

The Effects of the MBA Degree on Earnings in Russia: The CSU-Hayward Experience

Leo Kahane

Jagdish Agrawal

Gary Wishniewsky

California State University---Hayward

Recent speculation and research on economic outcomes of the MBA

The worth of an MBA degree has been long and often debated among prospects, students, alumni, faculty and employers. MBA promotional literature proposes benefits including salary enhancement, career advancement, and alumni networking. In comparing the tuition, fees, and textbook costs to the financial benefits, speculation abounds on the rewards, most often measured in percentage increase in post-MBA salary. Luke Johnson, in *The Sunday Telegraph*, opines that for a two-year, \$100,000 investment at Harvard or Wharton, salary increases can be 80 per cent of pre-MBA income upon completion. Without citing sources, he adds, "Some maintain an MBA should be seen as a straightforward investment in your career, with a payback of between 3 and 6 years" (Johnson).

In an earlier article, Cheryl Gulden stated that in the year 2000, a London Business School graduate could expect an increase of 160% in salary over his or her pre-MBA days, while at Manchester Business School the figure was 154%. Some business schools in the United States will more than double the average student's salary, with increases of 216% at Harvard and 225% at Wharton. Citing the Association of

MBA=s, Gulden catalogs the differences in Athe average real increase in salary from pre-MBA to post-MBA@ as (Gulden):

* Two-year full-time MBA	67%
* One-year full-time MBA	30%
* Part-time MBA (no length specified)	20%

Kurt Badenhausen presents a more analytical approach that determines payback on an MBA investment in a Forbes.com piece, AThe Bottom Line on B-Schools@(Bademjaisem). Adapting the methodology in a 1994 book by Robert Yeaple (1994), he surveyed 14,000 graduates of the Class of 1994 from 80 full-time US business schools. He compared total compensation for three periods, the year before B-School, the first year after graduation, and four years later in 1998.

Notable findings include determination of an average payback period of 4.1 years, including the recovery of total investment defined as tuition and forgone salary. The four top-ranked national business schools were Harvard, Dartmouth, Stanford and Berkeley. The four top regional B-schools were Wake Forest, Ohio State, Indiana and BYU. These rankings are not based on payback period, but on M.B.A. profit, defined as Athe improvement in the median cumulative income over five years, minus tuition and forgone salary.@ Harvard graduates enjoyed a cumulative gain of \$101,000 after four years, while Wake Forest graduates earned \$53,000.

Yet another analysis, carried out by Maldonado-Bear in 1994, estimates the rate of return on investment in the MBA degree for women studying at New York University's Stern School of Business (Maldonado-Bear). Depending on various assumptions about forgone earnings and career length, she finds that the rate of return to the degree ranges between 11.36 and 17.13 percent.

The analysis presented below attempts to assess the effects of an MBA degree on earnings of Russian students studying in our jointly offered California State University, Hayward B Institute of Business & Economics Moscow MBA Program. We begin with a brief description of the program in section II. Section III contains an empirical analysis of student survey data on pre- and post-MBA salaries. The paper concludes with section IV.

Institutional Setting

The Moscow MBA Program was founded in 1992 at the Academy of National Economy, a semi-governmental think-tank in southwest Moscow. As of April 2002, the program had graduated 480 participants and 220 students were enrolled. All students meet CSU Hayward admissions standards, including TOEFL, GMAT, and bachelor's degree requirements. Approximately 60% of the students work for multinational corporations, 40% for Russian banks, corporations or government agencies. The age range is 34-40 years, the gender breakdown 60% men, and 40% women. From 60-70 students begin a first-year Foundation curriculum, and normally the top 45-50 continue on to the second year. Cohorts are initiated annually in January and September.

Students choose from three options: Business Economics, Finance and Marketing. It is notable that the first several cohorts were offered only the Business Economics option. This was by design as Russian administrators of the program believed that a firm understanding of economic theory (including econometrics) was essential for early groups as they were the pioneers of an emerging market economy. Since the last half of the 1990s, however, there has been stronger interest in Finance and Marketing, illustrative of the transformation of Russian financial institutions and the progress of evolving into a market economy.

Empirical Analysis

The Data

Administrators of the Russian MBA program have conducted surveys of alumni following completion of their MBA degree at three points in time: the years 1999, 2000 and 2001. Responses were received from all cohorts of MBA recipients, beginning with the first group that completed the degree in 1995. A total of 199 surveys were received of which 116 had complete information usable for this analysis, (a response rate of approximately 58%). Table 1 (a) provides descriptive statistics for these 116 respondents. As can be seen, the average salary increased from \$27,332.80 to \$31,659.59 (in real, 2000 dollars) following completion of the degree, computing to an average real salary increase of approximately 16 percent.

The largest proportion of these respondents, (about 45 percent), earned their MBA degree with an option in Business Economics (shown as AEconomics@ in the table), with the Finance option as the second largest (about 31 percent) and Marketing as the third (nearly 21 percent).¹ In addition, approximately 68 percent of respondents worked for a foreign-owned firm before receiving their degree; about 62 percent did so after earning their MBA degree.

Table 1 (b) presents the same measures for those respondents who finished their degree in the year 2000. Real salaries are considerably higher for both pre- and post-MBA degree holders, shown as \$36,046.80 and \$39,656.25 respectively, and computing to a real

¹Due to missing data on chosen options, these figures do not add to 100 percent.

Table 1
 Descriptive Statistics for Russian MBA
 Recipients (all monetary figures in 2000 dollars)

<i>a. All Years (n=116)</i>	<i>Mean</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Standard Dev.</i>
Annual salary before MBA before MBA	\$27,332.80	\$6,201.60	\$61,014.60	\$18,978.76
Annual salary after MBA	\$31,659.59	\$6,000	\$55,814.40	\$17,553.3
Number of years from completion of MBA to completing the survey	1.03	0	4	1.30
Proportion of respondents with an option in:*		Proportion of respondents working for a foreign firm: **		
-Economics	0.448	-Before MBA	0.679	
-Finance	0.310	-After MB	0.616	
-Marketing	0.207			

Table 1 (cont.)

	<i>Mean</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Standard Dev.</i>
<i>b. For cohort completing the MBA in 2000 (n=32)</i>				
Annual salary before MBA	\$36,046.80	\$6201.6	\$55,814.40	\$21,173.95
Annual salary after MBA	\$39,656.25	\$6,000	\$54,000	\$17,554.72
Proportion of respondents with an option in:		Proportion of respondents working or a foreign firm:		
-Economics	0.281	-Before MBA	0.781	
-Finance	0.375	-After MB	0.750	
-Marketing	0.344			

*The figures do not sum to 1 due to missing data.

**Based on 112 observations (4 are missing data).

salary increase of about 10 percent. These results are probably larger than the combined sample's results as the latter includes salary data from the economic crisis that hit the Russian economy in 1998.

The distribution across the three options is nearly equal for this sub-sample, and the proportion of respondents working for foreign firms pre- and post-MBA is substantially larger (approximately 78 and 75 percent, respectively).

The Returns to the Russian MBA

The economic return to the MBA degree jointly offered by the CSU, Hayward B Institute of Business & Economics (CSUH-IBE) Moscow can be considered in a number of ways. We begin by analyzing the salary changes and computing compound growth rates for

the entire set of respondents. This is carried out by regressing the difference of the natural logs of real² salary on time; the results are reported in Table 2.³

The results show that for the combined sample, the average MBA recipient experienced an estimated (constant) growth rate in salary of about 14.5 percent per year. By breaking down respondents by category of employer, we find some interesting results. Namely, MBA

² All monetary figures are in real (2000) dollars.

³ The basis of the regression comes from the well-known compound growth equation, $Y_t = Y_0(1+r)^t$ where Y_t is the value of salary in year t , Y_0 is the initial value of salary and which assumes a constant annual growth rate of r over t years. Taking the natural log (\ln) of both sides and rearranging we have the following, $\ln Y_t - \ln Y_0 = [\ln(1+r)] t$, which can be estimated by regressing the difference of the logs on the number of years since the completion of the MBA degree.

recipients who worked for domestic-owned firms both before and after receiving their degree witnessed an estimated salary *loss* of 4.85 percent per year. This result likely reflects the dramatic downturn of the Russian economy in 1998 (noted earlier), which would predictably hit domestic employers (who are more likely dependent upon domestic demand) harder than foreign firms operating inside of Russia.⁴ In contrast to this group, respondents who worked for foreign firms both before and after receiving their MBA degree had an estimated salary growth rate of 29.37 percent. The two other alternatives, domestic before and foreign after and foreign before and domestic after, had estimated returns of 18.89 and 6.62 percent, respectively. The clear result from this analysis is that to be employed by a foreign firm after earning the MBA degree will likely provide for a greater salary growth rate than if one is employed by a domestically owned firm.

Computing salary growth post-MBA, though informative, does not determine whether the investment in an MBA is a good one. To make such a determination, one needs to weigh the costs of obtaining an MBA against the expected salary increases that take place over subsequent years. In order to make such a determination, the internal rate of return (IRR) is calculated for the cohort finishing their MBA degree in the year 2000. The required elements for an IRR calculation are the costs of the investment and the expected payments the investment will generate. While the costs of an MBA degree are not difficult to estimate, the resulting payment stream due to the degree is not known with certainty. To this end, a series of assumptions on salary

⁴ According to the World Bank figures the Russian GDP shrank by approximately 4.9% in 1998 (*World Development Indicators*, accessible at www.worldbank.org).

Table 2
 Estimated Annual Salary Growth for Russian MBA
 Recipients: All Years (n=116), Combined and by Category of Employer*

	<i>Estimated Salary Growth (%)</i>	<i>Sample Size</i>
Combined sample	14.5	116
Domestic Employer		
-before and after MBA	-4.85	26
-before only	18.89	10
-after only	6.62	17
Foreign Employer		
-before and after MBA	23.37	39

* Sub-categories observations do not sum to be the combined sample=s total observations due to missing values on employer type.

paths is used and for each path, the IRR is computed. Details about the costs and the assumed salary growth are provided below.

The Cost of an MBA Degree.

Students pursuing their graduate business degree in the CSUH-IBE program are required to take a series of eleven undergraduate foundation courses in preparation for their graduate studies. Once completed, they may begin their graduate studies, which also include eleven courses. The total cost for the foundation and MBA courses sums to \$10,215. In addition, all students pursuing the MBA degree must take the Graduate Management Admissions Test (GMAT), which has a fee of \$200. Thus the total *explicit* cost for the MBA degree comes to \$10,415.

There are, of course, *implicit* or *opportunity* costs associated with the pursuit of an MBA degree. Namely, the wages forgone during the course of study.⁵ In order to take into account these opportunity costs, we consider the average wage of the student, the year prior to completing the MBA degree, to be their implicit cost to pursuing the degree. For the 2000 cohort, this comes to \$35,254.75.⁶ This salary, given it is a pre-MBA figure, must be adjusted upwards to take into

⁵ Most MBA students in the CSUH-IBE program work full-time during the day and take their courses at night. It would be incorrect, however, to conclude that in these cases students do not incur opportunity costs from their graduate study.

⁶ This figure differs from the one reported in Table 1 since the one appearing in that table is based on the 32 observations for which there are no missing data on any of the measures used in the previous analysis. The pre-MBA salary of \$35,254.75 used in this present analysis is based on a sample size of 46 observations for which we have data on the two required measures for this calculation, namely pre- and post-MBA salary.

account its expected value in the year 2000. That is, if the average student did not pursue his/her MBA degree, what *would* their salary have been in the year 2000? This is the relevant opportunity cost of the forgone wages per year. The answer to this question, however, depends on the expected growth of the non-MBA salary. With no obvious way of determining this expected growth rate, we will perform the IRR calculations based on several alternative assumed values of non-MBA salary growth. Furthermore, given the Russian MBA program has a two-year duration (one for the Foundation and one for the MBA graduate courses), two years= salary is used to compute the total opportunity cost.

Finally, with regards to the cost of the MBA degree, for many of the students in the CSUH-IBE program their employer covered part or all of the tuition costs and thus reducing the net costs to the student.⁷ In order to take this into account, IRR values are also calculated adjusting the tuition costs born by the student.

Expected Salary Growth of MBA Degree Holders

Recipients of the MBA degree are expected to receive rewards for their investment. This would typically occur in two ways: first a discrete increase in their salary upon completion of the degree, and second an expected greater growth rate of their salary across time than if they did not hold an MBA degree. As with the non-MBA recipients, it is not entirely clear how future salaries of MBA holders would grow. One indication of potential post-MBA degree salary growth is based on the analysis provided in Table 2, which estimated compound growth rates for all students graduating from the CSUH-IBE graduate business

⁷ The mean proportion of tuition costs covered by the employer for the 2000 cohort was 0.283 (28.3%).

program to be about 14.5 percent. Those calculations, however, were based on historical data and as such may not reflect the future salary path of MBA degree holders. Given the ambiguity on future salary paths for MBA recipients, IRR calculations are performed based a several assumed growth in salary values.

Computed Internal Rates of Return on the Russian MBA Degree

Results of the IRR computations are reported Tables 3(a) through 3(d). The first two tables exclude the employer's contributions to a students MBA costs, the last two include them. In addition, tables 3(a) and 3(c) assume that non-MBA salaries grow at a constant 5% per year, whereas Tables 3(b) and 3(d) assume a 7.5% growth rate. In computing IRR values, it is assumed that MBA degree holders will witness salary growth equal to, or better than, non-degree holders.⁸ Thus IRR computations are carried out for the MBA degree holders for four assumed values of growth of their future salaries, 5%, 7.5%, 10% and 15%, in Tables 3(a) and 3(c). And for three values of growth of future salaries, 7.5%, 10% and 15%, in Tables 3(b) and 3(d).

In viewing these four tables, we see common elements to all of them. Namely, in the most pessimistic scenario where post-MBA salaries grow at the same rate as non-MBA holders, the IRR is negative over the 10 years shown in the tables, implying a break-even result on the investment occurring sometime after 10 years.⁹ In the most optimistic

⁸ In the Forbes article mentioned earlier (see fn. 3) the researchers assumed that an MBA degree holder would witness a salary growth twice that of a non-degree holder.

⁹ The IRR becomes positive typically in the 16th or 17th year in these cases.

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scenarios presented, where the post-MBA salaries are assumed to grow at a constant rate of 15% per year, IRR computations are positive in the 6th year after completing of the MBA degree and implying a break-even point somewhere between the 5th and 6th years. Which of these scenarios is most likely correct is, of course, difficult to say. However, if we use our previous results provided in Table 2 (for the combined cohorts) as our guide, the latter scenarios, those with an assumed 15% growth rate of post-MBA salaries, would be the closest candidates. In that case, we can see that the estimated 6-year return on the investment in the MBA degree ranges between 1 and 5 percent, and an estimated 10-year return between 19 and 23 percent.

Conclusion

The value of higher education is difficult to calculate, given the intangibles that come with greater educational attainment. It is, however, possible to estimate the pure monetary gains to greater learning. The above discussion has provided evidence that the CSUH-IBE MBA Program has succeeded in significantly improving the financial welfare of the Russian citizens earning the degree. Salaries of these MBA degree recipients are estimated to grow at an annual, compounded rate of 14.5 percent. Furthermore, based on estimated internal rates of return (for the most likely scenarios), the investment provided a favorable return with a break-even occurring between the 5th and 6th years post-degree. Taken together, however, these estimated monetary benefits to the degree necessarily underestimate the total benefits which would include non-pecuniary rewards to the student and external benefits to the Russian society at-large.

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