

July 2013

Inflation

One of the unique features of this report will be an on-going measure of inflation in Wabash County. The national numbers are readily available for all goods, food, gas, and all goods excluding food and gas. The latter is called core inflation and is the one that is commonly quoted in the press. However, the inflation rates at the county level are not available.

We have applied the techniques used by the Bureau of Labor Statistics (BLS) to track prices in Wabash County. The numbers start in April 2012. All four measures of inflation over the last thirteen months are presented.

Measuring inflation involves a time intensive collection process of sampling the prices of a spectrum

of goods over a variety of stores. As one would expect our focus is establishments in North Manchester and the city of Wabash. Well over one hundred commodities are part of our survey, and for many items, we utilize prices from as many as three different locations.

The calculation of inflation requires multiple steps to obtain the familiar final percentage. The first step is to establish the weights for each commodity.

Each commodity used in the survey is assigned to a specific category. The set of all categories comprise the entire budget of an average household. The amount this typical household spends on a particular category determines the weight used in the calculations. The standard weights used by everyone calculating inflation are those created by the BLS.

So, for instance, fast food is a category and represents a certain percentage of the average household budget. This percentage determines the relative weight

the BLS assigns to fast food. If another category is twice as large a percentage of the typical budget, then the weight is twice as large.

The inevitable problem with the weights is that they change through time. The portion of a family budget spent on fast food in 1983 does not match the percentage of 2013. To accommodate the ever changing consumption patterns, the BLS picks a “typical” year (usually one that has neither high nor low unemployment, a typical rate of growth, and a standard rate of inflation), and sets the weights according to

numbers for the current year and all the way back to when the series started in the 1930s.

The weights are set for a category and not for specific commodities. Since it is impossible to measure the prices of all commodities, a sample of items in the category are treated as representative of the entire category. In all but a few of our categories we use multiple items to add robustness to our results and prevent one item from skewing the numbers.

Once the prices are obtained, the percentage change, up or down, between the current month and the

Monthly Inflation Rates – Wabash County													
	Ap12	My12	Jn12	Jl12	Au12	Se12	Oc12	Nv12	De12	Ja13	Fe13	Mr13	Ap13
Everything	0.40%	0.17%	0.62%	0.62%	0.62%	0.62%	-0.60%	-1.12%	-0.30%	0.86%	3.04%	-0.41%	0.45%
Core	-1.25%	0.40%	1.49%	1.49%	1.49%	1.49%	-1.18%	0.72%	0.06%	0.12%	0.66%	-1.16%	0.11%
Food	2.64%	-0.01%	0.28%	0.28%	0.28%	0.28%	3.41%	-1.01%	2.02%	1.65%	-0.44%	0.25%	1.01%
Gas	0.00%	0.00%	-0.55%	-0.55%	-0.55%	-0.55%	-5.95%	-4.96%	-4.81%	0.98%	13.52%	0.00%	0.00%

household consumption of that year.

The weights are held constant as long as they are not terribly different than the current patterns of consumption. Once the weights are deemed inappropriate a new “typical” year, closer to the present, is chosen. The inflation rates are re-calculated for the years prior as well as the on-going rates. In this way at any point in time there is a consistent series of inflation

previous one are calculated for each commodity. The percentage changes for all the commodities in one category are subsequently averaged. This average serves as the percentage change in prices for that category.

Each category average is multiplied by its BLS weight. The resulting numbers are summed, and the resulting percentage represents the inflation rate.

So if the widget category has a weight of 0.25 and

the percentage of the average of the commodities included for that category goes up by 8%, the resulting number is 2%. This number would be added to all the other percentages calculated in a similar way.

The table labeled **Monthly Inflation Rates – Wabash County** (see the previous page) shows the numbers from April 2012 until April 2013. The four series provide different perspectives on inflation. The “Everything” row includes all commodities we used as well as gas and food. The second series, “Core”, includes all commodities excluding gas and food. The inflation rate reported in the news is the core rate.

The principal reason for excluding gas and food is their extreme fluctuations. High prices this month may be followed by exceptionally low prices next. Those

who use inflation numbers find that a much more accurate picture of the trend is obtained by using the core.

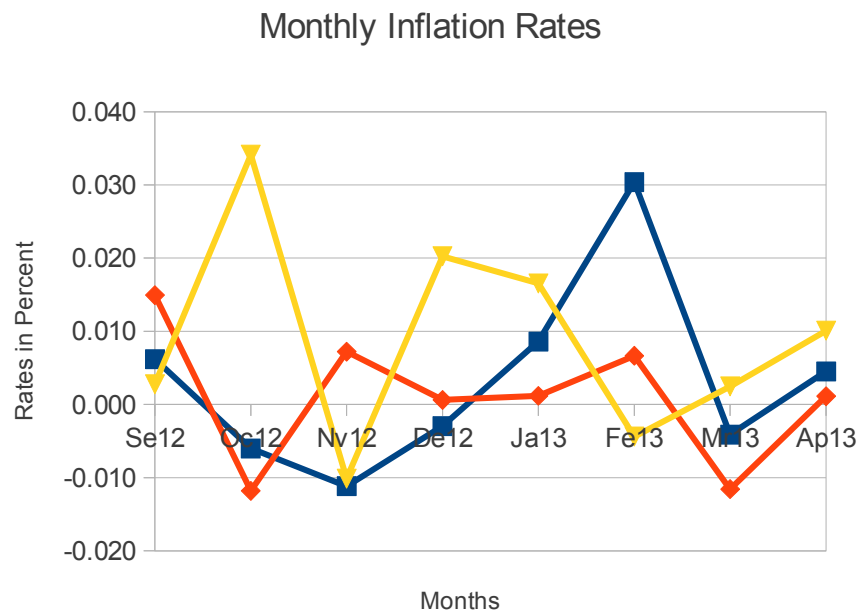
We include Food and Gas as separate lines. Notice that gas rose as much as 13.5% in one month and fell by 4.5% in another. Including such drastic shifts would distort the monthly data and obscure the trend.

To put these numbers in perspective, the U.S. average monthly inflation for the same time period was approximately 0.17%. Looking at the numbers in the table one sees much larger numbers in both the positive and negative directions. The prices are rapidly moving up and down with a volatility never seen in the national numbers.

The graph of three of the series (Food – yellow; Core – red; Everything – blue) from September 2012 until April 2013 illustrates the roller coaster ride prices have taken.

The volatility surprised us. At first this raised concerns on our part that our sample was somehow not representative, or that the thousands of commodities used by the BLS were necessary to achieve meaningful numbers. However, we reviewed our methodology and studied the commodities we chose and could not identify any real shortcomings in our approach.

We can only speculate on the reasons for the excessive volatility that is so much greater than the national numbers. Because the national numbers are based exclusively on urban prices, it may be the case that rural prices in general fluctuate more. The BLS figures



would just miss this. From the BLS' point of view this is not a problem as rural household budgets constitute a relatively small portion of all national consumption. The distortion of the national numbers would be trivial. However, for a county with such a large rural component, such fluctuations would have a major impact.

So why would rural prices fluctuate more? One reason could be called the ratchet effect. In urban settings commodities turn over faster allowing retailers to slide the prices up gradually as they restock. In a rural establishment, the restocking occurs less frequently, and thus the prices ratchet up more dramatically when they do change. This would account for certain months having large positive numbers while other months did not.

down. Items are put on sale to serve as loss leaders, and short term price increases on other commodities are standard techniques for increasing revenues. This process might be accentuated in a poorer region such as Wabash County. To induce the on average poorer resident to come in for the loss leader, the discount must be larger. If a number of retailers are doing this simultaneously, the negative numbers result.

In actual fact inflation is reported in a second way using what is called the Consumer Price Index (CPI). There are advantages to using the CPI as it can portray the trends better than looking at a string of inflation rates.

The CPI refers specifically to the national numbers, so we have created the Consumer Price Index for Wabash County (CPIW). The CPI or CPIW uses a

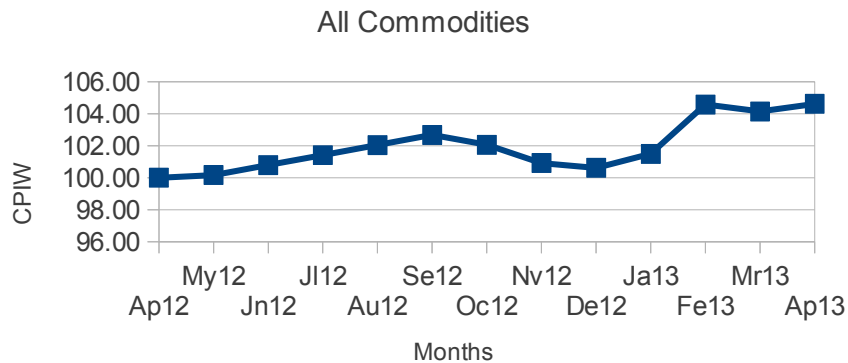
Consumer Price Index – Wabash County													
	Ap12	My12	Jn12	Jl12	Au12	Se12	Oc12	Nv12	De12	Ja13	Fe13	Mr13	Ap13
Everything	100.00	100.17	100.79	101.41	102.04	102.67	102.06	100.92	100.62	101.49	104.57	104.14	104.61
Core	100.00	100.40	101.90	103.42	104.96	106.53	105.27	106.03	106.10	106.22	106.93	105.69	105.81
Food	100.00	99.99	100.27	100.55	100.83	101.11	104.56	103.50	105.60	107.34	106.87	107.14	108.22
Gas	100.00	100.00	99.45	98.90	98.36	97.82	92.00	87.44	83.23	84.05	95.41	95.41	95.41

Accounting the negative numbers presents a more puzzling problem. It is well understood that groceries, for instance, constantly move prices up and

point in time as a base. The base is always set to 100. For the CPIW, April 2012 is 100. The percentage change in this base is the inflation rate.

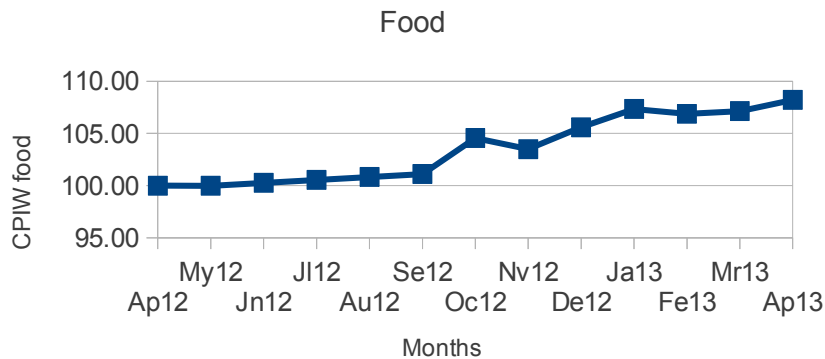
So if from April to May prices rose at a 1.2% inflation rate, the CPIW would rise to 101.2. An easy way to understand the CPIW is to imagine a \$100 item in April 2012. The numbers to the right in the table represent what that item would cost in that particular month after inflation has occurred.

Consumer Price Index -- Wabash



The graphs of the four CPIW series provides in

Consumer Price Index -- Wabash

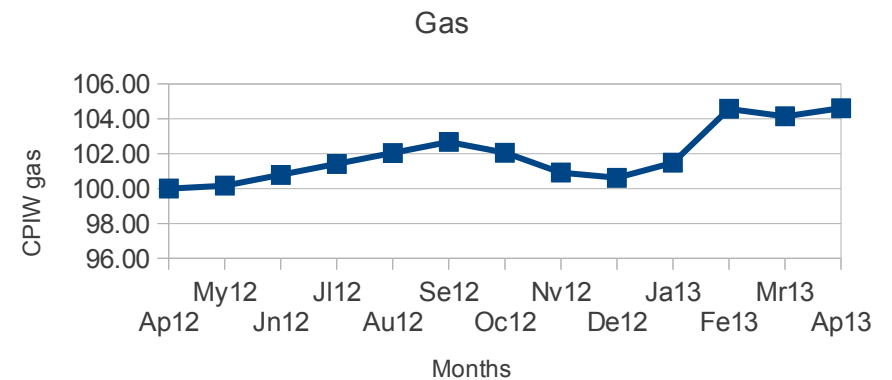


many ways a clearer picture of what is happening as prices in the county rise and fall. Since our interns do not work over the summer the numbers for those months are extrapolated. The extrapolation does not distort the before and after numbers at all.

The ups and downs of the CPIW–All Commodities (CPIW-AC) results from the food and gas price shifts. The influence of gas on the index with all commodities is evident in the nearly identical profiles in the graphs.

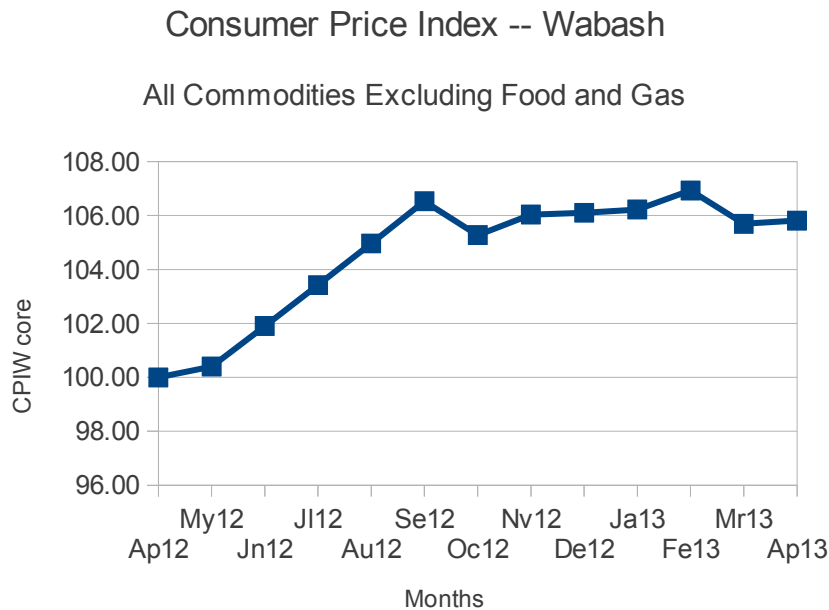
When the CPIW-AC is purged of the gas and food fluctuations one is left with the Core. The prices of most goods and services change incrementally and in the same direction. (Cars become more expensive over time, and computers become cheaper.) The overall movement of these prices forms the bedrock of the inflation rate, and it is the Core rate that measures it.

Consumer Price Index -- Wabash



What the numbers tell us is that the Core inflation rate in Wabash County for the year preceding April 2013 was 5.4%. The national rate hovered around 2%. Prices in Wabash County rose nearly three times as much as the average price increases in the country. That rate is astounding. Our expectations were for a rate that was significantly lower than the national one.

The graph of the CPIW – Core identifies precisely where the jump in prices occurred – the summer of 2012. (See graph below.) In other words all of that increase can be attributed to three months: June, July, and August 2012. In fact prices since September 2012 have fallen slightly (0.7%).



How does one explain the summer of 2012? In short we argue that catch up was occurring. Prices in Wabash County are lower than the national average, and in the aftermath of the recession, they rose even more slowly than the low U.S. national rates. Therefore, the price differential between the county and the nation was larger than historical levels.

Though the recovery has been slow, the economy is gradually improving. Last summer our local economy became strong enough to absorb price increases that would bring it back in line with its historical average. Last summer's numbers captured this one time event.

The inflation numbers hint at the fact that the county was experiencing an improvement in economic conditions up to September 2012 and has hit a plateau in the intervening months. Prices can only rise when incomes rise. People tend to focus on the consumption side of inflation, but inflation depends equally on the rise in wages. Without an increase in wages, it is impossible for prices to rise.

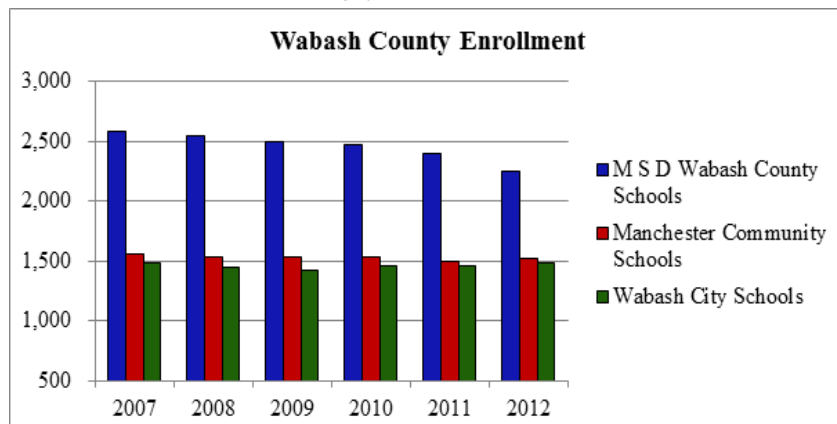
Last summer's increase in prices indicates merchants felt customers were capable of paying more. The current virtually flat trend suggests improvements have slowed, although in the interim, residents enjoy a world without inflation.

Each issue in the future will present updates of the price changes occurring locally. We suspect price volatility to continue, and that for the foreseeable future, inflation rates will not exceed national levels.

Education

It is a given that education is a necessity for any chance of advancement in our current economy. The portion of the economy dedicated to education at all levels is substantial, and educational institutions are always among the largest employers in any community. In this issue we take a closer look at a number of the attributes of the education sector in Wabash County.

Everyone has heard of the importance of education, but the magnitudes of its impact are worth noting. Economists estimate that for every additional year of schooling past high school, the life time income of the individual will rise by 12% to 18%. Compared to the returns on other kinds of investments, whether the stock market or starting your own business, these are



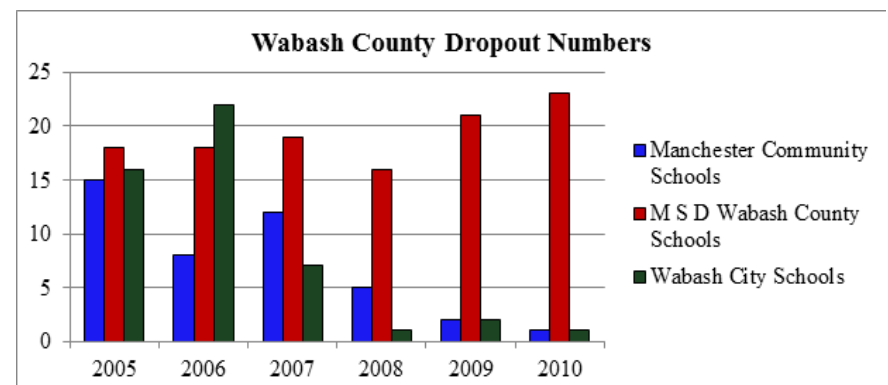
remarkably high. For each additional year of post-secondary education, the typical individual could expect to earn \$5000 more per year.

The community is served at the primary and secondary level by Manchester Community Schools, MSD Wabash County Schools, Wabash City Schools, and Heartland Career Center. Using Indiana Department of Education numbers, we look at these three districts.

The population in Wabash County is declining and aging. Both these forces push enrollment down. As the graph makes clear, all of this decline is occurring in the Wabash County Schools whereas the two more urban systems show no decline at all. That the most rural system is bearing the brunt of the loss is to be expected. The migration from farm to city continues unabated.

A first step to acquiring sufficient education to prosper in today's market place is to graduate from high school. High graduation rates imply low drop out rates. We look at the latter. All three systems experience low drop out rates. A commendable result. Two of the school systems, Manchester and Wabash County, show a dramatic drop over recent years, and the third has experienced a slight uptick.

As the economic situation improves, the relative



value of education declines. In other words, job opportunities exist that were not previously available, and those opportunities appeal to those least inclined to continue their education. Therefore dropout rates declining in the midst of a recovery is both positive and unexpected news.

Our last issue reported some distressing trends in the percentage of students taking the SATs. Since most colleges and universities require either the ACT or SAT scores as part of an application, the decline in juniors and seniors taking the exam suggests fewer students anticipate continuing their education.

This trend is in part offset by the shifting composition of post-secondary institutions. Whereas Indiana historically maintained a relatively small community college system, in recent years Ivy Tech has expanded immeasurably. Ivy Tech does not require the SAT as part of its entrance requirements, so the degree to which students are opting for Ivy Tech over college or university education may account for the decline.

The two post-secondary institutions, Ivy Tech and Manchester University, provide the full range of opportunities that potential students would desire. Ivy Tech provides two years of course work which most colleges and universities will accept for transfer credit. The classes range from the technical, vocationally oriented that teach very specific skills related to a narrow range of work situations, to the more broadly based liberal arts and professional courses. Most of the students, 71.3%, are residents of Wabash County.

	Ivy Tech	Manchester
Enrollment (FTE)		
2010	188	1,278
2011	179	1,320
2012	174	1,345
Faculty and Staff		
2010	48	252
2011	50	307
2012	53	305

Manchester University is a four year liberal arts institution with the recent addition of a School of Pharmacy in Fort Wayne. The large majority of the students hail from the region though only 4.3% come from Wabash County.

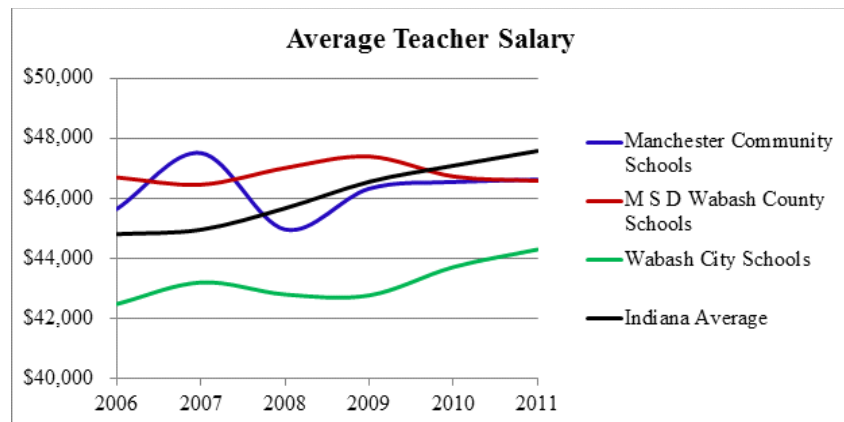
The table of enrollment numbers shows an on-going increase in students at Manchester University while Ivy Tech has experienced some decline. Community colleges enrollments always fluctuate inversely with the state of the economy as students find employment and postpone further education.

The future of the county lies in what the new high school graduates decide to do. Few manufacturing jobs survive for which a high school diploma is sufficient for employment. The technical skills needed for nearly every aspect of any industrial process preclude such limited education.

The production of education is an important

component of any economy. The “raw materials” of production in education are the students who are free. The “equipment” is almost exclusively the employees. Therefore salaries are the single largest expense of any educational institution. The first graph below plots the salaries of teachers in the three school systems. For comparison the state average is included.

The average salary in the state is rising faster than inflation, but part of this is an artifact of the demographics of the teaching profession. The average age of teachers is rising. Older teachers have more experience and studies have shown their students have greater success. So the quality of teaching is rising. However, with seniority comes higher salaries. Thus the increase in salaries goes hand and hand with the increase in quality.

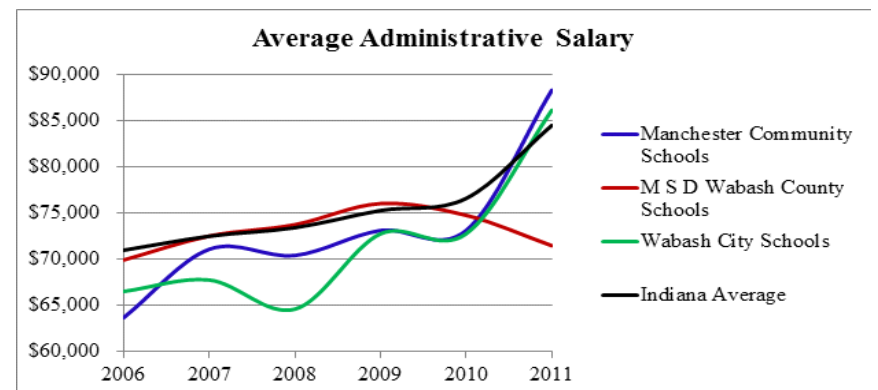


As the graph makes clear, Wabash City Schools are paying the least with Manchester Community

Schools and MSD Wabash County Schools paying the same. All three systems are now below the state average, though this is offset somewhat by the lower cost of living in the county.

Comparing school systems is not without risks. A system with a high proportion of new teachers will have lower salaries on average even if they have the same pay scale as other districts. At present we do not have the data on the composition of the teaching staffs to draw any conclusions.

The second category of salaries concerns administrators. Around the state these have risen close to 19% over three years. This dramatic rise is quite evident in the graph below.



Both Manchester Community Schools and Wabash City Schools have risen even more quickly than the state average, but they started from a position below the average. They are now above the state average. On the other hand, MSD Wabash County Schools are bucking the trend with a decline in recent years.

Schools are important in multiple dimensions. The obvious is that they provide the basis for the next generation to do well, but there are other benefits. The teachers and administrators earn above average incomes, and most of that is spent locally. What the teacher spends becomes the shop keeper's income which in turn becomes the grocer's income, and the cycle continues. Economists figure that every dollar spent generates over three additional dollars of economic activity.

Strong schools also have the ability to attract outsiders. Businesses want to move to where there are good schools. Retirees enjoy the programs, exhibits, and concerts of the university. It is no coincidence that when one looks over the economic landscape, the regions that have an emphasis on education are often the areas that are growing.

Housing

Housing represents a significant portion of every household budget and is an important sector for employment and production. Following the ups and downs of housing provides an important snapshot of the realities on both the demand (consumption) and supply (production) sides of the economic landscape. We limit our appraisal to demand. We have looked at construction in an our previous reports.

Consider the basic supply and demand curves. They capture the relationships of two pieces of information: prices and quantities. At any point in time

the market is located at a single point where supply equals demand. Economists refer to this point as an equilibrium – the exact balancing of the pressures from each side of the market.

Over time the market both shifts the curves and causes movements along the curves. Gathering the data required to separate these two phenomena is well beyond our capabilities, but we are, however, able to trace the end result of these effects through time. Our numbers trace out the path of the equilibrium points over the last thirteen months.

Tracking this path is accomplished by following the fluctuations in prices. However, one house is not the same as another house is not the same as the next house. Just following the prices without accounting for the variation would tell us nothing.

Fortunately, the housing market has one characteristic that simplifies the analysis. The quantity of houses over short intervals of time – say a year – varies hardly at all. New homes built minus those destroyed remains negligible compared to the more than 10,000 residences in the county.

To an economist this means a fixed vertical supply curve for each quality level of home. The result of such a situation is that all price changes can be attributed to changes in demand.

The problem remains how to catalog houses by their quality. The ideal data for assessing quality would measure in dollars all the attributes of a house – replacement cost, appeal of the design, merits of the

location, etc. However, economists can only dream of having such numbers.

Instead we have chosen to approximate the quality of a home based on its assessed value. To understand why this is an appropriate measure, it helps to think of how the assessment process works. Properties are evaluated infrequently, and when they are, the assessor tends to ignore recent blips up or down in the prices of properties. Therefore, the numbers represent a reasonable representation of the long-term trend in values.

	Ap 12	My 12	Jn 12	Jl 12	Au 12	Se 12	Oc 12	Nv 12	De 12	Ja 13	Fe 13	Mr 13	Ap 13
Median Price	\$77,000	\$74,000	\$70,000	\$55,000	\$64,000	\$70,000	\$64,000	\$40,000	\$60,000	\$50,000	\$38,000	\$37,000	\$43,000
Price Index	0.89	0.94	0.87	0.89	0.91	0.89	1.09	0.85	0.86	0.78	0.71	0.83	0.77

An assessor assigns a value based on what comparable properties with comparable attributes have sold for over time. This is precisely the summary of information we want.

In the table above are two series of numbers. The first row represents the median price of homes sold that month in Wabash County. We include them for comparison purposes since many national surveys use median home prices to gauge the housing market.

The median, as opposed to the average, is used to eliminate distortions caused by the sale of one very expensive property. One multi-million dollar sale skews the average upward. The median is impervious to such outliers.

Though the median works as a measure of the

housing market for large regions with hundreds even thousands of sales, it fails in a small market like Wabash County. There are between 25 and 40 sales most months in the county. One month may have numerous expensive properties while the next features more modest homes. As a result the median bounces around and observing the first row of the table show just this.

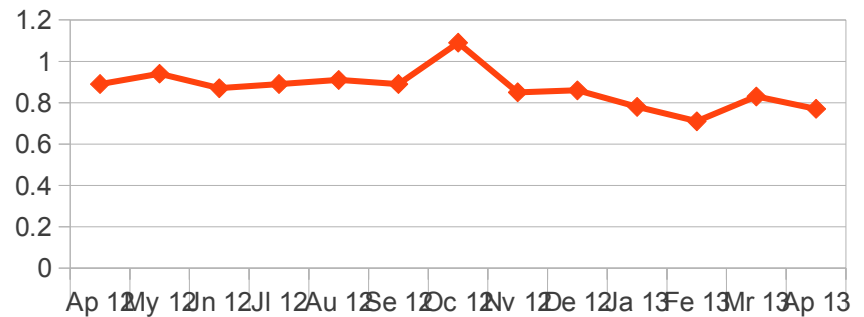
The second row is our measure of what prices are actually doing based on our yardstick of assessed values. Prices are generally stable with only one anomalous month (October 2012). However, the trend is moving

slightly downward.

Just as the September to April inflation numbers hinted at some stagnation in the economy, the decline in

Housing Price Index

Price/Assessed Value



housing prices gives the same impression. The trend is even more visible in the graph.

No one reading this report will be surprised to learn that housing in Wabash County costs less than the national average. But the question is by how much?

To answer this question, one needs to establish a unit of measure that works for all houses in all regions. The solution that most national surveys rely on is the price per square foot.

As you might expect there are problems with this measure. A square foot of a five year old house is not the same as a square foot of a hundred and five year old house. Given that newer homes are tailored to the desires of the current consumer, it stands to reason that they are valued more highly than the more aged structures independent of the age issue. Having said that, there are many people who willingly sacrifice contemporary layouts and modern construction for the charms of a vintage home.

Though houses in Wabash County are on average older than for the nation as a whole, residences exist in every conceivable age bracket for the potential buyer. So to a large extent we can set this problem aside when using the square foot as our measure.

There is a second, slightly more serious, problem. Larger houses have a consistently different price per square foot than smaller homes. Which size home should we use for comparison? The commonly accepted answer is to use the median sized home. Unfortunately this varies across regions, and we see that it has large

swings within the county. However, when we look at the cross section of prices as we did in our first issue of this report we find the differentials are not great.

The national price per square foot is in the neighborhood of \$90. Wabash County clocks in at a mere \$44. This suggests any household moving from a typical place in the United States could expect to pay about fifty percent less for a comparable home elsewhere. This is substantial.

Economists consider comparative advantage when identifying directions an economy might successfully take. Two groups that could exploit this advantage are retirees who currently live outside Wabash County and entrepreneurs.

Take the retirees. If they have savings congruent with the higher incomes found elsewhere in the US, they are positioned to take advantage of the lower prices available locally. As seen above, housing is exceptionally low priced. What do retirees consume? Leisure and housing.

Housing is cheap, and many leisure activities the elderly enjoy – gardening, reading, socialization, church attendance, etc. – are possible in our community. However, the spectrum of leisure activities available is not complete, and an increase in the possibilities merits attention by civic leaders.

The second group mentioned are the entrepreneurs. Many new businesses derive substantial portions of their incomes from sales outside the county. Since wages and prices are higher elsewhere, such a

business owner produces at low costs and is able to sell at high prices. Augmenting the higher income generated by such a situation is the fact that consumption here is cheaper. The result for the business owner is a much higher life-style than possible elsewhere.

Economists would hypothesize that entrepreneurs possess the skills to seek out places where comparative advantages exist. One might ask, if Wabash County has such an advantage why isn't there a large in-migration of new businesses?

Economists would posit three reasons. The first concerns information. Of all the rural areas that are candidates for a new business, how does the potential entrepreneur identify the best fit? In fact the correct answer is, oddly, he or she does not.

The idea is this. It costs to acquire information and search for the superior location. At some point the costs of additional searching do not justify the expected savings of finding a place that is slightly better.

We have all have experienced this phenomena. Most purchases we make occur without comparing prices of every seller. At some point it is just not worth it in time and money to continue the quest for the best price.

To remedy this problem it is necessary to reduce the cost of learning about Wabash County. That is precisely what the Economic Development Group of Wabash County does. Thus the county has remedied the first of the problems.

Secondly, vast areas of the country are rural, and

the comparative advantages of one area are similar to the next. The number of successful start-up businesses, and successful is the key word, is relatively few. So even if every area had an equal allotment of these enterprises, there would be a small in-migration to any particular area. Wabash County has gained more than its share, and though it is to be hoped the stream remains consistent, it is not likely to grow substantially.

There is always the possibility of the single large company arriving – a new auto plant for instance – but from a probability point of view, this is akin to winning the lottery. One does not build meaningful development policies based on such dreams.

The last problem presents the dilemma facing every region that is not a large, in fact a very large, urban center. Growth in our country is overwhelmingly dominated by places like New York, Chicago, and Los Angeles. Going back to our assumption that entrepreneurs know what they are doing, what is the reason they have this preference?

The most commonly cited reason is that CEOs, managers, and employees desire to live in such environments. The argument goes it is the amenities of a city – many forms of entertainment, more schooling options, variety of restaurants, museums, a wider range of stores, etc. – which fuel the attraction.

However, a recent article in a leading economics journal analyzed data on the preferences of workers in these urban centers. Significantly more than half indicated they would rather live in a less urban

environment and only resided where they did because of job availability. This suggests the amenities argument is not as potent as many thought.

If the amenities are not the source of the preferences for urban centers, then it must be that businesses find the economic environment conducive to success. Presumably, the presence in close proximity of other enterprises facilitates development, growth, adaptation, and sales. At this point economists can provide mostly anecdotal evidence and have not identified a single outstanding feature that generates the advantage. This leads one to suspect that it is unlikely to be one thing, and instead will be a constellation of factors.

Unfortunately, for Wabash County a long list of small but important features makes planning extremely difficult. Which items should receive priority, and when have enough of the items on the list been addressed to induce a business to buck the trend and opt for the county?

This problem plagues all rural areas, and we can hope that organizations such as the Economic Development Group of Wabash County and civic leaders are able to address it.

Contributors

Tom Blake graduated in May, and we wish him the best of luck. He worked on the WCER for two years.

James Harry will be a junior economics major at

Manchester University this Fall. He joined the WCER team in the Fall of 2012.

Kari Huang will be a senior accounting major at Manchester University. She will start her third year as an intern on the WCER team.

Vasin “Thew” Pasda will be a sophomore economics major at Manchester University. He became an intern on the WCER team in the Fall 2012.

Allison Weber will be a sophomore this Fall at Manchester University. She became a WCER intern in the Fall of 2012.

Matt Hendryx is Visiting Associate Professor of Economics at Manchester University and Director of the Wabash County Economic Report. He supervises the interns working on the WCER.

This report is available both in hard copy and as a .pdf on our website, www.manchester.edu/WCER. Click the “Current” button for this issue, and you can find our previous issues under “Archive”.

Our contributors are available for presentations to local groups. If you have questions about this or would like a free hard copy of the report, please contact Matt Hendryx at mnhendryx@manchester.edu.

We are open to suggestions for topics that you would like to see covered in future reports. We wish to thank The Ball Brothers Foundation for financing the first eighteen months of the project. We are always looking for sponsors for our project in the hopes that we can continue providing these reports in the years ahead.