

Economic Watch

United States

February 12, 2014

Economic Analysis

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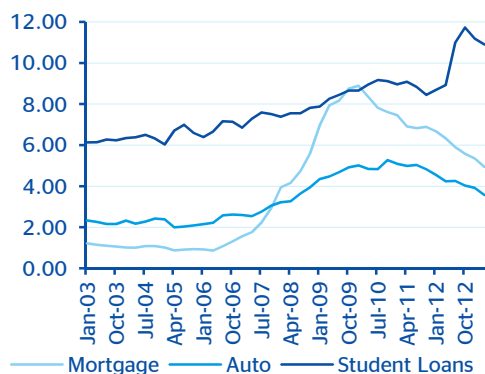
Consumer Credit Watch: Student Debt Is privatization a cure for student debt markets?

- 40M individuals owe an average of \$26K in student loans, and for every four newly delinquent student borrowers one is seriously delinquent
- Rising costs and weak labor market prospects explain a bulk of the historically high delinquencies
- A privatized student debt market could ameliorate risks of over-subsidization while also providing value-added to financial institutions

After four years of economic growth, marked improvements in the labor market and lower risk in the majority of consumer credit products, U.S. student credit risk remains historically high and balances are over four times as large as 2003. In addition, 40M individuals have outstanding student loan balances, owe an average of \$26K per household, and for every four newly delinquent student borrowers one is seriously delinquent (90 days or more). In fact, delinquencies among student borrowers are also the highest among all consumer credit categories: 1.2 times larger than consumer credit cards, 2.7 times larger than auto delinquencies, and 2.6 times larger than mortgage delinquency rates. Balances also continue to trend upwards, which raises questions about the market's long-term viability and if the current market structure is ideal for borrowers.

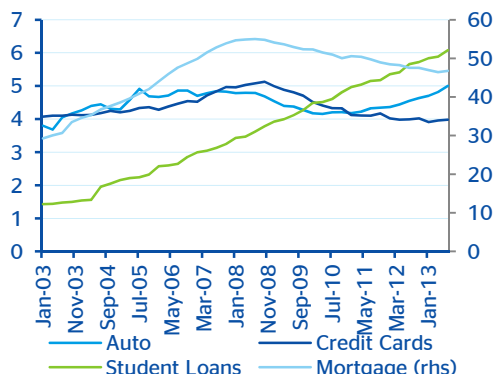
Three factors explain a majority of the rise in student delinquency rates. First, cyclical factors such as instability in the labor market and labor underutilization are incentivizing a higher uptake of post-secondary education. In other words, more working-age individuals are pursuing a post-secondary degree due to the recession. Thus, more graduates are chasing fewer jobs. Second, holding human capital constant, a rise in enrollment suggests that less-skilled individuals with lower-levels of human capital are taking on post-secondary debt, in spite of having a lower probability of labor market success. Third, a growing share of students is enrolling in for-profit colleges that produce subpar educational outcomes, and as a result borrowers at for-profit colleges are left with comparable debt-levels and a skills deficit.

Chart 1
Consumer Delinquency Rates (%)



Source: BBVA Research, FRBNY & Haver Analytics

Chart 2
Consumer Debt as a Share of GDP (%)



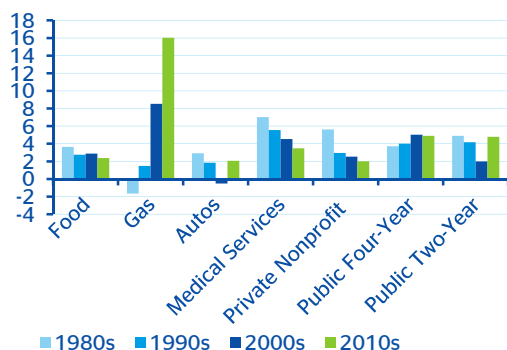
Source: BBVA Research, FRBNY & Haver Analytics

While these factors have hurt student borrower's ability to repay loans in the post-crisis period, further improvements in the labor market and higher income growth should alleviate many of these risks and bring down delinquency rates. Yet, there are structural shifts in the labor market such as an increasing college wage-premium. In order to be competitive in future labor market, individuals will have to have some level of post-secondary education. As it turns out, nearly all empirical studies suggest that the marginal benefit for an additional year of post-secondary education is significantly positive for individuals and households and thus most individuals never reach a level of diminishing returns to education. In turn, the demand for college degrees is undoubtedly going to increase and assuming no intervention, prices will continue to rise. The result is a higher share of consumer credit being devoted to post-secondary education debt rather than other consumer credit products.

Rising Costs Only Partially to Blame for Student Debt

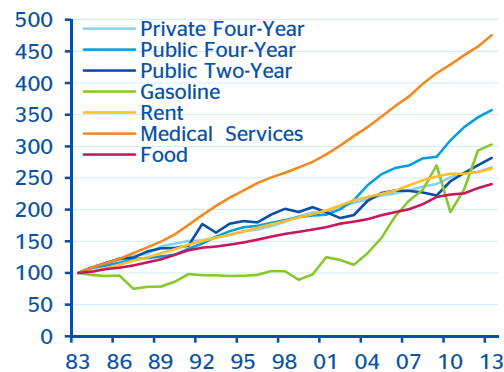
The rise in post-secondary educational cost over has been unmatched. Unlike past decades, which saw educational cost rise with the standard of living, education costs are now outpacing other consumer goods, and have driven a trend in debt-financed post-secondary education. In real-terms, the cost of for four-year public nonprofit institutions is 3.5 times higher, 2.8 times higher for two-year public nonprofit institutions and 2.6 times greater for nonprofit private institutions in 2013 than in 1982. In fact, only medical services prices have increased more than four-year nonprofit colleges over the period.

Chart 3
Average Annual Growth in Consumer Prices (YoY%)



Source: BBVA Research, The College Board & Haver Analytics

Chart 4
Consumer Price Index (1983=100, NSA)



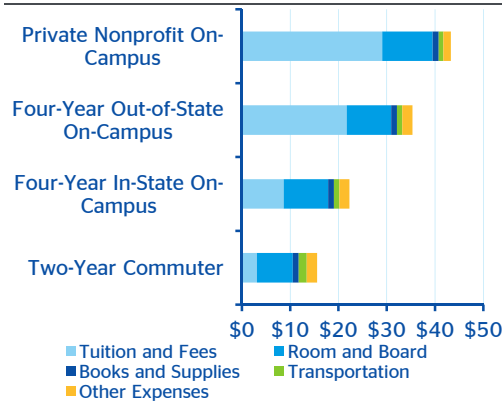
Source: BBVA Research, The College Board & Haver Analytics

Educational costs also display a considerable amount of heterogeneity between nonprofit public and private colleges and universities. For example, while average private tuition is \$28,946 per year, it ranges from \$980 per year at Berea College in Kentucky, to \$47,246 at Columbia University. For public universities the distribution is smaller. In 2013, the highest priced public university is University of Michigan Ann Arbor which costs \$39,109 for a year's tuition, whereas the low-cost public university is Minot State University (ND) and costs \$5,921 for annual out-of-state tuition. For a non-resident, the average cost of a public four year degree is \$19,100.

The pecuniary cost of attending school is not a perfect measure of real costs or financial burden students have at graduation. For example, the financial tradeoffs of attending public or private universities may be distorted by the fact that the average cost of a four-year public education is \$9K less than the private equivalent. Generally speaking, selective, highly-ranked private and public universities are more expensive. For example, in terms of reported tuition and fees, schools such as Williams College or Pomona College, rank amongst the most expensive liberal arts colleges in the U.S.; the annual cost of attending the aforementioned schools can exceed \$40K. However, unlike more moderately priced public schools, or even those which are close to the average cost of a private university, graduates of these colleges

have comparatively lower student debt than other universities. As a group, these schools averaged between \$3,000 and \$9,750 dollars in graduating debt; the high-cost public universities range from \$31,750- \$45,100 whereas high-cost private universities range from \$40,600- \$46,700.

Chart 5
College Costs by type of Institution (\$K)



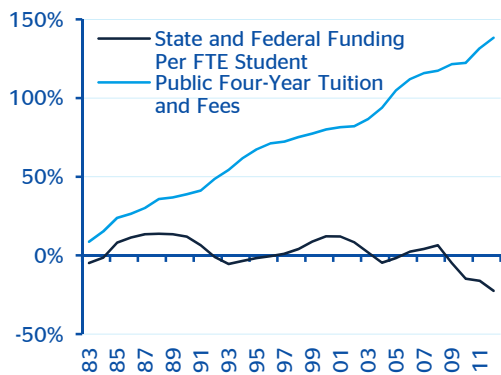
Source: BBVA Research, & The College Board

Chart 6
Student Debt Burden at Graduation*

Low-debt Colleges	High-debt Colleges
Berea College (Public)	Alabama A & M University (Public)
College of the Ozarks	Curry College
CUNY York College (Public)	Kentucky State University (Public)
Pomona College	La Salle University
Princeton University	Penn State University (Public)
Lane College	Sacred Heart University
University of Houston (Public)	University of New Haven
Williams College	Wheelock College
Yale University	University of North Dakota (Public)

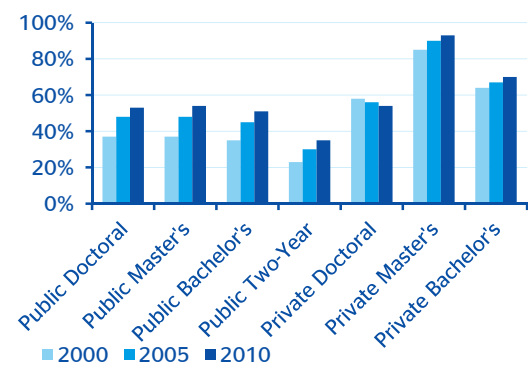
Source: BBVA Research & TICAS
*Private unless otherwise noted

Chart 7
Public Subsidies & College Costs (Cumulative %)



Source: BBVA Research & The College Board

Chart 8
% of Educational Costs Covered by Tuition



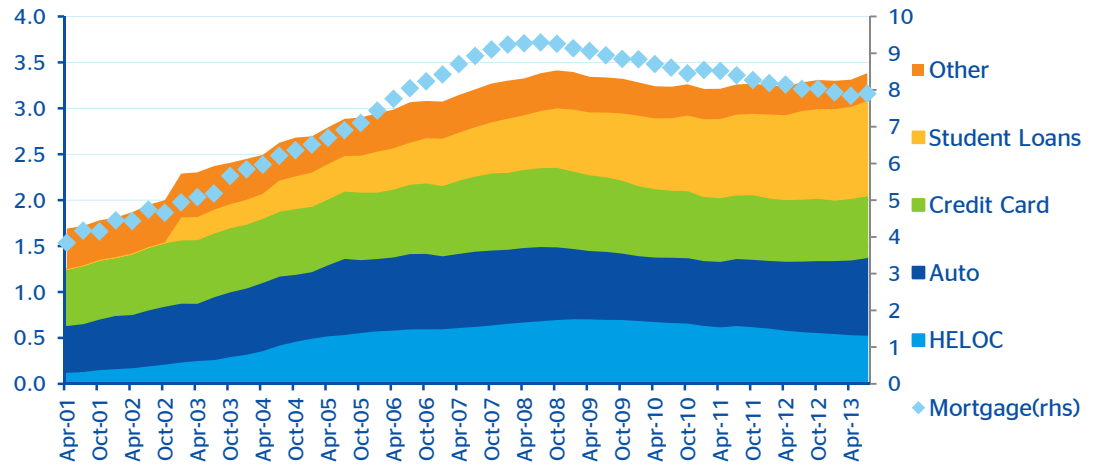
Source: BBVA Research & College Board

In the most extreme cases, there is a high probability that costs and debt will be correlated. However, at the margin, declines in subsidization also explain a non-trivial rise in post-secondary educational costs, which add to an individual's financial burden. As a result of lower subsidization, universities have raised net tuition fees, rather than decrease the cost per full-time equivalent (FTE) student. In other words, net tuition and fees paid by students now account for a larger share of the total cost. For public universities, the share of net revenues that cover expenditures also rose dramatically, from 35% in 2001 to 51% in 2011. Unlike the four-year private, private universities have only increased the coverage by 6pp.

In addition, the Great Recession and pre-recession buildup of structural budget imbalances weighed on state finances, which forced many states to withdraw funding for post-secondary education. While heterogeneous, most states left the recession worse off in terms of finances. Only Illinois, Georgia, West Virginia, North Dakota and Wyoming increased funding per student relative to real GDP per capita income during the recovery; enrollment rates increased 16%, 69%, 29%, 28%, and 27% respectively, which suggests that the reduction in funding is not a function of reduced enrollment. Some economic stabilizers enacted during the recession such as the American Recovery and Reinvestment Act have slowed the cyclical contraction in funding. However, the ARRA only added \$11.4B to post-secondary funding in 2009-2011.

Lower real household income, at nearly all income levels, has also added to student loan balances. In total, real household incomes declined \$3.8K since the pre-recessionary period to \$45.8K in 2010. Moreover, across household characteristics such as education, age, and geography, household income is declining according to the 2010 survey of consumer finance. As a result, the consumer balance sheet is becoming increasingly burdened by student debt.

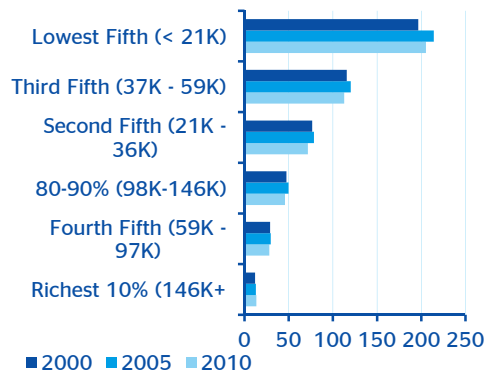
Chart 10
Outstanding Consumer Credit (\$T)



Source: BBVA Research, FRBNY & Haver Analytics

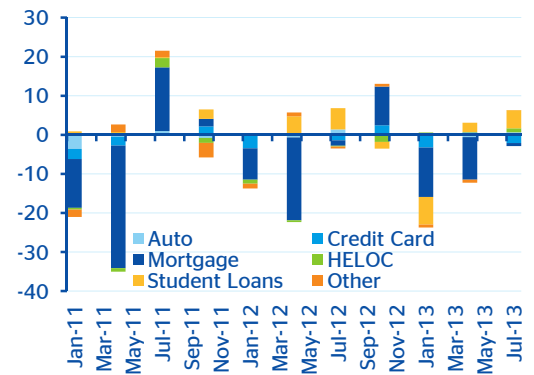
Going forward, higher household income and net-worth as well as a more resilient job market should lead to lower risk-aversion and greater borrowing amongst other consumer credit categories. However, we maintain that the largest gains in income and net worth will occur at the higher end of the income distribution, in urban areas, in the South and West, and natural resource-rich areas. Thus, individuals in the highest income quantiles who live in the fastest growing states will experience the greatest reduction in household balances and will thus be considered less risky and more likely to increase leverage in the future.

Chart 11
Real Median Income by Income Percentile
(Thousand 2010\$)



Source: BBVA Research & Haver Analytics

Chart 12
Contributions to Severely Delinquent Loans (\$B)



Source: BBVA Research & Haver Analytics

For low-income individuals, who prior to the crisis had the largest student debt burden as a share of income, also had the largest relative increase in student debt after the crisis. In fact, student debt-to-income ratio for the lowest income households stands at 24:1, 12 times higher than the debt to income ratio of the top income quintile. Moreover, a back of the envelope calculation suggests that for the average student loan balance of \$26,682, which is a nontrivial burden, the average finance payment would be approximately \$300 per month. In turn, assuming median income of the lowest income percentile at \$13,400 per year, monthly

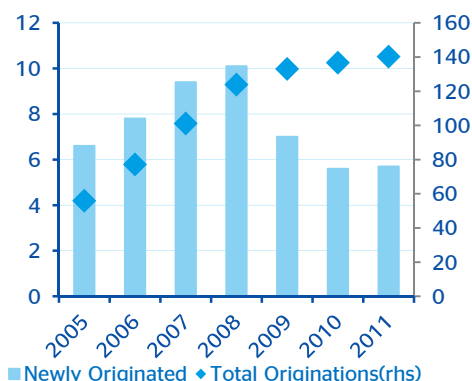
student debt to pre-tax income ratio would be 27%. In other words, this group would have to devote 30% of their pre-tax monthly income to student debt repayment, which would make it almost impossible to get credit for other purposes such as home-buying or auto purchases or at the very least, more expensive.

Syndication and Subsidization in Today's Market

Private student loans, after returning to pre-crisis lending standards, are often high-interest variable rate obligations backed by the federal government and a prime co-signer. Thereafter these loans are packaged for resale for the asset back market (SLAB). Federal student loans, on the other hand, are fixed rate interest obligations that do not require credit verification and are protected against default and discharge. In spite of the private origination, the \$234 billion private Student Loan Asset-Backed (SLAB) market is largely guaranteed by the Federal government. Moreover, while privately originated loans lack all the protections of publicly guaranteed loans, they still carry the Federal Family Education Loan Program (FFELP) protection which guarantees 97% of the underlying security. Today 90% of new privately originated loans have a creditworthy cosigner; as a result there appears to be limited systemic or idiosyncratic market risk.

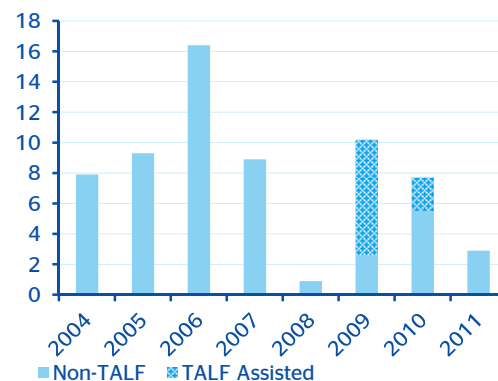
Faced with higher tuition and fees, declining state and federal subsidies, and weaker household finances, many individuals that are least able to afford college were forced to finance their education at higher interest rates in the private market. Financing costs generally depend on who the guarantor is, and also in the case of private debt market, on the credit quality of the borrower. Generally speaking, the fundamental difference between publicly originated or backed and private loans is the underlying interest rate. Private loans are generally attached to variable rate obligations whereas public loans are tied to fixed interest rates (currently 6.5% for Stafford subsidized and unsubsidized loans). For some federally administered loans the interest rate is subsidized during the period where the borrower is attending school.

Chart 13
Private Student Loan Originations (\$B)



Source: BBVA Research & CFPB

Chart 14
Student Asset Backed Loan (SLAB) Issuance (\$B)



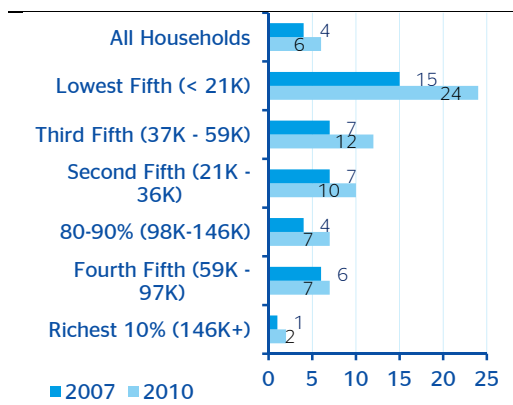
Source: BBVA Research & CFPB

In a low interest rate environment, private borrowers were less affected by the variable rate obligations. Currently, the average variable interest rate loan carries an interest rate only slightly higher—100bp—than the federally subsidized Stafford loan. At current rates, the least creditworthy borrowers are able to manage the associated interest costs. However, as interest rates appreciate and the interest rate spread between subsidized and private loans widens, the risk of delinquency could increase significantly for the riskiest borrowers and marginally for the average borrower.

For above-average income borrowers, interest cost are lower and the share of income devoted to debt service is for all intents and purposes likely to be below 4.9% of monthly pre-tax real income; thus, the downside to financing a post-secondary education are trivial. For low-income borrowers, who have to face student debt service ratios above 27% of real monthly income

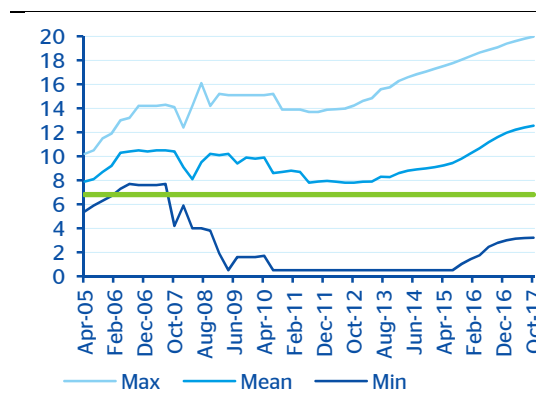
the choice is more difficult. However forgoing a post-secondary due to the short-run costs is likely a miscalculation after adjusting for discounted lifetime earnings.

Chart 15
Outstanding Student Loan Debt as a Share of Household Income (% thousand \$2010)



Source: BBVA Research & Haver Analytics

Chart 16
Variable Student Loan Interest Rates by Origination Quarter (%)^{1,2}



Source: BBVA Research & CFPB
¹Green line represents Subsidized Fed Stafford Loan- 6.8%
²Rate Forecasts from 4Q11

The foreseeable rise in interest rates, growing post-secondary educational costs, and declining state and local government budgets raise questions about the value of post-secondary attendance. First, is it still economically rational to attend college for all prospective students? Second, has the cost-benefit of attending school changed after the recession? Third, is forgoing income today, to get a post-secondary education, worth the benefit- intertemporal choice, of higher income tomorrow? Fourth, is post-secondary education under-subsidized? These are all questions central to understanding whether the governments should or will address the post-secondary financial markets and if it is welfare maximizing for the U.S. government to intervene in this market.

Returns to Education Are Overwhelmingly Positive

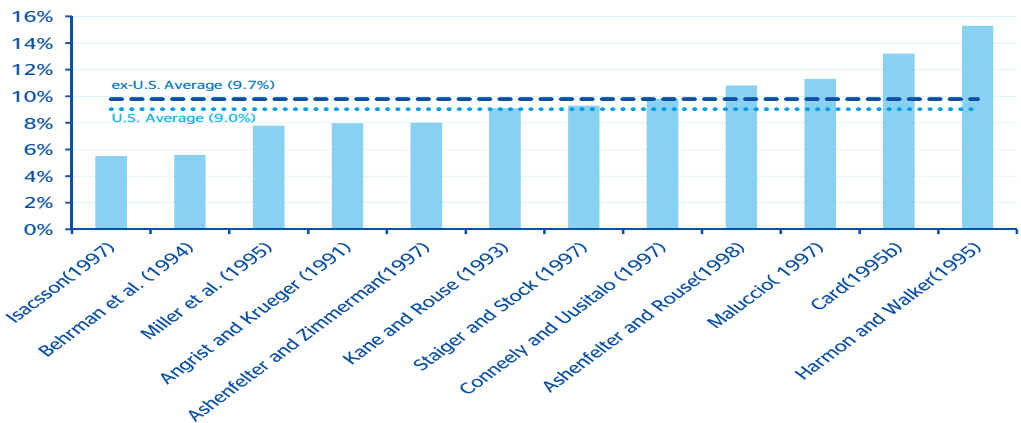
Ultimately, the probability of getting a post-secondary degree and being worse off is extremely low, regardless of the profession. The unemployment rate for someone with a bachelor's degree is on average 3.5pp less than someone with a high school diploma and 7.2pp less than someone without a high school diploma. If economic conditions continue to improve, the default risk for someone with college education will also edge down relative to someone without it.

Moreover, median household income for households with some college is \$42.9K and \$73.8K for someone with a college degree. The median household income for high school graduates and non-graduates is \$36.6K and \$23K, respectively. This cross-section also understates the accumulated difference in earnings over an employed persons' lifetime. For example, some estimates suggest that the college wage premium is 84% over a workers lifetime. In other words, a person with a college degree will earn 84% more over their lifetime than someone with only a high school diploma. Other empirical studies suggest that for every additional year of post-secondary schooling, annual earnings increase by 9%. This means that the profitability of a client with college education is much higher than someone without a degree given that individuals with higher incomes are more likely to demand other credit products such as auto, mortgage and personal reasons, without necessarily implying more risk.

Beginning in the 1980s, an upward trend in the demand for college-related skills led to a growing gap between labor supply and demand. As a result, there has been an accumulated under supply of high-skilled and highly-educated workers. Some suggest the pace of technological growth has increased the need for higher skilled workers. In essence, the rise in computer technology and the need for basics computer skills has grown, giving way to a labor market that favors college-educated individuals. However, even with the torrid pace of enrollment, there still appears to be a shortage of college educated workers, which has led to

an increase in college wage-premiums. In fact, relative supply of college educated workers grew compared to high-school educate individuals since 2010, as did wage-premiums. The simultaneous increase in wage premium and relative supply suggests that rising enrollment rates have not kept pace with the demand for college educated professional. Ultimately, the wage premium for individuals with a college diploma can exceed \$650,000 for the average 40-year career. Thus, it is difficult to justify greater government intervention as a way to close the skills gap. Rather it has widened it.

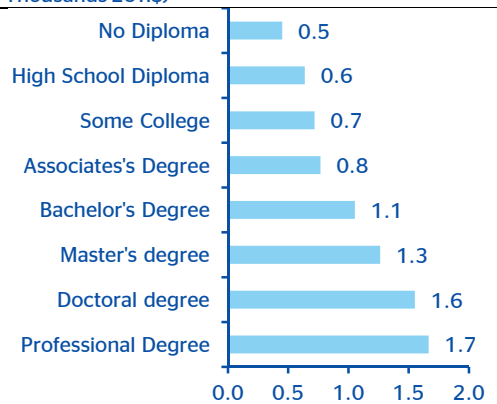
Chart 17
Increase in Lifetime Earnings from Additional Year of Schooling (%)



Source: BBVA Research

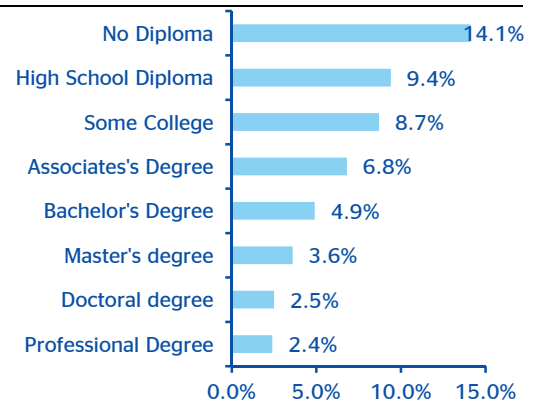
Even still, considerable heterogeneity exists amongst college majors with respect to lifetime earnings. For example, individuals who earn science, technology, engineering and mathematics (STEM) are estimated to earn between \$1.3M-\$1.7M over there lifetime with a bachelor's degree and between \$1.6M-\$2.1M for a masters whereas liberal arts, education and all other non-technical degrees earnings range from \$0.9-\$1.4 and \$1.2M-\$1.6M for bachelor and master's degrees, respectively. The stability of the relationship between higher wages and numerical and technically based graduates has also been quite stable throughout the past 20-years which suggest a persistent undersupply of STEM qualified professional. This could become even more pronounced as global competition continues to increase.

Chart 18
Educational Attainment and Median Weekly Earnings (Thousands 2011\$)



Source: BBVA Research , BLS & Michael Simkovic

Chart 19
Educational Attainment & Unemployment Rate (%)



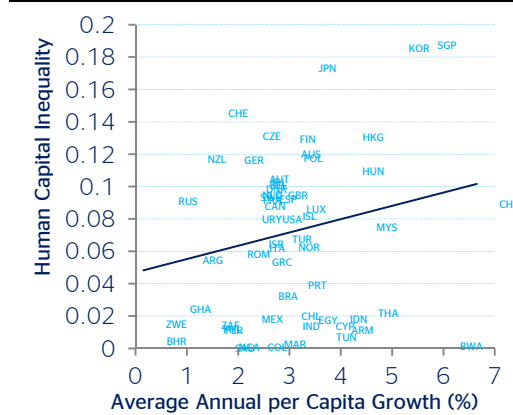
Source: BBVA Research , BLS & Michael Simkovic

In response to inefficient public market intervention, less economically beneficial degrees are being cross-subsidized. For example, in 2011 the number of bachelor's degrees in mathematics and statistics was less than one half of parks, recreation, leisure, and fitness

studies, and 30% lower than in 1971. This is striking considering that population increased by more than 100 million people in the same period and that the median annual wage in mathematical science occupations is 1.9 times higher than the mean wage for all occupations and 2.8 times the mean wage of recreation and fitness workers. Likewise, the percentage of degrees in engineering declined from almost 8% of total degrees in the mid-80s to just over 4% in 2011 despite being one of the best paid occupations with excellent job prospects. Moreover, despite the increased level of government intervention in the past decades, the percentage of individuals 25 to 34 years old with any type of postsecondary degree is lower in the U.S. than in other 12 developed nations.

In addition to the pecuniary benefits of a college degree, there are also non-economic benefits of a post-secondary education. For example, a Norwegian study found that after controlling for unobservable characteristics such as parent's education and genetics, the non-pecuniary outcomes of siblings varied by educational attainment. For example, by increasing educational attainment by one year, the probability of marrying someone with higher education is higher, the likelihood of being divorced is lower, and the likelihood of being on disability or have a teenage birth is also lower.

Chart 20
Human Capital Inequality Gap & Average Annual per Capita Growth (ratio, %)



Source: BBVA Research, Eric A. Hanushek & Haver Analytics

Chart 21
Federal Loan Subsidy Programs (\$B)

	Number of Programs	Projected Obligations	Estimated Subsidy*
Housing and Urban Development	17	264	4.7
Education	6	113	-5.5
Small Business Administration	8	85	3
Veteran Affairs	6	52	0.9
Agriculture	32	46	2.1
Export-Import Bank	6	46	-0.1
Energy	1	15	2.5
Transportation	7	6	2.1
International Assistance	6	5	0.3
Other	14	3	1.1
Total	103	635	11

*The difference between FCRA and fair-value subsidy rates depends on the annual risk premium associated with the underlying loan; the average life of the loan; and, for a loan guarantee, the structure of the guarantee.

Source: BBVA Research & CBO

Traditional measures of the returns to schooling can also overstate the benefits of college for specific socio-economic groups. For example, not controlling for specific characteristics or factors such as financial constraints, asymmetric information and behavioral idiosyncrasies, such as reluctance to take on debt, could skew the results to suggest those that attend college benefit the most. In fact, it may be the case that individuals who have the largest unrealized human capital and are the most likely to forgo college could actually benefit the most. For example, Brand and Xie (2010) found that after matching on covariates and then stratifying by propensity to attend, students with the lowest propensity to pursue a post-secondary education benefit the most from going to college. Moreover, as the propensity to attend college increases, the benefit of post-secondary education declines, suggesting diminishing returns to post-secondary education for individuals from the most auspicious socioeconomic backgrounds.

In addition to individual-specific benefits to education, there is a positive relationship between the accumulation of human capital and growth. Under the endogenous growth assumption, accumulation of human capital becomes self-propagating, leading to permanent differences in average annual growth rates. In the augmented neoclassical growth model, higher levels of human capital lead to higher steady state income but no permanent increases in growth. Nevertheless, both of these assumptions underlie a positive relationship between better economic outcomes and higher human accumulation. This may reflect positive externalities from human capital formation that render a social return higher than the private rate of return.

In fact, Hanushek (2012) shows that for highly developed nations, focusing efforts on improving basic cognitive functions can have a more statically pronounced impact on growth.

Moreover, Heckman (2006) argues that cognitive ability may understate human capital productivity and that many other non-cognitive functions developed in early childhood are as essential to productivity. Moreover, Case and Paxson (2004) argue that neonatal, and thus maternal health, can impact human capital and cognitive success. In fact, among the 34 OECD countries, the U.S. performed below average in mathematics in 2012 and 17th in reading without any significant change in these performances over time. Thus, diverting resources to early childhood development rather than post-secondary education could be more beneficial.

Ultimately, these empirical studies suggest the U.S. may be misallocating educational resources and causing inequality, and widening the internal human capital and income gap. For example, out of the 11 major federal loan subsidization programs, only two programs create positive net present values, assuming a more conservative discount factor. In fact the remaining 9 programs cost the federal government an estimated \$27.6bn. Conversely, education interest rate subsidies generate a positive cash flow stream of \$5.5bn. Therefore U.S. institutions must balance subsidizing a buoyant domestic credit market with clearly positive individual benefits, with providing essential healthcare services, improving primary and secondary education, rebuilding America and enhancing immigration policies, which in itself should boost human capital. As data shows, 45% of the wage increase in newly legalized immigrants is due to higher human capital. By providing legal status and a path to citizenship, workers have the incentive to invest in education which in turn increases productivity and thus income levels. This translates into higher spending and tax revenues, and ultimately higher economic growth.

Opportunities in a Private Student Debt Market

By nearly all metrics, the returns to college are positive, and moreover, are net-positive even after controlling for the rising cost of student loan financing. More college-age individuals and greater demand for high-skilled employees suggests that more individuals will seek a post-secondary degree. Although student delinquency rates are at their elevated levels and unemployment remains persistently high, we expect improvements in labor market conditions and stronger income growth to reduce the underlying risk within student credit markets. Nevertheless, a widening income gap and higher post-secondary educational premium suggests that more and more prospective students will require financial assistance in order to attain a post-secondary degree and could wrongly choose to forgo a post-secondary education as a result.

The unquestionable individual benefits and externalities associated with social mobility have created a safe environment for government intervention. In fact, the federal government originates and backs around 90% of the post-secondary educational credit. Stubbornly high delinquencies rates, higher shares of consumer credit going to borrowers that may be unable to repay their obligations and high-degree subsidization jeopardizes the sustainability of the student market. Moreover, misaligning default probabilities with labor market realities could create a scenario similar to sub-prime crisis. Often, over-subsidizing credit segments pushes markets beyond equilibrium levels and creates imbalances that can result in a credit glut, imprudent risk-taking and fraud which often leaves taxpayers and borrowers worse-off in the long-run. As a result, less rather than more student loan subsidization could realign the supply of credit with labor demand.

The fact that the federal student loan program generate a positive stream of cash flows to the federal government suggest that there is a high probability that individual private demand for higher education is sufficient enough to support a completely privatized student debt market. Moreover, technological advances in big data and financial risk-modeling have enhanced the financial sector's ability to assess and manage risk. A student loan crowdfunding platform, administered by private financial institutions, could balance financial innovation with the demand for student finance. Moreover, such a program would disincentivize less economically viable degrees given that loans would be granted, and rated, based on degree choice, academic performance, among other observables. This would also increase the incentives for STEM related, or other highly demanded, professions. Ultimately, a market-based offering that matches the probability of labor market success and human capital potential with job market realities would reduce, if not alleviate, the risk of overheating without creating an unnecessary transfer system at the federal level.

Furthermore, offering financial products to students with a limited credit history could revolutionize risk-rating. Factors such as degree choice, academic performance, university ranking, time it takes to complete school, geographic location, among other behavioral factors and probabilistic outcomes would bring forward the risk-rating of clients to the earliest phases of the financial consumption life-cycle. For banks, targeting the student loan market could also help reduce acquisition costs.

Millennial's and an aging population are challenging the current financial model. Student-based financial services offer a solution to the challenge of providing value to the Millennials while also offsetting the disruption of lower financial service consumption in an aging population.

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