LABOR MARKETS AFTER THE GREAT RECESSION:
UNEMPLOYMENT AND POLICY FOR INDIANA

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EXECUTIVE SUMMARY

This study examines the labor markets of the United States during post-recessionary periods with particular emphasis on Indiana's experience after the Great Recession.

We report that the wage gap between workers at different levels of educational attainment has continued to widen, favoring more educational attainment. This study finds that the share of tradable jobs (primarily manufacturing) has shrunk over the past two decades, while non-tradable (service sector) jobs have steadily grown in Indiana. This observation connects to the wage gap because higher skilled workers have migrated to the service sector, where compensation and wages are more closely tied to education and skills.

During the Great Recession, the unemployment rate gap between workers of different educational levels widened. In the aftermath of the recession, the gap between workers with a college degree and others has remained at more than twice the pre-recession level, while other unemployment rate gaps have largely returned to trend. So, a lack of education and skills not only reduces wage growth, it also leads to much higher levels of unemployment (or longer, more frequent periods of unemployment for lower skilled workers).

This study finds that the shift from production-oriented to service-oriented jobs is not a smooth process. Rather, occupational shifts happen in short bursts, during a recession, and have been especially prevalent in this recession. Interpreting this finding from other research suggests that this is closely linked to technological change occurring at a more rapid pace during a recession. The implication of this finding is that a large number of workers with 'skills mismatch' are most likely part of the national labor force.

This study recalculates the Beveridge Curve, which links job openings with unemployment. We find that this relationship suggests a much higher level of skills mismatch in the national economy today.

In estimating employment changes in Indiana on a number of factors, we find that the housing bubble and manufacturing intensity played no real role in changes in employment. Levels of educational attainment (college experience) dominated the statistical model of employment growth from 2007 through 2011 in Indiana's counties. Further, we estimate that between 130,00 and 150,000 Hoosier workers suffer skills mismatch, which leaves them unable to find employment.

We conclude with a review of human capital policy in Indiana, in which we find:

- Focus on college attendance and completion is a necessary but not sufficient element of state policy. A stronger focus on development of market-oriented skills is needed (for post-secondary students).
- New developments at the K-12 level should boost overall educational attainment, but a full evaluation of these changes as well as their capacity to affect the aggregate economy will take time to fully mature.
- Workforce Investment Act training efforts are widely dispersed and subject to multi-agency budgetary constraints at the federal level. This weakens their efficiency.
- Indiana's human capital challenges cannot be remedied by education alone. We train enough college graduates, but too many of them do not find communities in Indiana that meet their needs and interests, resulting in out-migration of an important source of talent.
- There are important private sector initiatives that offer models of engagement.

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INTRODUCTION

In the wake of the Great Recession, many Indiana policy makers and advocacy groups have focused their attention more narrowly on human capital development. This has manifested itself in such steps as the adoption of extremely aspirational educational attainment goals by the Higher Education Commission and the adoption of an early childhood education agenda by both the Republican and Democratic caucuses in the General Assembly. This reinforced focus on human capital will be welcomed by economists, who are aware of a long history of empirical research that has linked levels of education to the ability of regions to grow. However, the appropriate focus of these policies will be necessary for them to achieve some success in boosting the economic performance of the state.

A major consideration in the development of a robust human capital policy is the appropriate focus of state resources, along with the level and focus of fiscal and regulatory bodies on the incentivization of private resources, from businesses, households and the not-for-profit sector to that end. While no individual study could undertake such a comprehensive review, some steps towards a better understanding of these issues are warranted. To better understand the issues, this study explores two of the deeper and more immediate considerations facing Indiana.

A first important question is how labor market dynamics have played out during this recession, and how that experience may inform a state human capital policy. Second, an analysis of the connection between our state financing of human capital development and the changes observed in labor markets is of interest. This policy brief provides preliminary evidence on both matters. We begin by explaining the putative changes to labor markets that are experienced by the nation as a whole during a recession. We then describe these events as they have unfolded in Indiana. This section is followed by a review of the funding of human capital development in Indiana. We end with a comparison of labor markets and human capital policy, recommending further areas for exploration and policy consideration.

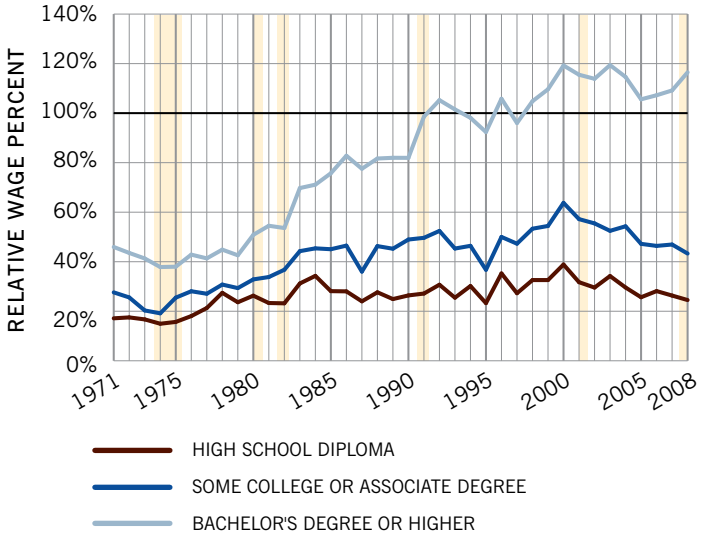
LABOR MARKET DYNAMICS AND INCOMES IN THE GREAT RECESSION

The share of workers in a particular industry or occupation undergoes continual change in response to changing market conditions. The most significant example in American history involved the shift from agriculture to manufacturing-based work, which reached its zenith in the middle of the last century. Over the past three or four decades, the shift has been more nuanced. While manufacturing production has risen, the share of employment in manufacturing has declined. In this sector, better technology and a more capital-intensive production process have resulted in rapid productivity gains that demand fewer workers to achieve the same level of production. At the same time, Americans reduced the share of income spent on goods while increasing their purchase of services. These services, such as health care, entertainment and personal services, were typically more labor-intensive and less capital-intensive. This, in turn, affected personal incomes, because compensation is linked to the ability of firms to recognize and reward individual productivity.

In capital-intensive industries, individual variations in human capital have tended to account for less wage variation. The reason for this is that individual differences in skill are less obvious on an assembly line. Furthermore, this was magnified by labor practices (such as unionization) that eschewed individual compensation differentials. Over time, an increasing share of workers was employed in industries where individual skills and training were more obvious in the production process where a wage premium was available. Consequently, we have seen income patterns change, rewarding occupations in which better skilled workers were more likely to be employed. These occupations have seen most of the income growth over the past three decades. This wage gap manifests itself in both households and regions, and provides an important motivation to revitalize our human capital policies across the spectrum.

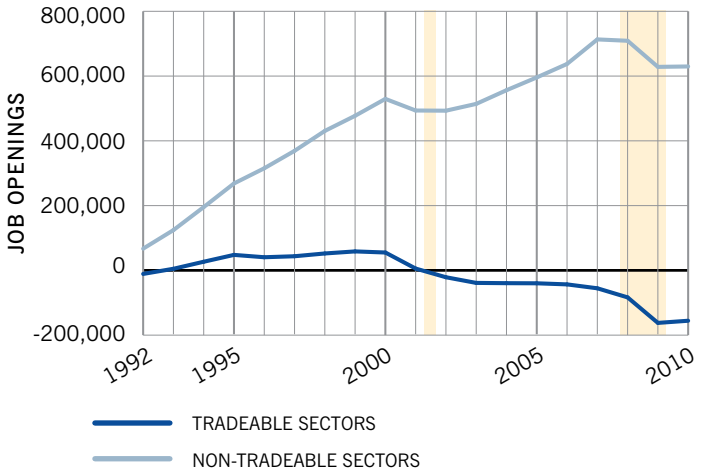
Among the most obvious indicators of the divergence in real income by occupational groups occurs along the lines of educational attainment level for young men. For this demographic, the wage gap between a high school graduate, an associate's degree or some college holders, and a bachelor's degree holder are very apparent, though all other demographic groups saw a similar change. *Figure 1* illustrates this trend over the past four decades.

FIG. 1: WAGES RELATIVE TO NON-HIGH SCHOOL GRADUATES, 25-34 YEAR OLD MALES



Note: Yellow areas indicate recession years as determined by NBER.

FIG. 2: TRADEABLE VERSUS NON-TRADEABLE SECTOR JOB GROWTH



Note: Yellow areas indicate recession years as determined by NBER.

This wage gap grew from 1971 through the most recent available data, despite the fact that the share of adult men with a bachelor's degree grew substantially from 1971 to the present. Today, the gap is roughly $20,000 per year for workers with a bachelor's degree compared to those with a high school diploma only.

It was not only the median wage for working adults that experienced a significant transformation. As industrial and occupational shifts occurred, the amount of opportunities also increased. Indiana's experience marks the plight of potential workers. This is apparent among employment in occupations that are at the extreme of the shift away from production to services. *Figure 2* shows the total employment from 1992-2010 in two broad sectors of the economy: those sectors producing

goods or services that can be exported (tradable), and those sectors producing goods and services that cannot be exported out of a region (non-tradable). The tradable sectors are dominated by the production of goods (consumer durable and non-durable), and natural resource extraction.

As *Figure 2* illustrates, tradable industries in Indiana shed more than 156,000 jobs in two decades, while non-tradable industries saw an expansion of more than 625,000 jobs. This change is inherently a source of structural unemployment. How big these changes are, and how they affect long-term employability of workers is a central question for state human capital policy. To better understand this problem, we must examine how education and training is related to incomes and employment.

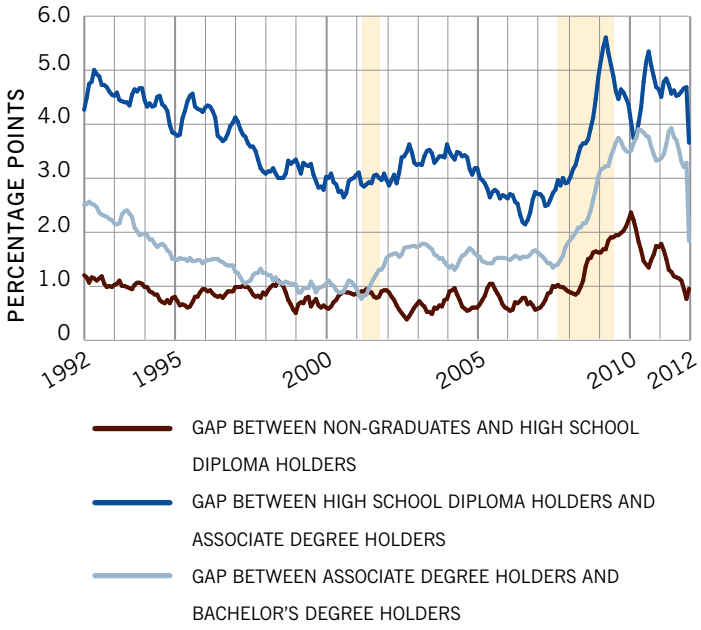
EMPLOYMENT DYNAMICS AND EDUCATIONAL ATTAINMENT

A well-known feature of labor markets is that workers with higher levels of human capital not only receive higher wages, but also experience less unemployment. They also have a longer worklife, even when subtracting the time spent acquiring human capital. These features make education attractive, though the costs of acquiring a college degree, in both direct expenditures and opportunity costs, are significant.

One indicator of the lifetime benefits of education is a lower level of unemployment, which is a hallmark of labor markers for better-educated workers. This appears as an unemployment rate gap favoring more highly educated workers. For example, between 1992 and 2012, workers without a high school diploma experienced an unemployment rate roughly 3.7 percent higher than those with a diploma. Workers with either an associate's degree or some college experience enjoyed an unemployment rate a full percentage point below those with only a high school diploma, while those with a college degree saw an unemployment rate 1.9 percent beneath those with some college, but not a bachelor's degree.

The aforementioned changes to industrial composition and a change in the demand for goods and services is a slow process, and so during normal periods of employment we should observe only modest changes in the unemployment rate gap. This behavior is understood by economists to constitute markets adjusting smoothly to changes in the demand for goods. Importantly, slow adjustments to the demand for workers will place less extreme demands on human capital policy, for

FIG. 3: UNEMPLOYMENT RATE GAP BETWEEN LEVELS OF EDUCATIONAL ATTAINMENT



Note: Yellow areas indicate recession years as determined by NBER.

obvious reasons. If the demand for a particular skill or occupation changes slowly, workers can adjust in small numbers over time, and widespread unemployment will be less likely. However, the evidence increasingly suggests that there are also very distinct changes in this unemployment rate gap centered on recessions. In other words, the changes are not smooth and continual, but occur quickly during periods in which changing occupations may be the most difficult for many workers.

Figure 3 illustrates the changes that have occurred from 1992 through the present in the unemployment rate gap between those with less than a high school diploma versus those with a high school diploma, and so on. This illustration provides several points of consequence, which later inform our understanding of human capital policy. First, there is a clear and fairly stable gap for nearly two decades, which is interrupted during the Great Recession of 2007-2009. Following the recession, it is clear that the gap between high school graduates and those with an associate degree or some college has nearly returned to its long-run trend. The gap between high school graduates and those without a diploma has also nearly returned its longer-term trend. While it is higher than the 1990s and early 2000s, it is near the early 1990s level of 4.0-5.0 percentage points. The clear interpretation is that the gap between those with some college or an associate's degree and those with a bachelor's degree has remained far above the pre-recession levels. This suggests that a new equilibrium gap between unemployment rates of two of the largest employment groups has emerged from this recession. This can be explained by two phenomena.

The first explanation for this persistent unemployment rate gap is offered by Jaimovich and Siu (2012) who identify job polarization as an event in which mid-skilled jobs are replaced by either very high- or very low-skilled employment options. Further, these authors model economic recovery, finding that job polarization (loss of mid-skilled jobs) results in a jobless recovery, while the absence of job polarization is consistent with a rapid recovery. This study is important because it suggests that labor market effects lead to differential recovery outcomes. The implication is stark and suggests that the United States is currently in the midst of a period of high structural unemployment, which will continue to dampen economic recovery.

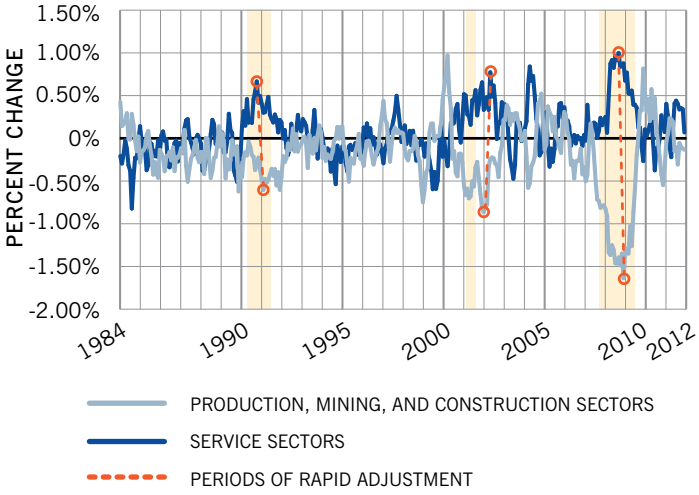
The second explanation offered in this analysis is the presence of punctuated equilibrium in occupational-specific labor market adjustments. The notion of punctuated equilibrium is primarily derived from research in biological sciences, which reflects adjustment paths for evolution. The application to labor markets suggests that adjustments to employment levels in particular occupations are not characterized by smooth adjustments, but rather occur rapidly when an external shock occurs.

Figure 4 provides a vivid illustration of this concept. In this illustration, we show the year-over-year change in two distinct types of jobs, those subject to significant productivity gains (production, mining and construction), and those with few productivity gains (service employment).[1] During recoveries, the annual changes in employment remain clustered around zero, reflecting smooth adjustments. However, during the three recessions for which these data are available, the adjustment has been rapid and deep. In 1990-1991, 2000-2001, and 2007-2009, sharp adjustments occurred, but, in each case, the monthly rate of change reverted to the mean post-recession.

Though the data are not complete through the early 1980s, it does appear that the type of dramatic employment shock that occurred in each of the last three business cycles was more muted in the early 1980s. This is consistent with the very fast employment recovery that occurred after the 1981-1982 business cycle as compared to the recoveries in the early 1990s, early 2000s, and today.

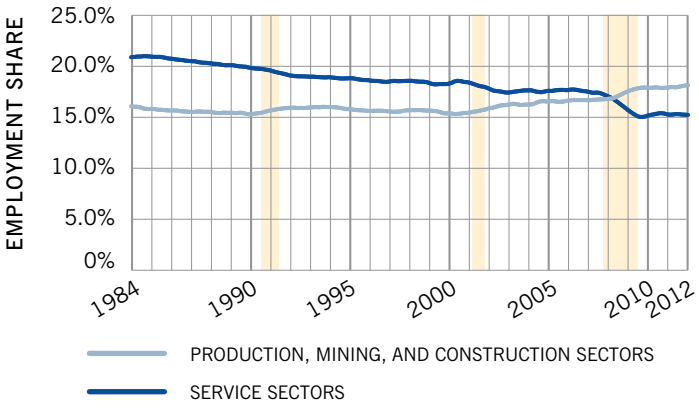
Given the evidence from *Figure 4* and the statistical analysis, we can observe employment changes as a share of total jobs occurring during recessions for both sets of occupations. *Figure 5* graphs these data over the past three decades,

FIG. 4: ANNUAL EMPLOYMENT CHANGE—PRODUCTION, MINING, AND CONSTRUCTION SECTORS VERSUS SERVICE SECTORS



Note: Yellow sections indicate recession years as determined by NBER.

FIG. 5: EMPLOYMENT SHARE—PRODUCTION, MINING, AND CONSTRUCTION SECTORS VERSUS SERVICE SECTORS



Note: Yellow sections indicate recession years as determined by NBER.

illustrating a sharp shift in employment share in both the early 1990s and 2000s, but a dramatic adjustment centered on the Great Recession of 2007-2009.[2]

It is then evident that two events have occurred during the past three decades that combine to significantly alter labor markets in the U.S. One is that technology has shifted the demand for workers in traditionally high-paying manufacturing and mining. These occupations have been dominated by lower levels of educational attainment, typically high school graduates. These jobs have been replaced by service sector

1. These are three-month moving averages of year-over-year changes, designed to smooth some of the seasonality of the data.
2. The data we employ consist of state-level data from the 1990, 2000 and 2010 U.S. Census. For human capital, we estimate the total number of years of education by workers of the county. To accomplish this, we assign values to each Census category of educational attainment (high school diploma equals 12 years, bachelor's degree equals 16 years, and so on).

TABLE 1: WAGES AND UNEMPLOYMENT RATE BY EDUCATIONAL ATTAINMENT, 2011

Education Attained	Unemployment Rate	Median Weekly Earnings	Median Annualized Earnings
Doctoral degree	2.5%	$1,551	$80,652
Professional degree	2.4%	$1,665	$86,580
Master's degree	3.6%	$1,263	$65,676
Bachelor's degree	4.9%	$1,053	$54,756
Associate degree	6.8%	$768	$39,936
Some college, no degree	8.7%	$719	$37,388
High school diploma	9.4%	$638	$33,176
Less than a high school diploma	14.1%	$451	$23,452
All workers	*7.6%*	*$797*	*$41,444*

occupations, which have a much higher range of earnings for workers. Moreover, these earnings are more closely linked to human capital and individual productivity, for which educational attainment is a good proxy. This trend is often referred to as 'job polarization' for the simple fact that the high-paying, mid-skill manufacturing and mining jobs are widely viewed as a source of a strong middle class, while the high-skilled and low-skilled occupations in the newer industries fuel higher wage dispersion. *Table 1* provides the evidence of this through both earnings and unemployment differentials by educational attainment in the most recently available data.

The description of labor market adjustments over the past three decades suggests growing wage gaps along levels of educational attainment. This is a large source of the political economy discussion in which the nation is engaged. More urgently, however, the effect of the Great Recession on occupational demand suggests that the nation is currently experiencing a period of very high geographic and skills mismatch between jobs openings and workers. It is to that issue we now turn our attention.

STRUCTURAL VERSUS CYCLICAL UNEMPLOYMENT

> "HIGH-SKILLED AND LOW-SKILLED OCCUPATIONS IN THE NEWER INDUSTRIES FUEL HIGHER WAGE DISPERSION.

FIGURE 6: THE BEVERIDGE CURVE, 2000-2012

Note: Yellow areas indicate recession years as determined by NBER.

The American Recovery and Reinvestment Act of 2009 was predicated on the belief that the majority of unemployment in the United States was due to dampened demand for goods and services. Many economists (including the author) felt that some combination of monetary and fiscal stimulus would move the economy back towards full employment in 2010 or 2011. This view ascribed much of the unemployment attributable to the Great Recession to cyclical changes. These expectations were wrong and the best available current research, along with simple anecdote, suggests that the United States has entered a period of very high levels of structural unemployment. In a recent study, Marcello and Tsounta (2011) suggest that the structural level of unemployment rose by almost 2.0 percent over the entire period of the recession. This study estimates the frictional (or normal) national unemployment rate at about 5.0 percent, but with the growth of structural unemployment (due to skills mismatch), that rate will grow to nearly 7.0 percent. This means that the unemployment rate will not decline significantly below 7.0 percent until the jobs mismatch is remedied.

Further evidence also provides support for heightened structural unemployment following the Great Recession. The Beveridge Curve illustrates the relationship between the unemployment rate and job vacancies, comparing these two metrics for signs that a skills mismatch exists.

Figure 6 illustrates the Beveridge Curve in the United States from 2000 through 2012. In this graph, job openings as reported by the Bureau of Labor Statistics are on the vertical axis, while the unemployment rate is on the horizontal axis. During tight labor market periods, we observe a low unemployment rate and a high job vacancy rate. During slack labor market periods, we observe few job openings and a high unemployment rate. Movements along this curve represent periods of higher and lower labor demand, or a very simple

> HIGH DEMAND FOR LABOR MAY CO-EXIST WITH A HIGH SUPPLY OF WILLING WORKERS WHO EITHER LACK THE APPROPRIATE SKILLS OR WHO ARE UNABLE TO RELOCATE TO PLACES WITH EMPLOYMENT OPTIONS.

movement across a business cycle in which unemployment is primarily due to changes in the demand for goods in the short run. However, as a skills mismatch occurs, the Beveridge Curve shifts outwards to reflect a higher level for demand or workers alongside higher levels of unemployment. Thus, high demand for labor may co-exist with a high supply of willing workers who either lack the appropriate skills or who are unable to relocate to places with employment options. This is structural unemployment, and the right line (labeled 2009-2012) represents a national shift in the Beveridge Curve.

The national Beveridge Curve illustrates an alarming increase in national unemployment due to a skills mismatch. However, precise data on job openings is unavailable at the state and local level, so we cannot determine how significant this impact is within Indiana. To examine this state impact, we must examine data and analysis specifically tailored to Indiana.

INDIANA'S EXPERIENCE

At the outset of the Great Recession, Indiana's unemployment rate hovered just below 5 percent, a historically low level for recent decades. By the end of 2012, over 291,000 Hoosiers had received unemployment benefits and more than 34,000 of these had exhausted their benefits under the regular period of eligibility. In the years since 2007, extended unemployment benefits have been authorized.

At the height of total unemployment in the state, more than 414,000 Hoosiers were without work at some time in the year, and almost one in four (103,000) saw their extended benefits exhausted. In two years, the share of displaced workers who were unable to find employment prior to their benefits running out rose from 15 percent to 25 percent. While a portion of these workers may be simply unable to find work due to low demand, data on the industries from which unemployed workers previously worked paint a clear picture of structural unemployment. Manufacturing alone accounted for 10 percent of displaced workers, while the related industries of transportation, warehousing, and wholesale trade accounted for another 10 percent of displaced workers. Among those unemployed who lost benefits, a larger share of workers in manufacturing and related industries were represented.

Despite a return of manufacturing production to pre-recession levels, more than 28,000 former manufacturing workers had exhausted their unemployment insurance benefits without finding a job in 2011. To place this in context, there were little more than 105,000 automobile related manufacturing jobs in Indiana in 2007, and yet a quarter of former manufacturing workers were unemployed in the winter of 2012-2013.

In order to estimate how large the structural employment is in Indiana, we must construct a very simple model designed to explain the share of unemployment change over the period 2007 through 2011 in Indiana by the presence of a skills mismatch. To do so, we recognize two types of skills mismatch. The first is embodied in the skills and knowledge of individual workers. Because individual worker skills are not visible to us, we use educational attainment data to proxy for skills, and also include the manufacturing share of all county labor income and the Herfindahl-Hirschman Index, which captures the concentration of manufacturing firms in each county. These data will tell us something about the role that specific skills mismatch may play in labor markets in Indiana. However, it is not only skills that determine employment, but also the ability of worker and employer to relocate to specific regions to match skills with demand. Here we have direct evidence of the effect, from measures of change in value of homes at the county level from 2000 through 2010.

In this test, it is clear that college graduation plays a very strong role in labor market outcomes. The change in property values from 2000 through 2010 played a very modest role in Indiana county labor market outcomes. None of the other variables, such as the foreclosure rate, high school graduate share of the workforce, or manufacturing share or concentration of manufacturing firms (HHI) played any statistically discernible role in the change of unemployment from 2007-2011.

Interpretation of these results paints a clear picture of Indiana's labor markets. High job losses as a share of total employment occur in places with lower levels of educational attainment at the post-high school level. Further, places with a higher level of labor force growth see increased employment, so labor force mobility (either geographically or through participation levels) benefit counties. Though the evidence is slim, there is a negative relationship between property value changes and employment growth. This would suggest that the house price bubble played a very small role in directly inhibiting labor markets in Indiana. It appears from the results that the excess supply of labor, which is now structurally unemployed, is primarily caused by poor skill matching within

labor markets. The poor skill matching is less a matter of industrial structure than educational achievement.

Overall, these variables explain roughly half of the growth in unemployment from 2007 through 2011 in the average Indiana County, and roughly 2.0 to 2.5 percentage points is attributable to structural unemployment. At the state level, this number is somewhat smaller, due to lower levels of structural unemployment in larger metropolitan areas. Therefore, statewide, structural unemployment most likely accounts for 1.5 to 2.0 percent of all unemployed workers, a level closely matching the 1.75 percent estimate by Estevao and Tsounta (2001). Translating this to the unemployed suggests that somewhere between 130,000 and 150,000 workers who exhausted or received unemployment benefits in 2011 were unable to find work due to skills mismatch.

SUMMARY

This study clarifies some matters regarding the composition of labor markets in the nation and in Indiana, which is a prime policy question. We address several in turn.

First, it is likely that frictional unemployment comprises roughly 5 to 6 percentage points of those currently unemployed. These estimates come from several Federal Reserve estimates. These are workers with the right skills, who are temporarily unemployed due to normal frictions associated with family moves and the births and deaths of businesses. Our estimates suggest labor mobility within the state due to housing-related factors is minimal, and that expansion and contraction of county-level labor force is correlated with total employment. These results closely match other studies of Indiana.

Second, structural unemployment (skills mismatch) affects roughly 1.5 to 2 percent of the total of those unemployed or who have recently exhausted unemployment benefits. Estimating the total number of these workers is difficult. Because so many workers have exited the labor force in recent years, and we have access only to gross employment and unemployment numbers, tracking individuals through their labor market experiences is not possible. At the end of 2011, 324,000 workers received unemployment benefits and a further 79,000 had exhausted benefits within the year. Imputing these estimates suggests that between 130,000 and 150,000 of these workers are unemployed because they do not have the skills employers need, either within their own labor markets or elsewhere within the nation. More worryingly, the lengthy duration of unemployment, which now averages roughly five months, contributes to declining skills among

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already low-skilled and medium-skilled workers. Further, since the beginning of this recession, some 351,300 Hoosier workers have exhausted unemployment insurance benefits. Their employment conditions today remain unknown.

What is abundantly clear is that for a significant share of Hoosier households, perhaps one in seven, the Great Recession has led to labor market shifts that have left a family member without the skills needed for reemployment within the occupations they vacated when losing their job. Further, the real problem at the regional level is not due to shifts in the size or share of manufacturing or home price bubbles, but, rather, in the dearth of post secondary educational achievement. This finding is echoed by other research and depicts a difficult transition to a post-recession economy for many Indiana households.

HUMAN CAPITAL POLICIES

Indiana's human capital policies face unprecedented challenges in directly facing the skills mismatch described in this, and other studies. Further, we ask much of our investments in human capital, expecting a wide range of learning outcomes, higher levels of employment, and gains to personal income. Without careful structure, these goals may be competing, and require significant consideration in their development and deployment. For the purposes of this report, we will discuss higher education, K-12 education, federal workforce efforts, and private sector interventions. We handle them in turn, focusing first on those that address the inevitable future changes to labor markets, not the immediate skill mismatch that has resulted in today's high levels of structural unemployment.

HIGHER EDUCATION

The focus on college attendance and graduation, which has been the hallmark of the Indiana Commission for Higher Education (with Department of Education support), is perhaps the most necessary human capital goal beyond that of high school graduation. However necessary it may be, it is not a sufficient condition for both economic growth and employment gains

among Indiana's labor force. The highly aspirational goals embodied in post-secondary educational achievement strategies by the ICHE must also focus on supporting appropriate skill acquisition and alignment by post-secondary students. These considerations are currently not well developed within Indiana's post-secondary educational strategies.

K-12 EDUCATION

At the K-12 level, significant recent policy developments have altered the flexibility of K-12 education, and improved the college readiness of Indiana graduates. This will enhance the college completion goals of ICHE. However, many of these policies may require adjustment and increased flexibility among high-performing schools. Moreover, additional occupational focused education may play an important part in improving post-graduation employment success. However, the introduction of enhanced vocational education for students who do not currently plan to attend college must acknowledge that the skills mismatch identified in this study are concentrated among those Hoosiers who have not graduated from college. Therefore, any vocational education must include significant and appropriate academic training, which will minimize future skills mismatch. To do this, vocational training must emphasize basic skills that enable students to adjust their skill sets over a working lifetime. Expansions of early childhood education programs will likely show results in furthering overall K-12 educational goals. This expansion must be targeted to populations that will show the highest return.

FEDERAL WORKFORCE EFFORTS

The Workforce Investment Act requires 16 separate educational and training efforts across four federal agencies. Further expenditures on employment and skill training are part of most federal agency budgets, including Defense, Energy, Agriculture, Homeland Security and others. Indeed, it would be difficult to find a more disparately managed area of federal focus than workforce training. A number of studies suggest that a significant streamlining of efforts is warranted. At the state level, Indiana offers a significant set of job training aids (grants and programs), training or skill assessment aids, job fairs, and regional WorkOne offices. Indiana offers job postings, advice, and services for veterans, youth, and seniors. While many of these services are mandated by federal legislation and funded through federal taxes, little evaluation of the efficacy of these programs has been performed. Further, a significant share of these efforts replicates private sector activities. For example, the state online job service attempts to mimic a number of readily available online employment services. Federal budgetary constraints will affect the Workforce Investment Act funded programs in the coming years. Indiana must be prepared to identify which programs are most critical to economic outcomes in the state.

ATTRACTING AND KEEPING SKILLED WORKERS

The focus on human capital acquisition for Hoosier workers outlined in this study is only part of the story. Indiana educates and trains more than sufficient men and women to supply our labor markets. These students simply do not choose to stay in Indiana upon graduation. So, the matter is more complex than direct improvement in human capital alone. If Indiana is to prosper, more places in Indiana must become locations that are attractive to college graduates. Those place in Indiana which are desirable locations for households are observing significant in-migration and job growth. In these places the structural unemployment and skills gap described in this study are almost wholly unobserved.

PARTNERSHIPS

Finally, wide ranges of private sector activities are taking hold throughout the state. These range from the very robust statewide efforts of such organizations as Conexus Indiana to promote educational attainment and workforce training in the state, to business partnered local educational training efforts such as the Batesville, Indiana partnership between Conexus Indiana, Ivy Tech and Hillenbrand. Private sector workforce development and educational support efforts are a critical component in mitigating the effects of the inevitable skill mismatch on Indiana's economy.

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