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CAREERS OF THE COLLEGE EDUCATED

by

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Planning for higher education in the Philippines is not easy to do. The usual basis for projecting demand and supply of labor with higher education has been the number of graduating with degrees and the number of degree holders employed in the various sectors of the economy. But here, college degree holders are not homogeneous as far as their educational qualification is concerned. There seems to be greater disparity in the quality and content of education certified in a diploma. It can be argued that a diploma in English from the State University reflects a different content of education than what the diploma in English from a typical college from the province represents. On the other hand, the jobs filled by degree holders also vary by their educational requirement. Some jobs that do not require higher education are filled by those with diplomas in higher education. Projecting the supply of college trained people from enrollment in institutions that have very varied quality is questionable. And so with projecting demand for college trained labor from the number employed. Some of these employed should not be counted as a basis for estimating demand for college trained labor since the jobs can be filled by non-college trained people.

This paper tries to explain the rise and consequences of the unemployment of educated labor (those with university schooling). It focus es, in particular, on the interaction between the education and labor markets which determine to a large extent the careers of college graduates. It is observed that many college graduates particularly of law and business seem to be under-employed in the sense that they work in jobs that require less education. The paper argues that the rate of this kind of under-employment is partly explained by the level of over-supply in these fields and by the relatively inferior quality of education of the graduates. A hypothesis is developed on the behavior of firms facing job applicants of heterogeneous college background and over supply of graduates.

Section I analyzes the unemployment situation in the market for college graduates and develops a theory of firm behavior under condition of unemployment. Section II provides the major findings of the survey of employed college graduates and the empirical analysis. The planning implications of the findings of the study are discussed in the last section.

I. Theoretical Framework

1. Unemployment in the Educated Labor Market

For well over a decade, the Philippines has experienced substantial unemployment of college trained labor. In 1961 their unemployment rate was 13 per cent, in 1965 and 1968, respectively it remained at more or less the same levels of 11 and 12 per cent.[1] There have been attempts to explain the persistence of unemployment of college-trained people. Some attribute it to imperfections in the market. Lack of information about investment alternatives in training or in physical and financial capital makes people continue to invest in an already crowded field (symptomized by unemployment of the educated). Mark Blaug /1969/ explained persistent unemployment by the dynamic movement in the economy which frequently shifts the demand and supply of trained labor thus leaving the market in constant disequilibrium. The market is not allowed enough time to clear before the supply and/or demand shift. In the chart below, before point E_1 is reached from say disequilibrium point A supply and demand functions shift to S_2 and D_2. Thus we obtain continuous unemployment dis-

[1] BCS Survey of Households, Labor Force series

takes into account the number graduating in past periods, that is the level N_1 and plan on hiring at lower wage, possibly between w_1 and w_2 itself. But the reduction in supply is with a lag and over the adjustment period, either supply or demand function may shift.

A third reason and one argued earlier by the author /1969/ is that the return to investment in education after taking into account the unemployment rate, is found attractive by many parents in the lower income brackets. They face not very attractive investment opportunities; investment alternatives with returns of 10, 20 or 30 per cent faced by business entrepreneurs and investors are not available to them. It is possible that parents make optimal decisions to send their children to college with rates of return of 5 to 15 per cent. Also the unemployment of college-trained people exists in the context of pervasive unemployment for the Philippines as a whole. It is not as if only the educated are unemployed. Either or both wage and unemployment rate will adjust to disequilibrium in the market. Equilibrium in the education market where the rates of returns to various education alternatives are equal can very well be where some unemployment exists for the college graduates. (The rate of return estimates takes into account unemployment rates.)

Not only one but a combination of these three arguments can explain the unemployment situation. It can be argued, however, that there has been long enough time for people to realize the unemployment situation and the relatively low rate of return to college education to make them stop investing if more attractive alternatives were available. The fact that they continue to invest in college implies the attractiveness of this investment option.

2. Is there a case of under-employment of degree holders?

It has been commonly observed that college-educated are under-employed in their jobs which require less than college education. This observation needs to be qualified by the fact that the poor quality of college-educated labor may in fact explain their being employed in non-professional jobs. It is, therefore, very likely that the observed under-employment is mainly based on "diploma illusion".

Over the post-war years, degree-granting institutions increased in number as well as in enrollment to meet the demand for college places. The growth rate of college enrollment increased from three percent in 1950s to five per cent in the 1960s to seven per cent in the

1970s. College resources, especially qualified teachers, were trained to give way to lower quality of instruction. Since the bulk of college students came from middle income families who could not afford high-cost programs, schools have to choose producing low-cost programs - those that do not require laboratory equipment and low quality degrees. A few schools, particularly some of the non-profit ones, tried to maintain relatively high quality programs. The University of the Philippines, having been supported rather generously by both the national government and by foreign foundations, has been able to maintain a generally high standard of instruction. The education obtained by the majority of the yearly flow of college graduates, as a consequence, were poor in quality. Moreover, more than half of them specialized in non-scientific and non-technical fields such as business, law and education courses.

3. Labor Market Response to Excess Supply of College-Trained Labor

The production processes in the economy are manned by labor of different skills. These skills have been conventionally classified into occupational groupings - professional, clerical, construction work, etc..

Skills vary in substitutability among jobs. In general, the longer the period of training, the less substitutable the skill. Doctors, lawyers, engineers and scientists with Ph.d. degrees cannot be substituted by any other skill. In contrast, high school and elementary teachers, clerks, and many types of production workers can be substituted more adequately by other skilled labor in a number of jobs. It is generally true also that those with higher skills can more easily substitute for lower skills, meaning that the former can learn the lower skills more easily than the other way around.

Another way of looking at skill substitution is to study the skill requirements of the many jobs in the production processes. Jobs are not precisely identifiable as to their educational requirement except in cases where government board examination requirements are explicitly stated. The professional occupations are examples of these where medical, legal, auditing, engineering, and sometimes teaching qualifications are specified to be that of the acquisition of the corresponding college degrees and the passing of corresponding state professional board examinations. Other jobs such as business management, government bureau chiefs, sales, clerical, personal services,

construction and art craft have no specific educational qualification.

4. Job Substitution and Unemployment

When there is unemployment in high skills occupation, there is a tendency for the displacement of labor in a given job by those with skills of a higher level. We assume a preference by firms for higher skills in each job. Greater accuracy in the job, easier communication with the worker, and greater ability to learn more difficult skills are some of the possible reasons for this preference. Between hiring a high school graduate and a college educated for say a clerical or a foremen job, the firm employs the latter. There might be cases, though, where employing an over-educated or over-trained labor is a disadvantage as it can result in discontent and disruption of work. Such cases are usually the extreme ones which happen when the degree of over qualification is excessive. In cases where the choice is the hiring of those with two successive levels of skills, the problem does not usually arise.

For college-trained labor, the unemployment situation has, as expected resulted in the employment of

this labor in jobs that require less than college education. Such over qualification is seen in the high proportion of college trained labor in the various occupations that do not require college training. In Table 1, we have the proportion of the employed labor with high school and collegiate education by industry in the Philippines, U.S., Norway, Spain and other countries. It shows that the Philippines has a much higher proportion of college educated labor employed in production than in all of the countries included in the study. The table also shows that industries in these countries employ relatively more high school educated compared to the Philippines. We would infer from these statistics that jobs filled by college educated here are filled by high school educated in other countries. This fact could be a consequence of over-supply leading to bunching up effect.

If a substantial bunching up effect due to the over-supply of college-trained labor does exists, then there is the question as to which of the college leavers tend to be bunched up. Most likely, those with relatively poor quality college education will be bunched up in lower jobs. Firms hiring college trained labor classify them by the quality of their training. In the hierarchy of jobs, the better trained would tend to be placed

TABLE I

Percentage Distribution of the Active Civilian Population by Level of Education and Industrial Sec

Country and Year	Industry							
	Agriculture	Mining and Quarrying	Manufacturing	Construction	Gas, electrical and water works	Transportation and Communication	Wholesale* and Retail Trade	
Second - Level								
Philippines (1965)	8.4	27.1	23.7	24.8	21.8	34.6	23.5	
Portugal (1960)	0.0	1.6	3.5	1.4	11.4	3.4		32.9
Spain (1960)	0.2	2.0	2.8	2.0	4.5	2.3	10.6	
Greece (1961)	0.0	2.9	4.5	8.0	6.3	10.0		8.0
Italy (1961)	1.6	9.3	13.2	9.7	35.5	30.9	18.4	
Norway (1960)	15.6	12.9	23.2	19.9	36.3	29.3	31.5	
U.S. (1950)	29.2	48.5	50.5	48.4	52.4	54.3	59.9	
Third - Level								
Philippines (1965)	0.9	13.6	8.0	5.6	30.9	10.5	12.9	
Portugal (1960)	0.0	0.4	0.5	0.7	3.6	0.8		1.7
Spain (1960)	0.1	1.0	1.2	0.9	3.4	0.7	2.0	
Greece (1961)	0.1	2.3	1.9	2.7	4.9	2.2		4.2
Italy (1961)	0.1	0.7	0.7	0.5	0.9	1.6	6.1	
Norway (1960)	0.2	1.7	1.2	0.7	3.7	0.5	1.4	
U.S. (1950)	1.5	3.5	4.7	4.3	6.7	4.3	6.4	

*equivalent to Philippine sector classification of Commerce.

Sources:

Philippines - BCS Survey of Household Bulletin, Series 19.

Other countries - Netherlands Economic Institute, "The Educational Structure of the Labor Force: A Statistica Rotterdam, March 1966.

in jobs requiring college education; those of poorer quality in jobs requiring less education. It is quite possible that the observed over-qualification or bunching up may not be so in fact. We may not be far off in speculating that the quality of many college programs is so poor as to be equivalent to high school or post-high school technical training in Japan and in Western countries. Bachelor of Science in Commerce programs in many Philippine colleges appear to be the quality of vocational high school education in foreign countries. If this is the case, no over-qualification in employment results. Instead, we get a mapping of high school equivalent college graduates in jobs (normally) requiring high school education.

The discussion leads to the testable hypothesis that college graduates of good quality occupy jobs requiring college training; and those of poor quality occupy jobs requiring high school training. If there is, however, an over supply of good quality college graduates, some bunching will take place, that is the employment of these graduates in jobs requiring high school education. Moreover the bunching effect is more likely to take place in jobs that have a high degree of substitutions among skills.

We argued earlier that the college graduates who would tend to be bunched in greater ptoportion are those with poorer quality training. These are graduates of poor quality programs who have low academic records. Our empirical test of this hypothesis is as follows:

$$P_{cc} = f(Q_c, R)$$

where P_{cc} is the probability of a college graduate to be employed in jobs requiring college training, Q_c is the quality of his college training, and R is his academic record. The relationship between P_{cc} and the two independent variables is positive.

II. Empirical Analysis

1. Occupations of College Graduates

A survey of companay employees in administrative, clerical, sales and production jobs was undertaken to test the above hypothesis.[1] The non-professional jobs can be filled by labor of more varied background. Quality of programs is assumed to be indicated by type of school. The reputedly superior-quality schools are the University of the Philippines, Ateneo University, De La Salle University, St. Theresasa College, Mapua Institute of Technology,

[1] A sample fo 510 non-production workers were taken from seven industries; the firms were those included in the NMYC sampled firms in its "Comprehensive Manpower Assessment Survey", 1973.

and a few other sectarian schools. In general, sectarian schools have been regarded as better in quality than the non-sectarian schools. If this typing of schools provides adequate differentiation of the quality of graduates then the above hypothesis can be tested as follows:

$$\frac{N_{cc}}{N} = f(ST)$$

where N_{cc} are the employed college graduates in jobs requiring college training, N is total employed. Professional and administrative occupations are considered to be the jobs requiring college training. ST is school type which are as follows:

University of the Philippines

Other Public

Sectarian, Manila

Non-Sectarian, Manila other than big universities

Big Universities

Sectarian, Province

Non-Sectarian, Province

Table 2 classifies the surveyed college graduates by school type and present occupation. The broad occupational classifications used are those which employ most of our college graduates: professional, administrative, clerical sales and other occupations. The last three occupations

do not, in general, require college education. The proportion of graduates employed in these occupation could be taken to reflect either under-employment or the poor qualification of graduates for professional work. The data do show fairly substantial variation in the proportions of graduates in non-college jobs. As expected, relatively more graduates of the University of the Philippines were employed in the top occupations : professional and administrative, with graduates from Manila sectarian schools ranking next. Graduates of provincial schools did worse than Manila schools, except for graduates of other public institutions and those from sectarian school doing much better than their non-sectarian colleagues. The poor performance of other public institutions in Manila might be due to their concentration in business-commercial fields of specialization. As discussed earlier, there is probably higher unemployment in these fields, given the large supply of graduates here (31 % of total graduat·s over the last decade and a half). Also business-commerce preparation is more adapted to clerical-sales jobs than say medical or science training. Thus the higher proportion in clerical and sales occupation of graduates from some types of institutions may be partly explained by insti-

Table 2

DISTRIBUTION OF COMPANY EMPLOYEES BY OCCUPATION

AND BY SCHOOL TYPE, 1975

School type	1 Professional	2 Administrative	3 Sum of (1) & (2)	4 Clerical	5 Sale	6 Others	7 Number of Observation
niversity of the Philippines	28.6	61.9	90.5	9.2	-	-	100.0 (21)
ther Public	1.9	25.0	26.9	57.7	3.9	11.5	100.0 (52)
ectarian, Manila	21.4	28.6	50.0	39.3	-	10.7	100.0 (28)
on-Sectarian, Manila other than big universities	22.6	24.5	47.1	34.0	7.6	11.3	100.0 (53)
ig Universities	22.1	23.2	45.3	43.8	2.9	8.0	100.0 (276)
ectarian, Province	25.5	11.8	37.3	47.1	5.9	11.8	100.0 (17)
on-Sectarian Province	11.1	15.9	27.0	63.5	3.2	6.4	100.0 (63)

tutions' field offerings. In any case, clerical and sales occupations are jobs that should not require college training in the true sense of the word
The table still leads us to conclude that the relatively low placement of graduates in professional and administrative job reflects poor quality of the college programs.

2. Earnings by School Type and Occupations

Earnings vary by occupation. In as much, therefore, as the occupation of a graduate is determined by the quality of his college training, so would his earning from that training. In an earlier study /PCSPE, 1971/ of the employment of college graduates, earnings as well as the rate of absorption in the labor market were found to vary by program (field of study in an institution). Table 3 here suggests that variation in salary of graduates is a consequence of variation in their occupation, as well as variation in salary within each occupation.

Productivity theory argues that the wage rate paid will be equal to the marginal productivity of the worker. The more competent a laborer is in his occupation, the higher his productivity. We would expect better-quality graduates to be more competent in his skills. His

initial earnings will tend to be higher than his poorer-quality counterpart. It is an empirical question, though, what time paths of earnings these graduates would have. Would the earnings path of a better quality graduate be higher at all ages than that of his poorer counterpart, or would it tend to equalize after some time? They would not tend to equalize if the rate of on-the-job learning is positively related to the initial amount of skills. The rate of increase in competende can of course be increased by other forms of training while one is employed. Highly motivated employees can more than overcome disadvantages in their schooling background.

The sample size is rather small and it is not meaningful to obtain from the survey time paths of earnings by occupation and by school type. Thus we estimated only the mean earningsby occupation and by school type, and the time path of earnings is obtained for each school type only. These statistics are given in Tables 3 and 4.

As expected, employees who graduated from the University of the Philippines enjoyed the highest compensation. This pattern applies to all occupational levels (i.e., professional, administrative and clerical). Those coming from Manila-sectarian schools rank second. Adminis-

Table 3

MEAN MONTHLY EARNINGS BY SCHOOL
AND BY OCCUPATION

School Type \ Occupation	Professional	Administrative	Clerical	Sales	Others
University of the Philippines	1184	1294	436	-	-
ther Public	-	702	367	680	470
ectarian, Manila	568	1043	421	-	637
on-Sectarian, Manila	549	887	374	315	-
ectarian, Province	384	475	324	-	312
on-Sectarian, Province	726	712	332	360	323

Table 4

TIME PATH OF MEAN MONTHLY EARNINGS BY SCHOOL TYPE

Age	School Type: University of the Philippines	Other Public	Sectarian Manila	Non-Sectarian Manila	Sectarian Province	No Se Pr
25	693	316	482	387	278	
25 - 34	1228	474	688	583	333	
35 - 44	1321	707	1090	871	-	
45 and over	1368	583	700	694	687	

trative employees received the highest monthly earnings for all school types except for those graduated in non-sectarian province. Their earning difference is almost negligible though (₱726 - ₱712 = ₱14).

Table4 describes the time path of average monthly earning of graduates from the various school types. The time path is of the expected direction - an inverted U which peaked at age range 35-44, except for U.P. graduates where earnings continued to increase up to age 45. We find also that earnings among school types do not tend to equalize over time. The earnings of U.P. and Manila sectarian schools continue to be higher at each succeeding age as compared to those of graduates from other schools. We also find that the rate of increase of earnings of U.P. graduates is very much higher in the first 10 years of employment. This fact might be considered to reflect the rate of learning by doing among the graduates.

It is to be noted that the PCSPE study shows that the social rate of return (estimated on the basis of total cost of instruction, not tuition) of U.P. education was in general higher than that from private schools. It might be concluded that good quality education is

worthwhile providing as an alternative to inexpensive but poor quality programs in spite of its higher cost. The total returns to college education can thereby be increased by reallocating resources to the improvement of college programs.

III. Planning Implications of the Study

The observations lead to two policy questions:

1. How should the observed "mismatching" of job and education be treated in manpower plans?

2. What efficiency considerations can be read from the findings?

1. Manpower Planning

Traditionally manpower plans consisted of trying to map forecasted demand and supply of specific types of manpower. The forecasts assume varying degrees of disaggregation depending on data availability. An illustration of a forecast is given in the NMYC forecast of demand by level of education. This was based on an input-output table from which the input coefficients by education level in various output categories were obtained. These were then applied to projected sectoral outputs to forecast demand for each level of education. Supply forecasts are usually based on historical trend of enrollment or graduates or macro . . . . . .

relationship between these variables and factors such as demography, income and urbanization.

Three major assumptions are made in forecast of demand, (a) that the input coefficients will remain constant; (b) that these are the efficient input coefficients; and finally, (c) that there is no substitution between inputs (here education) in production.

Our findings seem to be inconsistent with assumptions (b) and (c). If (b) and (c) do not hold then, (a) will not hold for the input coefficients will not remain constant if they are not the optimal coefficients and if there is a high degree of subtitution among education levels in each job. These being the case, how should our forecast be revised to take into account substitutability of education in jobs and the possibility of disequilibrium in the college labor market as reflected in the under-employment of some graduates?

Let us first take the apparent under-employment of college graduates. We may argue that the graduates who are employed in non-college jobs, that is, in occupations classified as clerical, sales and others are not under-employed. We also assume that the educational

requirement for clerical, sales and other occupations is a high school education with some vocational content. It is observed that except for graduates of the University of the Philippines, about one half of college graduates worked in jobs that do not require college degrees. The manpower input of college graduate should therefore be adjusted so as to reflect their employment in the clerical, sales, and other occupation. The equivalent inputs of college graduates could be assumed to be the proportion employed in professional - administrative jobs, say C_c, multiplied by the total employed college graduate. The forecast is to be made with this adjustment in the number of employed college graduates. A simpler way of forecasting demand for collegiate manpower is to count only those who are employed in professional and administrative jobs. Thus the input coefficients by occupation, rather than by education type, are used in forecasting. Either adjustment would lower the forecasted collegiate manpower. Table 5 below gives the result of an exercise using the latter adjustment, i.e. counting as collegiate inputs, those in professional and administrative jobs. The table gives us a comparison of the unadjusted and adjusted forecasts. Needless to say, the method is extremely crude but it does illustrate the magnitude of possible

Table 5

Adjusted and Unadjusted Forecasts of Demand for College Graduates
(In thousands)

YEAR		Unadjusted		Adjusted	
		E_T	E_c	E_{A+P}	E_{cc}
Actual	1965	10,101	828*	750	750*
	1966	11,032	905*	805	819*
	1967	12,185	999*	874	905*
	1968	12,481	1,023*	977	927*
	1969	11,235	921*	569	834*
	1971	12,543	1,028*	873	931*
	1972	12,582	1,050*	731	934*
	1973	13,896	1,139*	871	1,032*
Projected	1974	14,265*	1,170*	742	1,059*
	1975	14,909*	1,223*	765	1,107*
	1976	15,675*	1,285*	808	1,164*
	1977	16,299*	1,337*	828	1,210*

* Estimated/projected number of employed persons

E_T = Total number of employed persons

E_c = Number of employed college graduates

E_{A+P} = Number of employed in administrative and professional jobs

$E_{cc,t}$ = Number of employed college graduates in administrative and professional jobs = $\frac{750}{10,101} \times E_{T,t}$

Source:

Actual - BCS Survey of Households Labor Force series

Projected - NMYC, Interim Manpower Plan, FY 1974-1977

overestimation of collegiate manpower demand when no adjustment is made for "diploma-illusion."

2. Efficiency Considerations

Earlier it was argued that the observed under-employment of college graduates due to their being employed in non-college jobs might be just an illusion, in other words we may have in fact have no under-employment but only a "diploma-illusion". Such would be the case were the content of college diplomas be equivalent to the content of a lower level of education, say high school. There has not been any study to directly support this contention. There are studies, however, which describe the inadequate facilities for library, laboratory, and staffing in most Philippine colleges and universities. At the same time, the quality of education at the elementary and high school levels is also considered to be poor. It is most likely, therefore, that the content of an average business or liberal arts degree is equivalent to the content of a good high school education. If such is the case, there is no under-employment of college graduates when they are employed in non-college jobs. There is only a "diploma illusion". We need not worry then about mismatching by level of education or under-employment of college graduates.

We have to be concerned, however, about the possible inefficiency of producing high school equivalent education in colleges and universities. The question can be put more systematically by an application of cost-benefit analysis to the two options - producing high-school equivalent education in high schools, or in colleges and universities. Let us specify the possible differences in their costs and benefits.

1. Time Flows of benefits and costs differences

There is a longer pay-off period when the education is produced in high school since the education process would terminate earlier, approximately 10 years versus 14 years of schooling. The graduates can join the labor force at a much younger age. Thus the pay-off period is increased. If the employment rate is zero for the next four years, the pay-off period remains the same.

2. Cost of education

It is very likely that the cost of producing an equivalent high school education in high schools is lower than the cost of producing it in college. The additional resources needed to improve education in high school for producing the equivalent high school education would be less than the total resources used up in college.

The number of high school teachers need not increase, but their quality can be improved by replacing poor quality high school teachers with teachers who are currently teaching in college. The cost of library, rooms, laboratory equipment in colleges and class rooms can be used more efficiently in high schools.

3. Other Costs

The "diploma illusion" has a cost to the graduate. It tends to raise his job expectations and leads him to search for jobs to which he does not qualify. Thus the duration of his job search is unnecessarily lengthened and he has to pay a larger amount of transportation and other costs while on the job search. In this regard, one may also consider the disutility from disappointment in ones career expectations.

IV. Concluding Remarks

Careers of college graduates differ in their education requirements. Some graduates find jobs in the professional and administrative occupations. These are jobs that can be considered to require college education. Many find jobs in clerical, sales and other occupations which may be considered to require only a high-school

equivalent education. The paper argued that the chances of college graduates to be employed in college-requiring jobs are determined by the field of specialization and the quality of the college program. The survey conducted for the study, though containing a relatively small sample, lends some support to the argument. The paper then went on to discuss the policy implications of the education-job mismatching. The author directs attention to the cost of such mismatching and suggest that an experiment be undertaken to estimate the cost-benefit of equivalent education in high schools. The present value of this alternative way of producing manpower for clerical, sales and other occupations through high schools is to be compared to the present value of the present system of producing the manpower in colleges and universities.