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In a world of ever increasing global competitiveness, what prerequisites does an individual need to fulfill to advance in our society? Have these prerequisites changed over time?

The hypothesis I addressed to answer these questions was to see if the role of education has changed over time. Does one need to complete ever increasing years of education in order to advance economically? Has this advancement in educational attainment resulted in real wage increases for the individual?

Before beginning my research I was under the impression that one needs to complete more years of schooling in order to have the opportunity to be hired in the more desirable jobs of our society. This advancement in educational prerequisites forces the individual of today to achieve a higher educational attainment status than their predecessors. I wasn't sure if this educational advancement would result in higher real wages, or just keep people at the level that previous generations enjoyed.

A scientific method of hypothesis testing must be used in order to verify that a scientifically significant relationship exists between educational attainment and income. A regression is an economic model which can be used to verify if there is a true cause and effect relationship between two variables. The two variables in my investigation are educational attainment and income. The income variable will be used as the dependent

variable, while the educational attainment variable will be used as the independent variable. By setting up a regression in this manner you can see what changes in educational attainment will have on income. The change in the independent variable, educational attainment, which results in a change in the dependent variable, income, will only be considered significant if several key statistics verify the results from the data used. These include a significant number of observations, a significant F-test, and a significant T-score.

The first step I needed to take to address my hypothesis was to collect the proper data. I began my search in the government documents section of the University of Oregon library. It was here that I started with the U.S. Statistical Abstract published by the Bureau of Economic Analysis.

I searched through the various years of the annual publication until I found those issues which were pertinent to my research. I looked at the issues which contained data on educational attainment and income for all fifty states for the years of 1950, 1960, 1970, 1980, and 1990. The data I collected from these issues provided me with complete data on wages in current dollars for the years under study. The data on educational attainment, however, was incomplete.

The educational attainment data that was available varied in its presentation for each decade. I carefully summed the totals for educational attainment that were available on a state-by-state basis into four categories. The categories consisted of

high school dropouts, high school graduates, undergraduate college graduates, and those which had completed five or more years of college. High school dropouts included all those individuals who had completed less than twelve years of education. High school graduates included all those who had completed twelve years of school and up to three years of college. College undergraduates included all those individuals who had completed four years of college. Individuals completing five or more years of college were considered to have completed a Master's degree or higher. Each category was broken down by summing the years of education completed and dividing this number by the total adult population on a state-by-state basis. This allowed me to present each educational category on a percentage basis.

Gross State Products for 1980 to 1990, as well as Consumer Price Index for the years of 1950 to 1990, were also found in the U.S. Statistical Abstract.

I needed to complete my data search for educational attainment on a state-by-state basis for information that was not available in the U.S. Statistical Abstract. I accomplished this by looking at each individual state's U.S. Population Census for the years of 1950, 1960, 1970, 1980, and 1990. I again summed the various data and divided by each state's adult population in order to get an accurate depiction of the percentage of educational levels attained by each state's population.

The second step in the data collection process was to input the data that I had collected. I carefully entered all of my data collection into a spread sheet using Excel. I paid particular attention to detail in order to avoid improper data entry.

I began by entering the educational attainment data on a state-by-state basis in the four categories previously mentioned. Wages were entered according to each decade on a state-by-state basis. Gross State products for 1980 and 1990 were also entered.

After this step the data was revised into a different format so that regressions could be run on the collected data. The four educational attainment categories now included high school dropouts, those with a minimum of a high school diploma, a minimum of a college undergraduate degree, and those with a Master's or beyond. Wage data was revised on a per capita basis by dividing the wages by the total population on a state-by-state basis. A separate column was added to show the percentage change in each category of educational statement and wages on a decade-by-decade basis. The Consumer Price Index for the years under study were also added.

Three separate regressions were run in order to see if a significant correlation exists between educational attainment and income. The first regression involves the broadest method of the effect of educational attainment on income. In this regression the results must be looked at with a great deal of skepticism because extraneous variables outside of the variables under

investigation may skew the results leading to incorrect conclusions. Taking the existence of extraneous variables effect into account led to the second regression.

The second regression narrows some of the effects of outside influences by adding variables to take into account the influences that time and state trends may have on the model. Time variables for each decade provide the model with the ability to account for changes in income that may have been due solely to changes occurring over time. Likewise state variables provide the model with the ability to account for changes in income that may have been due solely to changes occurring in each state.

The third regression provides the most accurate depiction of the data being studied. Here variables are added to take into account the level of educational attainment achieved on a decade by decade basis. In this way any changes occurring over each decade which may have an outside influence on the specific degree earned during that decade is accounted for. Again state specific trends are added to account for changes that may have been unique to each state over the period of time under study.

Three regressions were run on the revised data. The first regression showed that there was a significant correlation between the completion of a high school education and a rise in real wage income. No adjustments were made for changes in effects for each decade, state trends, or time specific effects.

The second regression showed that there was a significant correlation between a college undergraduate degree and a rise in

real wage income. Adjustments were made for state trends and time specific effects, but no adjustments were made for changes that may have been associated with each decade.

In the third regression adjustments were made for state trends, time specific effects, and changes that may have resulted from each decade. This regression showed four significant correlations between educational attainment and real wage income. In the decade of 1960 to 1970, a high school diploma resulted in a positive real wage advancement. Three results occurred for the decade of 1980 to 1990. First completion of a high school diploma resulted in a real wage decrease. Second, completion of a college undergraduate degree resulted in a real wage increase. Third, completion of a Master's degree or more resulted in a real wage increase.

The results of the third regression provided the most informative information. These regressions clearly showed that there is a significant premium placed on the value of advancement in educational attainment for the decade of 1980 to 1990. The premium is so high that a high school diploma not only results in no real positive real wage increase, but actually results in a decrease in real wages. A one percent change in educational attainment for college undergraduates resulted in a 0.3% rise in real wage income. A one percent change in educational attainment for those with a Master's degree or higher resulted in a 0.75% rise in real wage income.

The results of these regressions show that there is a significant correlation between the attainment of an advanced college education and an increase in real wage income. These results present several obstacles for our nation.

First, a growing number of the adult baby boomers are nearing retirement. These people will be demanding the Social Security payments for which they have contributed. There will be intense pressure on elected representatives to divert funds away from education, whose vast numbers represent those who do not vote in high numbers, towards the elderly who do vote in large numbers.

Second, there is considerable more pressure from many age groups to lower tax rates. This will cause the main revenue stream for financing our educational system to dwindle.

Third, research indicates that education is becoming increasingly more valuable and necessary in an ever-widening global economy. In order to qualify for the higher paying, higher skilled jobs of today one must complete higher educational levels than their predecessors. The rise in real wage income disparities is a growing trend which confirms this. Many domestic forces, however, continue to prevent the much needed expansion of our educational system.

If our current trend of cutting higher education continues then we will continue to fall behind other nations. Due to intense global competition we will likely see a decline in productivity, lower standards of living, and a continued widening

of the income gap. Many ripple effects will also be felt throughout our nation. These would include increased poverty, drug use, violence, and teen pregnancy, as well as declining literary rates.

These results clearly show that the more advanced degree one can obtain will result in an ever increasing gain in real wage increases. It also shows that a high school diploma no longer meets the minimum requirement for a rise in real wage income. An undergraduate college degree has now become the minimum standard of which one must attain in order to enjoy a rise in real wage income.

The results of my research indicate that several key trends have emerged over the past forty years. First, in the sixties completion of a high school diploma resulted in a real wage increase. In the eighties, a high school diploma resulted in n real wage increase. Clearly the value that employers place on a high school diploma has diminished over time. A new standard has been set by which one must advance to in order to obtain real wage increases. This new standard is the successful completion of a college undergraduate degree.

Second, with a college undergraduate degree now being the new standard for real wage increases, a high premium is now being placed on completion of advanced college degrees. Employers are looking for individuals with advanced college degrees in order to clearly distinguish potential employees. Whereas a high school diploma was the standard of comparison in the sixties whereby one

could distinguish themselves by completing a college undergraduate degree, a high standard now exists whereby the undergraduate college degree is no longer enough to distinguish the individual from others. One must now complete a Master's degree in order to guarantee advanced career placement today.

A clear trend has emerged in the increased value that society places on advanced educational attainment. If this trends continues into the future then I would suspect that at some point a Master's degree may become the new standard by which one must successfully complete in order to guarantee a real wage increase.

Econ401

REGRESSION 1

No. of Obs.=150
F-test=18.87
Adj R sq=0.2646
Constant=0.1797232
Std error=0.0501752

Percentage increase in income due to an increase in educational attainment from:	Coeffecient / Stand error	T-score / P-value	95%Conf.Interval	
HS Dropout to HS Graduate	0.6225359	4.209	0.330248	0.9148236
	0.1478931	0		
HS Graduate to College Under.	-0.1271892	-1.416	-0.304697	0.0503186
	0.0898162	0.159		
College Under to Masters+	0.0343634	0.933	-0.0384361	0.107163
	0.0368354	0.352		

REGRESSION 2

No.of Obs.=150
F-test=37.38
Adj R sq.=0.539
Constant=0.3421962
Std error=0.0756627

Percentage increase in income due to an increase in educational attainment from:	Coeffecient / Stand error	T-score / P-value	95%Conf.Interval	
HS Dropout to HS Graduate	-0.1780102	-0.828	-0.6047841	0.2487636
	0.2149722	0.41		
HS Graduate to College Under.	0.2090645	1.79	-0.0227451	0.440874
	0.1167659	0.077		
College Under to Masters+	0.0644189	0.741	-0.1082034	0.2370412
	0.0869524	0.461		
Time Effects 1960-1970	(Dropped)			
Time Effects 1970-1980	-0.2328298	-9.572	-0.2811174	-0.184542
	0.0243232	0		
Time Effects 1980-1990	-0.2423486	-3.606	-0.3757565	-0.108941
	0.0671995	0		
State Trends included				

REGRESSION 3

No.of Obs.=150
F-test=33.1
Adj R sq.=0.7132
Constant=0.2715742
Std error=0.0999432

Percentage increase in income due to an increase in educational attainment from: (Including Time eff & State Trend Dummy Var.)	Coeffecient Stand error	T-score P-value	95%Conf.Interval	
1960-1970 HS Dropout to HS Grad	0.4574393	1.885	-0.0246894	0.9395679
	0.2426441	0.063		
1970-1980 HS Dropout to HS Grad	-0.2159178	-0.952	-0.6666624	0.2348267
	0.2268492	0.344		
1980-1990 HS Dropout to HS Grad	-0.8285132	-3.15	-1.351079	-0.305948
	0.262995	0.002		
1960-1970 HS Grad to College Under.	0.1330522	0.822	-0.18864	0.4547445
	0.1619002	0.413		
1970-1980 HS Grad to College Under.	-0.048433	-0.342	-0.3301773	0.2333113
	0.1417953	0.733		
1980-1990 HS Grad to College Under.	0.2989227	1.869	-0.0188605	0.616706
	0.1599329	0.065		
1960-1970 College Under to Masters+	-0.0519859	-0.351	-0.3462018	0.24223
	0.148072	0.726		
1970-1980 College Under to Masters+	-0.1402283	-1.233	-0.3662674	0.0858107
	0.1137602	0.221		
1980-1990 College Under to Masters+	0.7514467	5.944	0.5002699	1.002623
	0.1264114	0		
Time Effects 1960-1970	(Dropped)			
Time Effects 1970-1980	0.0943208	0.808	-0.1377411	0.3263827
	0.1167913	0.421		
Time Effects 1980-1990	-0.1036451	-0.77	-0.3710647	0.1637744
	0.134586	0.443		
State Trends included				