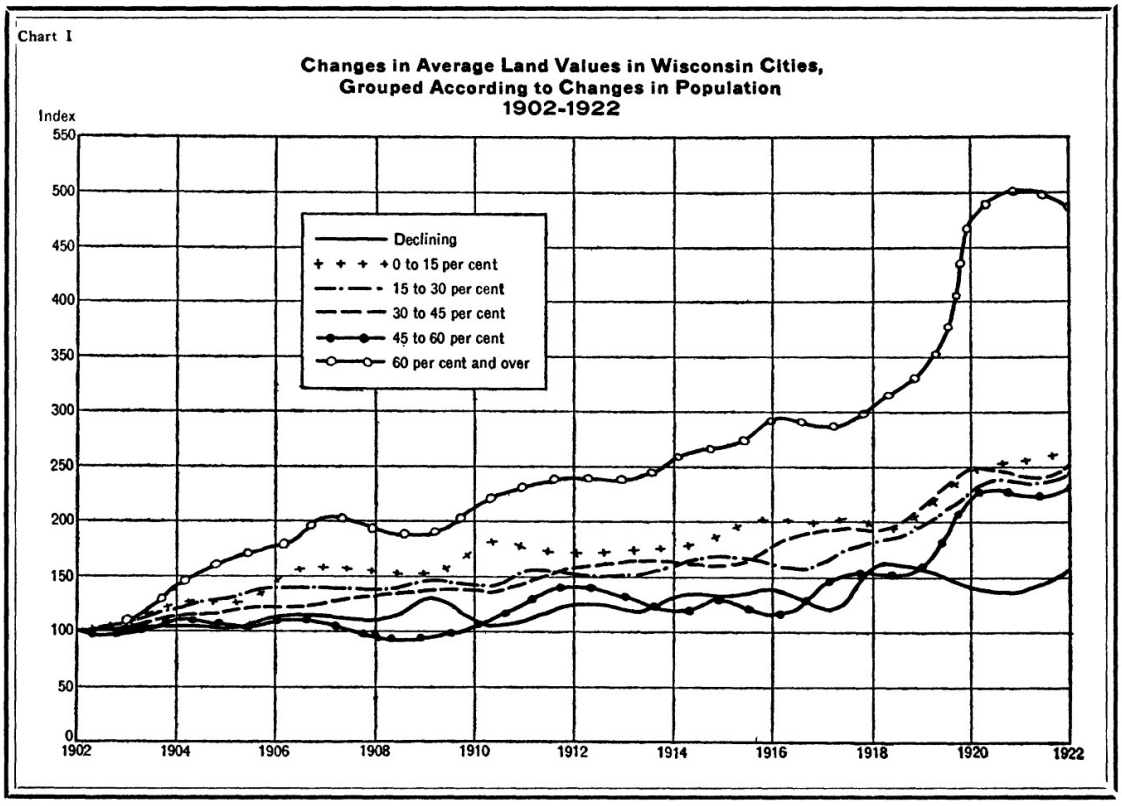
Cities Having 30% to 45% Increase in Population per Decade

The average index of land values of the group of five cities which showed an average increase in population of 30% to 45% per decade, fluctuates less than that of any other group, as will be noted by observing the curve on Chart I. The peculiarity of this curve is the fact that from 1902 to 1912, and again in 1915, it falls below that of both the previous groups, which have lower rates of increase in population, and for the last five years approximately coincided with the curve representing cities whose rate of population increase was 0% to 15% per decade.

In this group of cities the variations in the increase of land values are less extreme than in the groups already described. From Table IV we note that the cities of Beloit and Waukesha represent the smallest increases, falling within the range of approximately 75% to 100%. Land values in Madison and Two Rivers increased more rapidly, showing a rise ranging from 100% to 200%. Of these two the more steady increase in values occurred in Madison, where, with the exception of two marked jumps in value in 1909 and in 1913, land values showed a strong, steady growth. Racine, with the largest increase in value, is to some extent misrepresented here, on account of the fact that the index of land values is based on the total area of the city each year, which according to figures obtained from the Census Bureau expanded from 2,960 acres in 1904 to 3,858 acres in 1923. The value per acre of the additions was relatively small as compared with the value per acre of the original area; but nevertheless their value does exaggerate the rise of the index to some degree. One may seriously doubt whether, in spite of the rapid rise in values of land that was found by personal inquiry in Racine, the city ought to be retained in a study of this sort, on account of the fact that the data are open to misinterpretations when placed beside figures for other cities.

Cities Having 45% to 60% Increase in Population per Decade

The average index of land values in the two cities in this group is the lowest of all the groups for about half of the period covered (11 years out of 21) and fluctuates above and below that for the cities declining in population. This is due to the fact that land values in South Milwaukee, taking the period studied as a whole, have declined. For 9 years of the period its index of land



values was below 100, and a maximum height of 125 was reached in 1912. The index of land values in Wauwatosa shows a strong, steady increase from 100 in 1902 to 332 in 1922. Here as in earlier groups, we find a striking dissimilarity in movement of land values in cities that are increasing in population at similar rates.

Cities Having 60% or Over Increase in Population per Decade

The average index of land values in the three cities comprising this group rose more markedly than that of any other group, as can be seen by noting the curve on Chart I. The index obtained for Kenosha is open to the same criticism as that already made in connection with Racine. Kenosha added to the original area of 1,202 acres in 1902 a total of 2,452.2 acres by 15 annexations ranging from 2.3 acres to 960 acres in size. The total area annexed in this case is more than double the original area in 1902, and the resultant figures obtained as index of land values are, therefore, of most doubtful character. They are here presented only because by personal inquiry in Kenosha it was learned that land values there had increased very rapidly, although the figures as they stand exaggerate the increase very much. A fixed area was not studied in this case because numerous shifts in ward boundaries would have made the compilation of the data for the original area an undertaking involving prohibitive expense.

Land values in Cudahy and West Allis, both adjacent to Milwaukee, have increased rapidly primarily on account of their proximity to the cramped parent-city of Milwaukee. In these

two cities all the factors that affect land values are so bound up with the overshadowing fact of their position adjacent to a large, crowded, and growing city that even the change in population itself cannot be explained by looking at these cities apart from Milwaukee.

Correlation of Changes in Land Values and Population

A summary of these groups of cities is given in Table IV, page 353, which shows their distribution according to increase in population and increase in land values. If land values varied directly with population, cities should be grouped along a line drawn diagonally across the table from the lower left to the upper right-hand corner.

If we draw in imagination this diagonal line of equal variation, we will notice a considerable scattering of cities with reference to it. In the cities of Beloit, Chippewa Falls, Cudahy, Manitowoc, Oshkosh, Sheboygan, South Milwaukee, and Waukesha, land values have increased less than would be expected if growth of population primarily determined values. More surprising still is the group whose land values have risen out of proportion to their growth in population. The most conspicuous examples are De Pere, Eau Claire, Menasha, Menomonee, Neenah, and Rhinelander. Almost as striking is the lack of correlation between land values and population of Kaukauna, Merrill, and Wausau. Moreover, Antigo, Appleton, Janesville, Marinette, Milwaukee, and Racine show land values increasing faster than population, but these are nearer what might be called border-line cases.

The Pearsonian coefficient of correlation of changes in land values and changes in population is .557, with a probable error of .0775.

In order to see whether the size of the city had any marked effect upon the rate of increase in land values, an arithmetical average was constructed on the basis of three groups of cities: Those having in 1920 a population of 5,000 to 10,000; those having in 1920 a population of 10,000 to 25,000; and those having in 1920 a population of 25,000 or over. The results warrant no different conclusion on this question, since the curves run closely parallel and cross and recross each other, indicating that sometimes land values in the smaller cities increase more and, at other times, less rapidly than land values in larger cities.

Changes in Land Values According to Uses of Land

In the cities of Appleton, Madison, Milwaukee, and Superior, data were compiled by wards or other subdivisions which gave a rough basis for comparing the rates of increase in land values of residential, industrial, and commercial areas. From a comparison of land-value changes in these different areas in the four cities, two points of considerable importance were obtained: First, the lack of any correlation between rate of growth of population and the rates of increase in land values in any of the three types of land utilization; second, the relative differences in rates of increase of residential, industrial, and commercial land values.

In general, the results obtained in these four cities show that residential land values tended to remain practically stationary. The exception to this rule in the case of residential lands occurs in developing sections of the city where

land is passing from a lower to a higher use. Thus in the new subdivisions of Madison and Milwaukee, lands that during the period studied were being developed into high-grade subdivisions show marked increases in value. On the other hand, in the low-grade residential section of Milwaukee land values slowly but steadily declined. The same tendency was observed in Superior.

Industrial land values apparently move upward at about the same rate as do the average land values for the entire city—midway between the slowly rising residential land values and the rapidly rising commercial land values.

In the commercial districts, however, we observe the greatest percentage increase in land values. In three out of four cities where lands were classified by use, it was found that commercial land values rose decidedly more rapidly than did the average land values for the cities as a whole. One exception to this was found in the case of Appleton, in which the average increase for the city as a whole, as a result of the rapid increase in value of the industrial wards, was greater than that of the Commercial ward at the heart of the city.

No correlation was found between these changes in land values and changes in population. In Appleton values of residential land rose much more rapidly than those in either Madison or Milwaukee. On the other hand, commercial land values rose most rapidly in Milwaukee. Next in order come those of Madison, Superior, and Appleton.

While these results show different rates of change in residential, industrial, and commercial land values, they show little if anything that would support a theory which says that there is a definite ratio between growth in population and increase in land values.

Such are the facts objectively compiled from all cities in Wisconsin having in 1920 a population of 5,000 or over, with the exception of three or four smaller cities from which no data were obtainable by correspondence. The findings here set forth are but a small portion of the data needed to establish fully the principles suggested by the facts here submitted. In the following observations, based in part upon the writer's knowledge of the geographic and historical background of

TABLE II. WISCONSIN CITIES CLASSIFIED ACCORDING TO CHANGE IN POPULATION PER DECADE, 1900-1920*

DECREASING	INCREASING				
	0%—15%	15%—30%	30%—45%	45%—60%	60% and Over
Ashland	Chippewa Falls	Manitowoc	Beloit	So. Milwaukee	Cudahy
Baraboo	Oshkosh	Sheboygan	Waukesha	Wauwatosa	West Allis
Marinette	Fond du Lac	Green Bay	Madison		Kenosha
Merrill	La Crosse	Marshfield	Two Rivers		
Menomonee	Portage	Antigo	Racine		
	Superior	Janesville			
	Watertown	Milwaukee			
	Appleton	Wausau			
	Kaukauna	Rhinelander			
	De Pere				
	Eau Claire				
	Menasha				
	Neenah				

Wisconsin cities, the purpose is merely to sketch in a general way some of the factors to be considered in a discussion of urban land values. These will need to be more fully studied before general conclusions can be formulated.

Influential Factors Other Than Population

The distribution of cities in Table IV leaves no doubt as to one thing, namely, that *other factors* than population have a great deal to do with urban land values. The prevailing view that urban land values are a consequence of population apparently minimizes too much, if it does not overlook altogether, the very important point that factors other than population may primarily affect site values. Indeed these may be of such importance as to outweigh population as a factor, if not to rule it out as a *casual* factor altogether.

That urban land values and population bear some relationship to one another is common knowledge. High values and concentrated population as a rule occur together. The correlation between the two is not perfect, but the lack of correlation might be explained by some "disturbing factor." This well-known coincidence of high values and large population has become so familiar that few people question the cause and effect relations between the two, so inseparably are they associated in the minds of many people. On this point one may easily slip into grave error leading to dangerous mistakes. It is necessary, therefore, to see clearly what the real causes of urban land values are, and to understand how population is related to them.

With a general increase in population one of two things (or both) may happen: Either the standard of living may decline, with no greater demand for land than before, or there may be such progress as to meet the needs of all at a uniform or increasing standard of living. If the latter is the case, the demand for land for all uses—agriculture, forestry, mining, transport, industry, commerce, and residence—will increase. Thus we may say that increasing population in a progressive society will tend to increase the value of all types of land.

Men seeking economic opportunities are likely to choose, first of all, among occupations. Having selected one, the next choice is that of location. Some occupations that require land can be carried on only at certain places; others may be carried on almost anywhere over a wide area. Running a farm or even a grocery store has a wide geographic range; operating a steel mill or a shipbuilding yard is confined to much narrower limits.

Competition for Land Offering Profitable Opportunities

Cities spring up and flourish where the maximum number of profitable opportunities can be found in a small area. These are determined by a wide variety of circumstances. Among them is the general growth of population in the nation and the world. In order to satisfy demands of all sorts most effectively, men seek the most advantageous locations for carrying on their enterprises. Thus are developed mining districts, agricultural sections, and cities. The valuable opportunities which cities have to offer attract men, who compete for locations until a very large proportion of the present and expected earn-

TABLE III. AVERAGE INDEXES OF URBAN LAND VALUES IN 37 WISCONSIN CITIES, GROUPED ACCORDING TO AVERAGE RATES OF GROWTH IN POPULATION PER DECADE, 1902-1922

YEAR	DECREASING	INCREASING					AVERAGE OF ALL CITIES
		0—15%	15—30%	30—45%	45—60%	60% and Over	
1902	100	100	100	100	100	100	100
1903	101	111	111	110	98	112	107
1904	108	125	124	113	111	141	121
1905	102	126	128	119	108	167	143
1906	114	145	139	122	111	176	135
1907	114	159	138	128	106	202	161
1908	109	158	135	133	94	192	137
1909	127	153	146	135	97	184	140
1910	107	174	140	136	107	215	147
1911	106	176	156	145	123	227	174
1912	121	172	151	153	134	235	161
1913	115	174	151	161	129	233	162
1914	129	176	157	161	119	254	166
1915	130	189	172	161	128	269	191
1916	138	201	163	179	119	289	182
1917	119	200	165	190	141	283	183
1918	162	195	180	191	153	309	198
1919	157	216	196	217	163	341	215
1920	144	241	226	246	224	477	260
1921	137	258	230	236	223	503	265
1922	154	269	242	255	227	482	272

ing power of the site, and sometimes more, is offered as a price for the land. In addition to the prices paid for the sites, heavy expenditures are incurred for the development and improvement of the best locations for the purpose of obtaining from the land the maximum services it can render. These activities tend to bring about the most intensive utilization, thereby leading to the maximum social service to which it is economically possible to put the land, and stimulate competition for sites which determines their values.

In a sense it seems unnecessary thus to look behind population for the cause of urban land values. But to stop with population as the cause of values in any given city leaves open the most important question of all, namely, what factors determine the location of any city. Is it chance? Evidently not. Every one knows that the reason Madison, Wisconsin, has but a small fraction of the number of people living in New York is that Madison affords fewer basic opportunities than New York, and, therefore, attracts a smaller number of people.

Some of these opportunities are determined by important natural features. Others are the product of will and initiative. In either case, they produce a similar result. Men seek places that offer the opportunities they desire, and the more numerous and the greater the opportunities, the larger the number of competitors and the higher the bids for these locations will be.

Thus the demand for sites in New York is made up of elements from all over the earth, as far as the products

of New York's enterprise can find a market. The subscriber of the *New York Times* in China contributes as much to the value of Times Square as the subscriber in New York City itself. Every city is a focal point in which are concentrated a number of opportunities for profit and gain in one form or other, and such a combination of circumstances enables every city in effect to absorb a great amount of the values of the entire region that constitute its sources of supplies, and its markets. For that reason primarily cities are keenly interested in every project that tends to improve or impair their advantageous positions.

This enables us to see also that values may rise very rapidly even though population is increasing slowly, as is the case in Eau Claire and other cities in Wisconsin. If the business opportunities of a city multiply, due to its development as a commercial center and distributing point, its site values will rise even though wages, and hence the number of workers attracted, do not rise to any marked extent.

Resort cities offer a special kind of opportunity that gives value to lands that might never be developed if they waited for industrial or ordinary commercial enterprise. But since they offer a combination of features that people enjoy—the ocean, mountains, sunshine, recreational facilities in shops, hotels, and theaters, and a particular type of social life—site values emerge for the same reason as in all other cities, because it is a center of opportunities.

TABLE IV. CORRELATION BETWEEN PERCENTAGE INCREASE IN POPULATION PER DECADE AND PERCENTAGE INCREASE IN LAND VALUES IN 37 WISCONSIN CITIES, 1902-1922

Percentage Increase in Population per Decade	Percentage Increase in Land Values					
	0—50	50—75	75—100	100—200	200—300	300 and Over
60 and over.....					Cudahy	Kenosha West Allis
45—60.....	S. Milwaukee				Wauwatosa	
30—45.....			Beloit Waukesha	Madison Two Rivers	Racine	
15—30.....	Manitowoc	Sheboygan Fond du Lac	Green Bay Marshfield	Antigo Janesville Milwaukee	Wausau	Rhinelander
0—15.....	ChippewaFalls Oshkosh	La Crosse Portage Superior Watertown	Appleton	Kaukauna		De Pere Eau Claire Menasha Neenah
Decreasing.....	Ashland Baraboo	Marinette	Merrill	Menomonee		

We may then say that, whereas the general growth of population in the nation or in the world tends to raise the value of all lands in use, including the sites of cities, proportionately the size and growth of population in any *given* city can no more be looked upon as a cause of its land values than the number and size of its buildings. The causes of land values in any given city are found rather in the natural and social opportunities which its location affords.

Human Factors Influencing Land Values

The human factor appears to operate as a casual factor affecting urban land values in particular cities merely in so far as it is responsible for the development and safeguarding of the basic opportunities which a city may possess. But this may be done by comparatively few individuals, and many instances could be cited in which one or a few individuals have materially promoted or hindered the development of individual cities. Thus the numerical population of any city is not a primary *cause* of its land values, although it generally is a concomitant of them, and hence should be viewed as simply one of the secondary factors affecting land values in cities.

The question might properly be raised whether the quality rather than the quantity of the population might not help to explain urban land values. It is unquestionably true that to the extent that the *development of the possibilities* of any situation has a bearing upon land values, the quality of the population of the city as a whole is an important factor. One aspect of this has already been mentioned in connection with the influence of leaders upon the development, and resultant land values, of a community. Equally important are those characteristics of a population that determine its thriftiness, its industry, and its willingness to adopt new methods. Here the temperament of races stands out as a thing of foremost importance.

It is true that the ablest, economically speaking, are often the ones who through competition come into possession of the best situations. But this is certainly not always the case. It would never occur to a visitor of Salt Lake City that this now wealthy region was occupied by a people of inferior quality, although the land they developed would serve as a classic illustration of submarginal land. It can readily be seen that superior men may be able to develop lands which most men would consider worthless, and it is even possible that in so doing they may make greater profits than they could make by employing their energy, capacity, and capital on better land. The character or quality of population thus exerts a profound influence upon land values, not only because thriftiness causes a lower time preference and hence a lower rate of capitalization, but also because the degree of stability, energy, initiative such people possess determines in large measure the results which land is able to produce with any given outlay.

The outstanding fact discovered about changes in land values of Wisconsin cities was the marked lack of correlation between changes in land values and changes in population comparing one city with another. Regardless of how this fact is explained it clearly suggests the need for caution in acting upon the assumption that as population increases, land values will increase similarly.