ADVANCING HIGHER EDUCATION

THE PRIVATE AND SOCIAL BENEFITS OF HIGHER EDUCATION: THE EVIDENCE, THEIR VALUE, AND POLICY IMPLICATIONS

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EXECUTIVE SUMMARY

Existing price signals in the higher education market do not reflect the true value of a college degree to an individual or to society. Human capital created by higher education is used on average about twice as much at home or in the community as on the job. And beyond the private market and non-market benefits are the external societal benefits. Non-market private and social benefits are not measured and accounted for in traditional estimates, i.e., market earnings and employment benefits, of the value of higher education relative to its costs. Such benefits have thus been ignored or discounted in higher education decision-making. This market failure has resulted in years of underinvestment in higher education and contributed to a nationwide skill deficit that has been building since the 1980's. The serious consequences for the middle-class are becoming obvious, particularly in the current recession.

In <u>Higher Learning, Greater Good, The Private and Social Benefits of Higher Education</u>, (McMahon, 2009, Johns Hopkins University Press), the economic value of both the private (market and non-market) and societal benefits of higher education are systematically identified and estimated. This framework places the higher education policy issues of access, affordability, accountability, declining state support, and privatization into a coherent human capital formation framework offering new insights. Overall, the value of the *private* non-market benefits are about 120% above and beyond the earnings benefits for both Associate and Bachelors degrees. The value of the *societal* non-market benefits are about 88% above and beyond the earnings benefits. Together the private and social non-market benefits are about two-thirds of the total benefits of higher education. The evidence is overwhelming that the true social rates of return to higher education are greater than those typically reported which implies a substantial underinvestment in 2-year and 4-year college degrees, reductions in overall economic efficiency if privatization is carried too far, and perhaps an overemphasis on vocationalization in the curriculum.

INTRODUCTION

The United States has a skills deficit in its labor force. Years of continuing displacement of lower skilled workers by new technology and automation to which they cannot adapt, combined with displacement due to international outsourcing of jobs and compounded by competition with lower skilled immigrants, has increased the surplus of those with lower skills and lead to stagnant or falling wages. But this situation is also resulted from years of underinvestment in the skills acquired from a higher education in either a 2-year or 4-year college or university. Since 1991, U.S. enrollment rates in post-secondary education have not increased. During this same period they have surged 40 percentage points in Norway, Sweden, and Denmark, and risen by about half that in Spain, Italy, the UK, and the Netherlands according to UNESCO. In Canada, Japan, and South Korea, overall higher education participation rates have been considerably higher than in the US for some time (OECD, 2009).

While the U.S. skill deficit has been building, the current recession has exacerbated its effects. All workers, including new college graduates, have faced weak labor markets as cyclical unemployment has risen. But those with less skills and no college education are clearly hurt the most. In the meantime, the US has lost much of its historic comparative advantage in foreign trade that was based on human capital created through education.

If higher education markets worked more or less perfectly, then students, their families and governments would have responded to an increased demand for graduates as indicated by price signals. Such price signals would reflect the true value of higher education to an individual and to society. Then the skill deficit would not have developed and states would not be withdrawing from the funding of higher education. If states had not reduced their support for higher education, tuition and fees surely would not have risen at the rate experienced in recent years. And there would not be such a sharp and continuing trend toward privatization in the financing of higher education.

THE ECONOMIC VALUE OF A HIGHER EDUCATION

What is the economic value of a higher education in relation to its costs? Although the earnings and employment benefits (market benefits) of higher education are well known and typically used to answer such a question, the non-market private and social benefits have never been systematically and comprehensively identified, measured and valued.

The human capital formed by higher education is used by individuals on average about twice as many waking hours each week at home or in the community as it is used on the job. During these hours it contributes to more productive use of time. This generates private non-market benefits that are not measured by market earnings and thus not accounted for in traditional estimates of the value of higher education. These include substantial contributions to better health, roughly 4 ½ years of greater longevity for those finishing a bachelor's degree, better child health and cognitive development, increased happiness, and so forth. The inadequate awareness of such non-market private benefits contributes to market failure for higher education.

Beyond the private benefits (market and non-market) of higher education are the external social benefits. There are contributions to democratic institutions, human rights, political stability, lower state welfare costs, lower health costs, lower public incarceration costs, contributions to social capital, to the generation of new ideas, and so forth. The benefits to "others" including future generations of the increased flow of new ideas are substantial but are the hardest to measure. Such external social benefits from higher education set the stage for subsequent rounds of economic growth including higher earnings later as part of a dynamic process. So market failure for higher education also results when its social benefits are not comprehensively identified and measured, and their economic value is not estimated and discussed.

The value of the social benefits as a percent of the private plus social benefits of higher education matters for education policy issues, particularly decreased state and federal funding. But an inadequate and incomplete understanding and awareness of these direct and indirect social benefits means they will be ignored or discounted. This can help to explain the accelerating trend toward privatization in the financing of higher education through increased tuition and fees and

toward vocationalization of the curriculum. In <u>Higher Learning, Greater Good, The Private and Social Benefits of Higher Education</u> (Johns Hopkins University Press, 2009), the social benefits are identified, research on each type is evaluated, and estimates are made of their monetary value. These social benefits of higher education have previously never been comprehensively identified and valued.

The market failure for higher education has contributed to a nationwide skill deficit that has been building since the 1980's. Its resulting impact on the middle class is becoming obvious, particularly in the current recession. The build up of frustration and anger is apparent. The reaction is not just against Wall Street but also against the political establishment and incumbents who have allowed this deterioration of the economic and social condition of the middle-class to occur. There are also adverse longer run economic growth and development effects, as well as internal academic policy implications on each campus. Attention to these issues offers new financing opportunities, however.

MARKET BENEFITS OF HIGHER EDUCATION

What do labor markets alone say about the value of a higher education? The strongest evidence is estimates of the increments to earnings, or better still the social rates of market return because the latter account for the institutional costs of higher education which have been rising as well as the costs to society of student financial aid. Additional insight is provided by the education levels required in the fastest growing occupations, as well as the occupations where there are the most job openings. Care must be taken with these latter indicators; in contrast to the wage/earnings signals from labor markets, the technical coefficients that reflect historic education requirements in each occupation typically do not foresee the effects of technical change, and rising professionalism and education requirements in each occupation. It is largely for this reason that the education requirements implied by the manpower planning approach are so prone to error.

EARNINGS EVIDENCE

Higher education creates productive human capital skills that are in demand. Employers foreseeing expected productivity are willing to pay more, and *to continue to pay more,* if these skills are genuinely productive of revenues for the firm. This simple point rejects the notions of 'job market signaling' and a 'diploma effect' which both imply that human capital acquired by college is not productive, as does a review of the available evidence by Lange and Topel (2006, p.505).

The rising demand for highly skilled workers since 1980 is illustrated on the right in Figure 1, and the falling demand for lower skilled workers with a high school education or less is shown on the left. In the right hand panel, new technology creates a rising demand for those best able to use and adapt to this new knowledge. Since college enrollment rates have not been increasing in the U.S., the supply of college graduates has not increased as fast as demand. Considering the period up through 2007 in order to avoid the transitory impact of the 2008-10 recession, average earnings for college graduates increased 48% from $43,740 in 1980 to $66,363 in 2007 in inflation-adjusted 2007 dollars (U.S. Census/BLS Current Population Surveys). The average increase for those with a 2-year Associate degree is a very similar 50% since 1980. The inflation-adjusted increase was greater for females (73%) than males (37%). Even if the top 1% of earners where increases have been larger is removed, the real increase for graduates is substantial. Currently, a minority (38%) of the U.S. working age population has college level skills; 27% have 4 years of college or more, and an additional 9% have a 2-year Associate degree.

Individuals with a high school education or less make up 64% of the U.S. labor force in and an even higher percentage in Britain and the E.U. Their real earnings have remained nearly constant in real terms between 1980 and 2007 at $28,825 as shown in Figure 1 (ibid., 2007 prices). The real earnings of males who have completed only 1 to 3 years of high school have fallen 10%. This understates their true plight which has become worse since the onset of the 2008-10 recession. Also, proportionately more high school drop outs are unemployed or have become discouraged workers and left the labor force; they are not included in this analysis because BLS data only includes those 'with earnings'. Individuals with a high school education or less earned 72% of what college graduates earned in 1980; in 2008, they earned only 43% of that amount, and now it is even less.

SOCIAL RATES OF RETURN

Figure 4 shows 'narrow' social rates of return based only on earnings computed by the full method. This method uses total investment costs for human capital formation, including institutional costs, the public cost of financial aid and foregone earnings costs, and computes the rate of return that equates these costs to the discounted present value of the earnings increments over the remainder of the life cycle for each level of education. These are relevant for higher education public policy decision-making when augmented with non-market benefits; private rates of return are relevant for private decisions since the latter do not reflect the full cost to society of higher education. Student financial aid and subsidies to public colleges and universities reduce private costs and raise private rates of return. Foregone earnings costs have been flat since 1980 and falling since 2008, whereas institutional costs have been rising. The earnings and rates of return apply to all graduates of public and private institutions on the average, so public and private institutional costs have been weighted appropriately.

Social rates of return to a high school education or less have hovered at close to the 10% level since 1980 (McMahon, 2009, p. 97). However, avoiding dropping out of high school and continuing for 11th and 12 grade to earn a diploma yields an extremely high 52% rate of return for those two years alone (Heckman et. al., 2008, p. 12). Social rates of return for completing an Associate degree are 17% for males and 18% for females in real terms. This is well above the standard 10% benchmark indicating the return available on alternative uses of both private and tax funds.

Social rates of return at the Bachelor's degree level are 13% in real terms for males and 11% for females. Rates of return to college during the current recession, assuming it is transitory, are a bit higher if anything because foregone earnings costs to families are lower. Although starting salaries and job offers at graduation will clearly be down in the spring of 2010, a college education is a long term investment and returns over the remaining 44 years of employment of a life cycle are not much affected by transitory events.

At the graduate student level, social rates of return always tend to be lower because foregone earnings costs and institutional unit costs are both higher and the number of years remaining in the life cycle for earnings is less. However, most PhD students receive substantial amounts of financial aid. So the private rates of return are substantially higher and a PhD is generally a quite profitable private investment.

EVIDENCE FROM OCCUPATIONAL REQUIREMENTS

The fastest growing occupations (figure 2) account for over one-third of all of the new jobs becoming available. The four fastest growing require 4 or more years of college. The next fastest growing occupation is health care aides, which typically requires no college and only some on the job training. So it is an exception to the pattern. But there are increasing demands for more professionalism and 2-year practical nursing degrees for home health care workers. For eleven of the remaining fastest growing occupations in figure 2, a 2-year Associate degree or more is needed. No college and only some on-the-job training (OJT) are needed for the remaining five fast growing occupations. These again are largely personal services needed because of an aging population. Overall at least two years of college is needed for three fourths of the fastest growing occupations.

Figure 3 shows the BLS forecast in terms of the increase in the absolute number of new jobs as distinct from the occupations with the highest percentage growth rates. Estimated education levels are not as homogeneous within these groups because the classifications are broader and not as sharply defined by the skills needed. Nevertheless, the largest absolute numbers of job increases are expected in the "professional and related" occupations such as medicine, law, teaching and research, librarianship, and architecture where generally 5 years of higher education or more are required. The service occupations shown in the second row in Figure 3 require 0 to 4 years of college since they include services outside the professional range, from relatively low skilled health care aids to the human capital intensive services of systems analysts. These service occupations are expected to enjoy the second largest percentage growth but also the second largest numerical gain. Almost all of the additional 2.4 million management, business, and financial service jobs, which are the third fastest growing both in absolute and percentage terms (15.4%), will require 4+ years of college.

Considering the absolute numbers of job openings, and ignoring growth, the largest occupations have the largest need for replacements as workers retire. But even in these occupations, the more successful individuals tend to have more education (e.g. beginning carpenters pound nails but after a while many are managing their own firms). Farming is another example where the skills essential for success are now far more complex than most realize. Farmers on the Great Plains usually have bachelor's degrees, and the son who will take over does also, while the other children tend to enter high tech agri-business employment. So "education requirements" based on the absolute numbers of replacement workers can be misleading. Projections in these occupations need to use technical coefficients that reflect new technologies and be interpreted with great care.

The occupations that are expected to decline are also very revealing. Projected job loss is concentrated quite dramatically in the very low skill occupations. Essentially all of these occupations overwhelmingly employ only persons with a high school education or less.

NON-MARKET PRIVATE AND SOCIAL BENEFITS

What are the best estimates regarding the value of the non-market private and social benefits from a higher education relative to the value of the market benefits? In Higher Learning, Greater Good, The Private and Social Benefits of Higher Education (Johns Hopkins University Press, 2009), a human capital formation approach and modern endogenous growth and development theory are drawn upon to systematically and comprehensively identify, measure, and estimate the economic value of both the private (market and non-market) and social benefits of higher education. These outcomes are also related to their true investment costs. This framework places the higher education policy issues of access, affordability, accountability, declining state support, and privatization into a coherent human capital formation framework that offers new insights.

If the estimates of the value of private and social non-market benefits beyond earnings are added to the jobs and earnings benefits as they should be, the evidence becomes overwhelming that the true social rates of return are higher than those typically reported. This indicates a substantial underinvestment in 2-year and 4-year college degrees. It suggests that poor information about the many additional non-market benefits and their value has contributed to many individuals stopping their education after high school when they should have in fact continued. This "market failure" in higher education is similar to the failure in financial markets that lead to "irrational exuberance" and produced the recent recession, a situation assumed impossible by adherents to the "efficient market hypothesis". The current recession has taught us again that markets do work, but they do not work perfectly. Although there is widespread awareness now of market failure in financial markets, there is as yet little or no awareness of the also serious failure in higher education markets.

The non-market private and social benefits generated by the typical Associate and Bachelors degree graduate each year are listed in Figure 5 together with estimates of the economic value of each. The absolute size of each benefit is based on articles in major refereed professional journals that meet the necessary standards, e.g. include a control for per capita income and report all key coefficients to be significant. Since there is usually more than one article dealing with each benefit, the effects of additional years of education on the outcome in question are averaged which reduces the influence of studies that are outliers.

The economic values of these education outcomes are estimated by the Haveman-Wolfe (1984, 2006) method. To explain briefly how the monetary value of non-market outcomes are estimated, the underlying rationale is based on the standard economic assumption that on average over large numbers of individuals, families will substitute among alternatives until they approximately equate the ratios of marginal products of each item they 'purchase' (including the marginal product of additional education) to their economic values. In practical terms, per capita income and additional years of education are in each and every regression equation reported in the hundreds of underlying studies from professional economics journals that are used. So there is an income coefficient and an education coefficient, both of which must be significant or the study is not used. Choosing one non-market outcome as an example, own-health is typically measured on a scale from 1 to 10. Considering a 10% improvement in one's own health which is the result of additional years of college education, what

is the monetary value of the additional education? This can be answered by using the income coefficient and asking how much would it cost using other goods, such as doctor's services, drugs, and/or hospital services, to produce that same 10% improvement? This produces an estimate of the monetary value of the contribution of additional education that improves one's health. Other estimates of the values of education's non-market outcomes in Figure 5 are produced in analogous ways.

Scanning over the individual private and social non-market benefits, two points are important to stress. First, especially with the social benefits, civic institutions are built, new ideas are generated, and environmental conditions are put in place such as lower state crime, welfare, health and incarceration costs that continue to benefit generations far into the future. These are the dynamic feedback effects from the indirect social benefits of education on economic growth that are developed and estimated in McMahon (2002) but not fully included in Figure 5 below. So the estimates are likely to be conservative, not only because these indirect effects with delayed feedbacks are not fully included here but also because there are some outcomes (indicated by a + in the tables) where no satisfactory underlying studies exist on which estimates can be based.

Overall, the value of the *private* non-market benefits are about 120% above and beyond the earnings benefits for both Associate and Bachelors degrees. The value of the *social* non-market benefits are about 88% above and beyond the earnings benefits. Together the private and social non-market benefits are more than half (68%) of the total benefits. These estimates are consistent with checks against estimates based on the other methods for estimating non-market values, although the other methods are not as precise. There are of course some negative non-market "benefits" from higher education. White collar crime, with criminals like Bernie Madoff or some of the hedge fund operators who could not have conducted their scams without a college education are obvious examples. In terms of the number of crimes, these negative externalities have been netted out in the estimates presented of the effects on crime rates. This leaves benefits that on balance are still positive. Of course this does not adequately reflect the economic cost of some of these white collar crimes which is enormous. So in this case it must be a judgment call that the benefits from lower numbers of crimes exceed the negative externalities from white collar crime. Noting again that the value of a number of the benefits has been placed at zero because of the lack of basic research, the estimates must be viewed both as conservative and as first approximations. Hopefully these are the best and the most comprehensive estimates that exist to date, but they all have implicit error margins and should not be interpreted as point estimates that have a high degree of precision.

Viewed from the earnings and job markets perspective, the earnings benefits from the human capital created by Associate or Bachelor's degrees are 33% of the total benefits. But then the time spent on the job assuming the spouse works half time is only 27% of the family's waking hours each week. A typical man and his wife use their human capital 73% of the time in household production at home or in the community. There is plenty of scope for non-market effects from the quality of this non-market time. It should be noted that the specific estimates of the values of the non-market outcomes were not based on the number of hours spent at home or in the community, except perhaps for the fact that per capita income was included in every regression equation. So the proportion of time spent at home or in the community only serves as a cross check that is consistent with the reasonableness of the totals.

IMPLICATIONS ACROSS ACADEMIC FIELDS

The main implication for academic policy across disciplines is that fields not conventionally thought central to economic growth or to the national interest generate substantial and valuable private non-market benefits and social benefits. That is, although these fields do not lead to patents that allow the benefits to be captured, monetized and privatized, they likely contribute more than proportionately to the development of civic institutions, democratic institutions and the rule of law. These benefits in turn set the stage for sustained economic growth, and hence these fields contribute, albeit indirectly, to growth. It is just that these contributions must be measured, even though it is less convenient than counting patents. Consider for example a typical growth equation. In addition to direct benefits from human capital formation through education, positive effects on growth are typically found from physical capital formation, trade, political stability and the rule of law, among other determinants (McMahon 2009, Appendix D). These growth-enhancing contributions

to strengthening civic institutions, political stability, and the rule of law that are probably disproportionately aided by education in political science and law, not just engineering. Fields such as foreign languages and business contribute to trade and hence indirectly to growth as well. It is not that engineering and fields generating patents are not useful. It is instead that the values of fields that contribute the most to civic institutions, trade, better health, child cognitive development, crime reduction, and so forth, do feedback indirectly making positive contributions to growth. These contributions are more likely to be recognized as this paper and continuing research seek to measure and bring attention to the true value of their non-market outcomes.

CONCLUSIONS

With approximately two-thirds of the benefits from higher education overlooked, and with the indirect effects from education (e.g. via the rule of law) contributing to economic growth in ways that are not widely understood, it is not surprising that there has been serious underinvestment in higher education, perhaps an overemphasis on vocationalization, and such a large build-up of skill deficits in the U.S. since 1980. The true social rates of return that add to the value of the non-market private and social benefits are obviously much higher than the 16-17% Associate degree and 11-13% Bachelor's degree standard 'narrow' social rates of return reported in Figure 4 which appear to be picking up less than half of the value of the returns from the investment. There is cause for alarm not only in the deteriorating economic and social position of the middle-class, rising inequality, and rising discontent with the establishment, but also in the fact that most other OECD nations have expanded access to higher education much more rapidly than the U.S. since 1990. These can be best addressed by higher education policy, and should not be addressed only with short term 'fixes' and protectionist measures. Although there have been deficiencies in the secondary education system, including the disastrous effects from high school dropouts, this paper has focused on higher education's role. As has been shown, a very large part of the basic problem facing the declining middle-class can not be addressed with K-12 policy alone and must be addressed with better higher education policy.

Four alternative policy options are:

1. **Communicate to families and state legislatures the private and social non-market benefits of higher education.** Providing better information is the classic solution to reducing market failure. It will require recognition of the problem and action to solve it by the Department of Education, State Boards of Higher Education, and organizations such as the American Council on Education and The Association of Public and *Land-Grant Universities* (APLU, formerly NASULGC). The leadership of the flagship universities in each state need to take the lead in working with the other comprehensives and Community Colleges to address the issue before the public and state legislatures will respond. Then with better information higher education markets should work better. This would lead to better support by families for private investment and better public support by state legislatures and the Federal Government for more adequate levels of investment in higher education.

2. **Avoid ill-conceived studies that do not recognize the greater significance of the social rates of return to higher education and that tend to focus on rising institutional costs while ignoring foregone earnings costs.** The Spellings Report is a recent example. This requires understanding that higher education produces human capital, i.e. knowledge and skills embodied in graduates, and does not produce students. It requires understanding that private foregone earnings costs for undergraduates, which are about half of total investment costs in human capital formation at public institutions, have been falling but also are a major private investment. A human capital investment approach also puts more focus on efficient use of the student's time.

3. **Increase Federal support to increase access to higher education, as well as to support institutions (probably through the states), especially those who accept more students.** If a meaningful effort is going to be made to rescue the middle-class, more students from middle and lower-middle class families will need to attend. They will require adequate Pell Grant support that can help with both tuition and living expenses. If colleges and universities are to accept more students, they will incur additional institutional costs; they will need help as well as incentives to do

so. This will require some direct support, perhaps on a capitation basis or a formula such as was used with the GI Bill. The Historically Black Colleges and Universities for example are in desperate straits at the moment.

4. **Reconsider the issue of privatization.** As enrollment increases, private investment increases automatically**,** largely in the form of foregone earnings. Also, Pell Grants are available to students enrolling in private colleges. But the issue is more complex than this. With new estimates of the value of the private and social non-market benefits and a new calculation of the total social benefits as a percent of the total, there should be a reconsideration of how far privatization should proceed consistent with achieving overall economic efficiency, of what is involved if social benefits from higher education continue to erode as vocationalization and privatization proceed, and of where the appropriate balance in the degree of privatization in financing lies.

If a conservative estimate of the value of the social benefits is about 50% of the total benefits, private plus social, as developed further in Higher Learning, Greater Good, The Private and Social Benefits of Higher Education, then it is appropriate if about half of the costs of education are publicly financed. Although foregone earnings and endowment funds (which resemble public support of externalities) must be taken into account, the public share at the primary and secondary level is above 50%. But the public share at the private vocational for-profit colleges and universities is far below that. At public colleges and universities, including public support through Pell Grants and private financing of foregone earnings, the public share is somewhat below 50% overall. By this guide increased privatization has about run its course in the U.S. if overall economic efficiency which includes providing for the external social benefits is to be maintained. Privatization in most of the E.U., however, Britain excluded, still has a long way to go before economic efficiency suffers.

FIGURE 1
DEMAND FOR COLLEGE GRADUATES RISING FASTER THAN SUPPLY
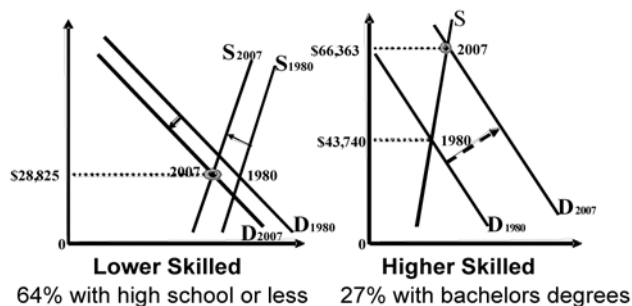
High school graduates earn 43% of what college graduates earn. This gap has widened since 1980.

Source: US Census/BLS, *Current population* Survey, Persons 18 years old and older, mean earnings of both sexes (1980, 2007).

FIGURE 2
EDUCATION NEEDED IN OCCUPATIONS PROJECTED TO GROW THE FASTEST, 2002 TO 2012

OCCUPATION	% CHANGE IN EMPLOYMENT	YEARS OF COLLEGE NEEDED
Medical assistants	59	2-4
Network systems and data communications analysts	57	4
Physician assistants	49	4
Social and human service assistants	49	4
Home health aides	48	0
Medical records and health information technicians	47	2
Physical therapist aides	46	2
Computer software engineers, applications	46	4
Computer software engineers, systems software	45	4
Physical therapist assistants	45	0
Fitness trainers and aerobics instructors	44	2
Database administrators	44	4
Veterinary technologists and technicians	44	2
Hazardous materials removal workers	43	0 (OJT)
Dental hygienists	43	2
Occupational therapist aides	43	2
Dental assistants	42	0 (OJT)
Personal and home care aides	40	0 (OJT)
Self-enrichment education teachers	40	2
Computer systems analysts	39	5+

Source: (BLS, 2007, Chart 7).

FIGURE 3
MAJOR OCCUPATIONAL GROUPS: PROJECTED EMPLOYMENT CHANGE (2002-2012) AND EDUCATION NEEDED

OCCUPATION	% CHANGE IN EMPLOYMENT	YEARS OF COLLEGE NEEDED
Management, business and financial occupations	15.4	4-5
Professional and related occupations	23.3	5+
Service occupations	20.1	0-4
Sales and related occupations	12.9	0-4
Office and administrative support occupations	6.8	2-4
Farming, fishing and forestry occupations	3.3	0-4
Construction and extraction occupations	15.0	0-4
Installation, maintenance, and repair occupations	13.6	0-2
Production occupations	3.1	0
Transportation and material moving occupations	13.0	0-2

Source: U.S. Bureau of Labor Statistics.

FIGURE 4
SOCIAL RATES OF RETURN BY LEVEL OF EDUCATION AND GENDER 2007

LEVEL OF EDUCATION	RATE OF RETURN
9th to 12th Grade, No Diploma, Male	5.0%
9th to 12th Grade, No Diploma, Female	2.9%
High School Graduate, Male	9.2%
High School Graduate, Female	10.4%
Associate Degree (2), Male	16.6%
Associate Degree (2), Female	17.6%
College 1-3 (1.5), Male	10.7%
College 1-3 (1.5), Female	11.9%
Bachelors Degree (4), Male	13.3%
Bachelors Degree (4), Female	10.7%
Masters Degree (1.5 past BA), M	9.9%
Masters Degree (1.5 past BA), F	12.4%
Doctorate Degree, Male	6.3%
Doctorate Degree, Female	7.7%
Professional Degree, Male	11.6%
Professional Degree, Female	8.3%

FIGURE 5
PRIVATE AND SOCIAL NON-MARKET BENEFITS OF HIGHER EDUCATION, 2007

PRIVATE BENEFITS BEYOND EARNINGS	VALUE OF BENEFIT GENERATED PER YEAR PER GRADUATE	
	ASSOCIATE DEGREE	BACHELOR'S DEGREE
Better Self Health	$4,498	$16,800
Better Spousal Health	$513	$1,917
Better Child Health	$1,162	$4,340
Better Child Education & Cognitive Development	$2,113	$7,892
Greater Longevity	$583	$2,179
Smaller Family Size	$415	$1,551
Greater Happiness	+	+
Consumption Efficiencies, Higher Saving Rates, Better Management of Savings	$911	$3,401
Job, Location Amenities	+	+
Lifelong Learning Access	+	+
Total Private Non-Market Benefits	$10,196	$38,080
Social Benefits Beyond Earnings		
Improved Civic Institutions	$490	$1,830
Greater Human Rights	$767	$2,865
Political Stability	$1,556	$5,813
Greater Life Expectancy	$618	$2,308
Poverty Reduction	$833	$3,110
Lower Crime Rates	$1,512	$5,647
Lower Health Care Costs	$146	$544
Cleaner Water	$36	$136
Less Air Pollution	$397	$1,482
Less Deforestation	$1,069	$3,991
Increased Social Capital		
Total Social Non-Market Benefits, Annually	$7,424	$27,726
Average Earnings Increase Over High School	$8,473	$31,644
Total Benefits Per Year, Market Plus Non-Market	$26,093	$97,450

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