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Skills Shortages, Underemployment and Youth: The Quiet International Dilemma

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Abstract

Worldwide, a paradox is hindering economic growth. Many nations have severe shortages of technicians concurrent with high rates of underemployed among four-year college graduates. The fundamental causes are labor market/social misconceptions by policy makers, youth and parents regarding the global high-skills/high-wage labor market. Eight recommendations are made to improve this dilemma. All speak to the importance of technical vocational education (TVE) in creating economic growth and individual opportunity.

Background

One goal of all nations is to pursue policy that continuously improves the wealth and standard of living of its population. For this reason economic growth is a priority worldwide. Modern economic theory attributes economic growth to the interaction of four types of economic capital: natural resources, technology, human capital (skilled workers) and social capital, (social standards that are conducive to economic growth). Of these three, human and social capital is considered the most important in the new global economy (Thurow 1996). The reason is that natural resources and technology now move around the world to where the workforce is the most conducive to increased productivity. Thus the nation's workforce will determine the degree to which it participates in global

economic growth. Meanwhile a nation's workforce is relatively less mobile, more likely to say in the country, and thus the best public policy investment for long run growth

The High-Skill/High-Wage Strategy

Human capital can be divided into two types: low-skill/low-wage and high-skill/high-wage. Countries with low relative wage rates can initially capitalize on this advantage by producing goods and services that require low wage rates to be competitive in the global market. This strategy is effective only as long as wage rates stay low. Prosperity, however, invariably leads to higher wage rates. Meanwhile, higher wage rates are an important goal because they are necessary for growing individual wealth that leads, in turn, to increases in standards of living. Thus, developed and developing countries, faced with the certainty of higher wages rates now or in the future, can compete in the long run only by being more productive than low wage rate countries and/or by producing goods that require highly skilled workers. This is termed the high skills/high wage economic growth strategy and is the ultimate goal of all nations.

Consider a hypothetical situation where two countries manufacture the same product that sell on the world market for one USD. Country A has wage rates of 20 USD per hour while country B has a wage rate of one USD per hour. How can country A hope to compete with country B? By being more productive. Assuming all other costs are equal, country A can be competitive if it can produce 20 times as many units in the same give time it takes country B to produce one. To do so, however, requires a much

more skilled, thus efficient, workforce. The key, therefore, to a world class standard of living is a world class high-skill/high-wage workforce. Human capital investments that produce skilled technical workers, such as Technical Vocational Education (TVE), are, therefore, essential to sustained growth and prosperity.

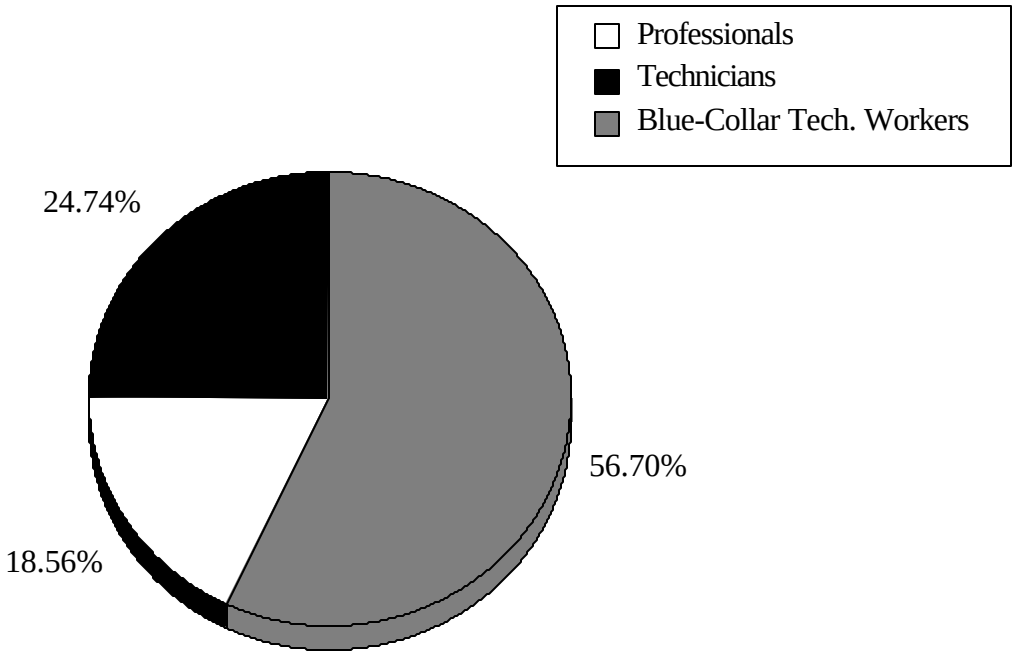
Dissecting the High-Skills Workforce

While there is international recognition of the importance of a world class workforce to economic growth, the skills/credentials composition of this workforce is generally misunderstood. The common misconception is that the majority of workers in global high tech industries will need a four-year college degree. In the US, for example, the growth in information technology (IT) led to the conventional wisdom that most jobs in this field would require a engineering degree in computer science. This conclusion is incorrect.

Contrary to conventional wisdom, individuals trained at professional or university level are the smallest segment of the high technology labor force. Figure one below shows the results of a study of the US high technology labor market by the American Association of Training and Development (ASTD). Note that professionals are in fact the smallest segment of the technical workforce (19%). The largest group is blue-collar technical workers with skills associated with vocational education (57%).

Figure One

The Technical Workforce



SOURCE: Compiled from Carnevale, et al. (1990).

Of particular importance to this discussion is the group called technicians. In the U.S. they are often referred to as "gold-collar workers" because of the high salaries they earn. Four observations about this group are important. First (1) they outnumber university level professional workers. Second (2) they are the fastest growing segment of high technology workers. Third (3) they are typically prepared at the pre-baccalaureate technical college level. Finally (4) and *most importantly*, firms will recruit

internationally for engineers or transfer them in from abroad. But they expect/prefer to find technicians in the local labor market and locate/expand where they can.

In the U.S., for example, it is generally recognized that the existence of a significant mass of workers, technically trained at the pre-baccalaureate level, is the key factor in a firm's decisions to expand or relocate. The importance of this group of workers cannot be overstated. In one U.S. case, a firm needed only 15 technicians to begin a major plant expansion. It could not find these technicians and did not expand. The direct and indirect economic effect was a loss of 19 million dollars to the economy of the region or one and a quarter million dollars per technician (Wall & Passmore, 1997). Thus among economic development experts in the US it is generally agreed that

> *A region that does not have a growing percentage of its non-professional workforce trained beyond the high school level will have increasing difficulty in supporting the competitiveness of high value business. (PA. Economic League, 1995).*

A region can be an urban area, a state, or a nation. Ireland, for example, experienced a GDP growth of 90% in the decade of the 90s. It increased employment by over 40% (Economist, 2000). It met job growth initially from a large pool of unemployed or under-employed and by attracting expatriates back to the county. Now it finds its growth stymied by technical labor shortages. This situation exists not just in Ireland but internationally and hints at a quiet global dilemma.

The Quiet Dilemma

Virtually all nations seeking to compete in the global market for high skills/high wage good and services face a common "quiet" dilemma. The dilemma is of two parts: labor shortages and underemployment of university graduates.

International shortages of technicians: The first part of the "quiet" dilemma is actually not "quiet" all. It is common knowledge that there are severe labor shortages among nations seeking to compete on a high skills/high wage basis in the global economy. Firms are not finding it difficult to get university-trained engineers or scientists; in fact there is, in general, a worldwide surplus. Instead the shortage is for those with training typically associated with pre-baccalaureate TVE. Specifically, the credentials in demand are for associate degrees or certifications in technical fields. U.S. trade groups estimate, for example, that there are currently 200,000 vacant jobs in informational technology (IT) alone. An individual with an associate degree in this field can expect to make 55,000 USD annually. (Vocational Training News, 2000).

Underemployment: The second part of the dilemma is the quiet part. Few involved want to talk about the worldwide growing numbers of underemployed four-year college graduates. It is somewhat of an embarrassment to public policy makers, government officials, universities, and university graduates. It is an uneasy topic. It hints of

educational and economic development policy gone wrong, of public investment wasted, and unkempt promises made to youth.

It is difficult to understand why skill shortages exist. Following the "education as salvation" argument (Livingston, 1998, p. 6) nations have sought to increase educational levels in general and university graduates in particular. This growth is illustrated in table one below for selected Organization for Economic Cooperation and Development (OECD) countries.

Table One

College Enrollment As A Percent of Age Cohort: 1950-1993

Country	1950	1993
Sweden	4%	35%
UK	4%	37%
France	4%	50%
US	6%	81%

SOURCE: *World Bank (1997).*

In the last half of the twentieth century postsecondary enrollment has increased dramatically. In the US, for example, college is now the norm rather than the exception for youth. Yet it would seem there is a surplus of individuals with degrees but also a shortage of university graduates with skill. The indicator is underemployment.

Underemployment is *defined* in this paper as the gap between an individual's performance potential as indicated by educational credentials and the skill set actually used or required in their job. While the actual percentage of underemployed university graduates varies according to method of calculation, all methods indicate that the rate has double in the North American labor force (Livingston, 1998). Writing in the *Monthly Labor Review*, Pryor and Schaffer (1997) estimated the U.S. rate of college graduates in high school level jobs at 30%. The most likely to be underemployed are young workers with higher education (Livingston, 1998). In an U.S. study, 43% of recent four-year college graduates *self-reported* that they held jobs that did not require advanced degrees (McCormick, A. & Knepper, 1996). Underemployment of those with degrees in technical areas such as engineering and computer science was 20% or less while the rate for those with degrees in the social sciences was 50% or more.

Underemployment has spawned a second development that is indicative of the quiet dilemma, namely *reverse transfers*. The term reverse transfer refers to individuals who enroll in associate degree or certificate programs after they have completed or dropped out of four-year or graduate school degree programs. Corresponding to the growth of underemployment in the U.S., reverse transfers are the fastest growing group of students enrolled in pre-baccalaureate technical education. Nationally, it is estimated that 30% of pre-baccalaureate technical education students in the U.S. are reverse transfers. But in some technical programs, reverse transfers are the majority: The motive of reverse transfers is to learn skills that they hope will make them competitive

for high skills/high wage employment. Reverse transfers tend to be, for example, the least competitive of university graduates, graduating with low grade point averages and/or with majors in the social sciences (Baccalaureate and Beyond, 1995).

This then is the quiet international dilemma. First, there are worldwide shortages of technicians. Second, the number of university graduates has never been higher. Third, many who graduate from universities end up underemployed; many of whom become reverse transfers in order to learn technical skills that lead to high-wage employment. It is paradoxical that while some of a nation's most academically talented go underemployed, the nations firms can not expand for lack of technicians. Clearly both in terms of stimulating economic growth and promoting individual economic opportunity a human capital development policy that emphasizes university education alone has proven to be a failure. What is needed is a greater emphasis on secondary and postsecondary TVE.

Understanding the Quiet Dilemma

The root cause of the quiet dilemma is poor decisions by both those charged with economic/workforce development, as well as students, and their parents. These decisions can be traced to misconceptions regarding the labor market and the conclusion that a four-year degree is the "only way to win."

Labor Market Misconceptions.

One cause of the quiet dilemma is widespread misconceptions about the new labor market. Here are three examples.

1. In the future most careers or at least high-wage technical careers will require a university education. Thus economic and human capital development policy should emphasize university education.

Actually underemployment should not come as a great surprise because – and unfortunately – most jobs in the future still will "not require" any type of postsecondary education. In the US, for example, only 23% of all jobs require a four-year college degree or graduate education. The sobering reality is that even in the world's most developed economy 40% of all jobs require only two weeks or less of on-the-job training (Silvestri, 1997). A related misconception is that most technical careers will require a university degree. But as illustrated earlier, less than one fifth of technical employment requires a four-year or graduate degree (see Figure one).

2. The economy will create enough university jobs to accommodate the increased numbers of graduates.

This misconception may be unique to the U.S. It is the belief, mixed with a great deal of hope, that the answer to the widening gaps in the distribution of income is to urge

as many as possible to get a university degree. The assumption is that the economy will respond with more university level employment. It is implied that labor market demand for university graduates is labor supply driven. While there are cases of labor supply driving labor demand, they are unique. Generally, labor market demand is a response to the demand for goods and services. Any nation that increases the numbers of university graduates much beyond 20% of the labor force will experience underemployment that in turn leads to brain drain as the underemployed seek employment abroad.

3. University graduates will displace those with less education in jobs that do not require a four-year college degree.

This myth is at the heart of youth and parent fears that fuel the mania for a four-year college degree and neglect of TVE. It is the worry that an increase in the number of four-year degree-holders will result in a situation where those without a baccalaureate degree will not be able to compete for the better jobs that do not require a college education. However, there is little evidence to support this fear. In a national survey of U.S. employers in the 13 largest industrial sectors, "10 of the 13 industry groups ranked the need for vocational training higher than the need for a college degree" (Stern, 1992).

There are cases of four-year degree holders displacing high school graduates but mostly in low-skill/low-wage work in retailing, service and recreation. In the competition for technical high-skill/high-wage occupations, however, they do not

displace TVE graduates who have the required specific occupational skills. To be specific, an individual with a university degree in Art but lacks computer graphic design (CGD) skills will not displace a person with an associate degree in CDG. In fact, it highly unlikely the college graduate will be employable in the graphics fields until/unless they learn these skills. This is a critical point. Because of the importance of specific technical skills, a person with more formal education will not displace an individual with less education but has technical skills.

The One Way to Win Paradigm.

A second factor creating the quiet dilemma is the "one way to win" paradigm (Gray and Herr, 2000). It is commonly believed that the only "way to win" economically and socially is to (1) get a university degree, (2) in order to earn high wages, (3) in the professional ranks. In the U.S., for example, a national poll of students in their final year of high school found that 85% hope to get a four-year college degree. Surveys of entering college freshman in turn reveal that the number one reason given for enrolling is to get a high paying job. When asked what kind of job they aspire to have by age thirty, 68% of young women and 49% of young men all said they hope to get a job in the professions (Gray, 2000). And while the percentages of youth that actually attempt to pursue this dream may be the highest in the US, the dream itself is universal. Thus lacking any contrary information that there are "other ways to win" and if given an opportunity, experience in the U.S. suggests that the majority of youth will reject TVE in

favor of a university education. This in turn creates the quiet dilemma: shortages of technicians and underemployment. The question remaining is what can be done.

Solving the Quiet Dilemma

The quiet dilemma is an economic drag. Nations that can solve or prevent the quiet dilemma will have a strategic advantage over those who do not. The answer to the quiet dilemma is increased emphasis/enrollments in secondary and postsecondary pre-baccalaureate TVE. What follows are eight recommendations for increasing the importance of TVE.

1. **Promote an understand that there are "Other Ways to Win**:" Solving the "quiet dilemma" requires first an understanding that from both an economic development point of view as well as an individual career opportunity perspective there are "other ways to win". The "other way" is technician level employment.

The economic importance of having a growing technician class of workers was discussed earlier. It is this class of worker that is the keystone of economic growth. In the U.S. for example, many firms that went abroad in the 80's are now returning. Why? Because the nature of their business has gotten increasing sophisticated. The low wages that attracted them abroad in the first place can not make up for the fact they cannot find employees with sufficient levels of technical skills. It is important to remember that the

market for university trained engineers is global but firms look locally for technicians and locate around the world to where they can find them, bringing their engineers along.

Likewise from an individual's career opportunity point of view, TVE offers the best return on their investment of time and money. By way of illustration, Table Two above lists the six main occupational groups in the U.S. economy ranked by annual earnings and net opportunity (demand minus supply). Managerial/Professional has the highest annual earning and virtually all occupations require a university or the graduate degree. But in terms of net opportunity it is last. In fact it is negative because in the U.S. there are twice as many people prepared annually than managerial/professional vacancies.

Table Two

Occupational Groups Ranked by Earnings & Net Opportunities (U.S.A. projections through 2006)

Group	Annual Earnings.	Net Opportunity (Demand – Supply)
Managerial/Professional	1	6
Craft/Precision Manufacturing/ Specialized Repair	2	3
Technical Support	3	1
Service	4	4
Operative/Laborer	5	2
Farming/Fishing	6	5

Source. Gray, K. (2000) *Getting Real: Helping Teens Find Their Future. www.corwinpress.com*

But note the second highest paying occupational group in the U.S economy: craft/precision manufacturing, and specialized repair. Most all of the occupations in this group can be taught in TVE high school and pre-baccalaureate programs. And in terms of net opportunity it is third. In the U.S., the annual earnings of workers in this group exceed that of university graduates except those who find managerial/professional employment. Also note that third in earnings is the group called technical support. This group is first in terms of net opportunities. Many new IT nonprofessional technical occupations fall into this category. Clearly there are other ways to win. Most require TVE. (See Appendix one for a representative list of these occupations.)

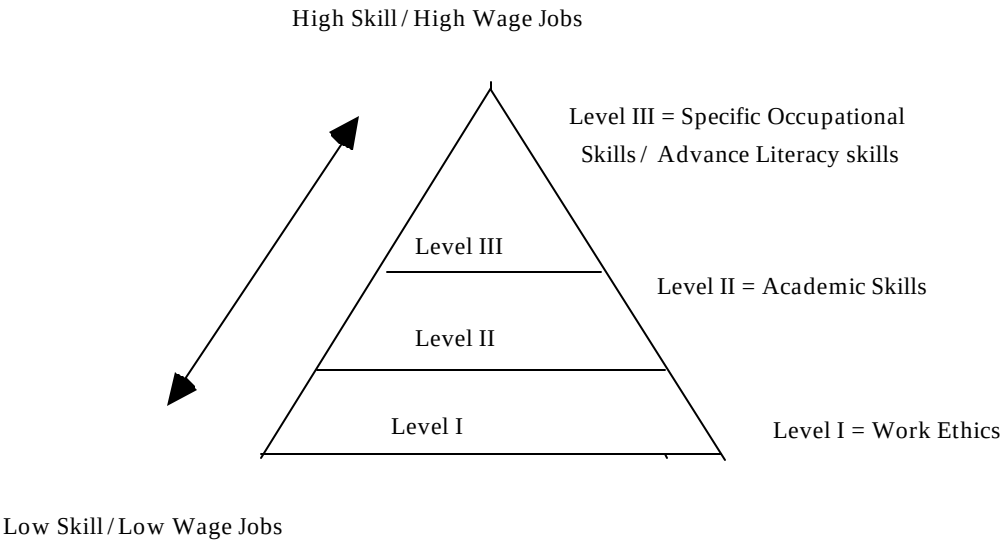
2. Explain the Sources of Labor Market Advantage. Another misunderstanding that fuels the "one way to win" philosophy is what credentials are necessary to successfully seek high-skills/high-wage employment. In general there is widespread confusion regarding the relative importance of work ethics, formal education, and occupational skills. Employers frequently indicate all they need is someone with a good work ethic. Academics argue that educational credentials are what counts; employers will provide the specific training necessary. But in reality what counts in seeking high skill/high wage technical employment is occupational skills. Figure two below illustrates this point.

There are three types or levels of employability skills: work ethics, academic skills, and specific occupational skills. Those who have these skills have "advantage" over others in competing for employment. Level I - - work ethics and related behaviors -

- are essential for all types of employment but are the *only* skills needed for low-skill/low-wage jobs that require only minimum on-the-job training. When employers indicate that all they need are applicants with a good work ethic it is an indicator that they are hiring low-skill/low-wage workers.

Figure Two

Sources of Individual Labor Market Advantage



Source: Gray and Herr, (1998), *Workforce Education: The Basics.*

Level II academic skills (reading, math, communications, and science) become prerequisites as the nature of work progresses toward high-skill/high-wage employment. They are important, however, not because they are used daily on the job. In reality the academic skill set used in any occupation is specific and small (Pucel, 1995). Math

reasoning ability is the only academic skill that predicts productivity on the job. But academic skills are still important because they a necessary for learning what really counts in the modern high technology employment, namely Level III specific occupational skills.

Labor market advantage and employability for high -kill/high-wage technical occupations requires Level III certified occupational skills or a set of experiences that demonstrates these skills. In a national study of manufacturers in the U.S., occupational skills were listed first in importance in hiring decisions (Bishop, 1995). This is true for two reasons. First, in many industries the skill-set required on the job is very specific and changes so rapidly that firms require individuals with the needed skill-set immediately. While employers may provide firm specific training, they need trainees with prior advance technical skills as a prerequisite. As an indication of the rising importance of skill and the decreasing importance of general higher education, IT firms in the U.S. are not as concerned about what degrees a person has as they are about what IT skills certificates they hold. It is now relatively common for high school graduates with advanced IT skills to go directly to work in IT skipping college or going part time.

The second reason skills are of primary importance for high-skills/high-wage employment is that in some industries there is a surplus of applicants, particularly for soft-skill managerial trainee type positions. Because applicants outnumber openings by almost two to one, employers can be very selective. The criterion they use is demonstrated occupational skill as documented by actual work experience or internships.

3. Monitor Human Resource Investments and Graduates. Solving the quiet dilemma suggests a closer look at human resource investments at the government level. As argued earlier, in most cases there are excess investments in university education and insufficient investments in TVE. One useful but simple monitoring method is to calculate the ratio of degrees awarded at the university level compared to the number awarded at the one and two year pre-baccalaureate TVE level. In a pure workforce development higher education system, the ratio, as dictated by the labor market, should be about 2 university degrees to three TVE pre-baccalaureate degrees. In the U.S., the ratio of university degrees awarded to associate degrees is almost the opposite, namely two to one, and the majority of associate degrees awarded are in general education not TVE. The true relationship is probably closer to 3:1, thus the quiet dilemma in the US.

Human capital investments in pre-baccalaureate TVE will have positive national return on investment, only if those trained stay in the country. If and when firms can not find technicians in the local labor market or relocate to where they can find them, then they have no choice but to try to recruit technicians away from other firms in other countries. Thus the international shortage of technicians can be predicted to lead to a new economic development challenge, namely preventing technician brain drain. For this reason some economists are suggest that countries should develop a new economic indicator that monitors their balance of trade in skilled technicians (Perkins, 2000). Economic success in the future will depend both on developing a technician class of workers and keeping them in the country. Keeping technicians in country pays off.

India, for example, has been able to attract a significant amount of IT employment because of its pool of workers with IT skills.

4. Provide Career Guidance to Youth. Ultimately the quiet dilemma will be resolved when more youth decided to become technicians. The decision process, of course, differs greatly around the world. On one extreme is the US, which allows any students to try any type of higher education independent of their academic ability. More common are systems that limit the number of students admitted to universities, and therefore, TVE becomes a second choice by default. In either case, however, TVE is successful only when those who enroll do so for well-thought-out reasons. Return on investment studies of TVE consistently find positive returns but only when individuals pursue careers in occupations related to their training. Very often when students drop out of TVE programs or do not pursue a related career when they graduate it is because they decide they did not like the occupation after all. The chances of preventing this from happening are greatly improved when the decision is well thought out in the first place. It is worth noting, for example, that the German system of TVE places a premium on career counseling and awareness. German firms understand that its investment/support of the apprenticeship system pays off only when students pursue careers in their apprenticeship field and that good career guidance helps to insure this happens.

For these reasons it is important that TVE educators become vocal advocates for career development activities in the primary and secondary education systems in their country. TVE at the high school level can play important roles in these efforts. In

particular students need a chance to validate tentative career choices prior to making a decision regarding pursuing a TVE program of study. High School TVE can help by running exploratory programs as part of their curriculum offerings.

***5*. Increasing TVE Incentives for Students.** Even with adequate career development activities for youth, universal cultural preferences for a university education are still very powerful. For this reason, incentives for students to pursue TVE are necessary. Incentives can be of at least three types: advanced placement/time shortened, tuition waivers and guaranteed job placement.

A. Advanced placement/time shortened: One effective incentive for youth to pursue postsecondary TVE is to provide opportunities to receive advance placement for course work taken in high school. This results in either less time to complete a postsecondary TVE degree or allows them to take more advanced courses. One such program is called Tech Prep and is an U.S. federal priority. Tech Prep is best viewed as a transitional program between secondary TVE and post-secondary TVE and is historically known as the "two plus two" system. In the U.S., the lines between the last years of high school and the first year of college are increasingly blurred as students take college courses while still in high school. In a tech prep curriculum, the last years of high school are closely aligned with the technical college curriculum. Often students are "dual-enrolled" meaning that the courses are actually taught by the technical college and count both for a secondary and postsecondary degree.

B. Tuition Waver: Most students pursue advanced degrees in order to get a high-paying satisfying job. But pursuing postsecondary education is costly. The lower the costs to pursue TVE relative to other options, the more popular it will be. Thus any program that makes TVE relative less expensive is effective. One very effective method is to provide government tuition loans and then reduce these loans after graduation for each year a student works in a related technical area.

C. Guaranteed Job Placement: Perhaps the most effective way to promote TVE among students is to guarantee employment. In a market economy there is, of course, no ironclad employment guarantees. Nevertheless the odds are considerably better if industry is heavily involved in the TVE program. In the U.S., it is common for firms to sponsor a particular TVE program by providing instructional equipment, internship opportunities, and sometime even the instructor. Firms do so because it provides access to a pool of technicians. Meanwhile, from a student's point of view, it provides increased probability of access to high skills/high wage employment.

6. Increase Government Support: Relative to general and theoretical education, applied TVE is expensive. Because TVE student outcome objectives are measurable job competencies, TVE most provide opportunities for students to practice these job tasks. For this reason, TVE requires instructional labs that include expensive industrial equipment. Government funding of theoretical education because it is cheap is shortsighted; especially when the outcome is growing underemployment. Informed government policy funds TVE, understanding that it is the keystone to economic growth.

Malaysia is an excellent example of a country that understands this truth and has acted accordingly by increasing the availability of TVE

7. Hold Industry Accountable: While industry has the most to gain from solving the "quiet dilemma" they often are part of the problem. Shortages of technicians can be traced, in some industries, to low wages. Equally important, technicians are often barred from advancement in companies because they lack four-year degrees. Both are serious disincentives. It is time for TVE to be forthright with industry and confront them with these issues. Industry has to both change their employment policies and increase their financial support of educational programs that provide the workforce they needs, namely TVE.

8. Do not neglect high school TVE. In light of the importance of postsecondary pre-baccalaureate TVE there is a tendency to dismiss the importance of high school TVE and argue for its elimination. This is a misguided for three reasons**.** First (1), experience around the world suggests that a prerequisite for a strong postsecondary TVE system, is a strong high school system. The reason is that the high school system tends to be the prime feeder for the postsecondary system. Students who spend their high school years in academic preparation for a university education seldom change their preference to TVE. In the U.S., the majority of pre-baccalaureate postsecondary TVE students who matriculate directly after high school participated in high school TVE. Second (2), while the key to sustaining a world class economy is a pool of technicians it is to be remembered that blue-collar technical workers are by far the largest group (see Figure

one). The skill set of these individuals is best taught in high school TVE. Third, in most countries the majority of students go to work after high school rather than to college. If there is no TVE then what high school curriculum will prepare these students for the transition from school to work? As an indication, high school TVE is very effective in reducing high school dropout rates because students view the curriculum as relevant to their future and stay in school.

Summary

Worldwide, nations have sought to increase educational levels to compete in the new global economy. Typically these human capital investments have stressed basic, and then university education, neglecting TVE. The result is a "quiet dilemma" or labor market dis-equilibrium characterized by an oversupply of university graduates concurrent with a shortage of technician level workers. As a result underemployment of university graduates is now a worldwide occurrence. Nations that can avoid this dilemma or resolve it will have strategic advantage over those that do not. It is wise to remember that the labor market for engineers is international, but firm's expect/prefer to find technicians in the local labor market and locate where this labor supply exists. Thus promoting TVE at both the high school and pre-baccalaureate postsecondary levels should be a major emphasis of national human-capital-development policy. It is an important key to both economic growth and to providing individual economic opportunity.

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Appendix One

High Skill/High Wage Non-Professional Occupations

I. Information Technology

Computer network administrators
Web page(s) creators / administrators
Computer systems installation and maintenance
Computer Repair Technician
Computer Applications Specialist
Information Technical Consultant
Data Retrieval Specialist
Computer training specialist
Communications Systems Installation and Repair
Communications Systems Technical Consultant
Data Entry / processing
Help Desk
Internet design, development, administration
Technical documentation

II. Traditional Crafts

Automotive Technician
Precision Welding
Pipe fitting / plumbing
Heating / Ventilation / Air Conditioning / stationary Engineers
Mason

III. industrial Manufacturing Technology

Computer Numeric Control Machine Tool Operator: Metal and Wood
Tool and Die Maker
Automated Manufacturing System Technician
Computer Aided Designer
Millwright / industrial Maintenance
industrial Electrician

IV. Allied Health Career

License Practical Nurse
Dental Hygienist
Surgical Technician
Paramedic
Radiologist
Health Facilities Management
Dietary Management
Health Information Technicians
Cardiology Technologists
Respiratory Therapists

V. Service industries

Paralegal
Professional Chef
Recreation / restaurant management
Law Enforcement
Fire Prevention
Court / conference Reporter
Interpreter
Landscape Management

VI. Electronic

Avionics
Electronics Tech
Electro-mechanical Repair Tech
Mobile Electronics Installation and Repair

VII. The Arts

Computer Graphic Designer
Animated Graphic Designer
Lighting Design / Installation / Repair
Cinematography
Custom / Set Design / Installation