

**Employment Sustainability Strategies During
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After the Crisis: What Jobs and Business?

By

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Introduction

Managing the workforce during economic crises has been the focus of today's conference and this is critical to the survival of small and medium size (as well large) businesses. However, a second overriding trend is occurring in parallel to this cyclical one and has important long-term implications to individual businesses, government policy, and the vitality of metropolitan, regional and national economies. This parallel trend is the structural evolution of the economy that is reflected in changing demand patterns for goods and services and that determines the types of businesses that are growing and declining.

This trend is also reflected in the changing educational and skills levels required of the workforce in order to fulfill the requirements of the emerging economy. Structural change is an ever-present dynamic in the economy but is accelerated during recessions as businesses redefine their mix of products and services, substitute technology for human resources, and seek greater efficiencies in their management and operations in order to remain profitable and survive the downturn.

The post-recession economy is different than the one entering the recession. While many of these differences are invisible to the casual observer, there is one measure that is universal: unemployment. The persistent unemployment that follows the recession and continues through the early years of the recovery reflects this shift in the economy from cyclical to structural change. Many of the jobs vacated by newly unemployed workers are gone. They will not be re-established as the economy recovers, as they were obsolete and no longer needed in the post-recession economy. Many of these newly unemployed workers will not have the education and/or skills levels needed to qualify for the new jobs created as the economy

grows. Some of these workers will succeed in acquiring the new skills by seeking retraining, others will regain employment by accepting lower skilled and lower paying jobs, and others will drop out of the work force permanently.

During and immediately following a recession, this process of workforce change and redeployment is easily documented and often benefits from government programs directed at the reduction of unemployment and the normalization of the economy in the post-crisis period. Unfortunately, this attention to structural change in the economy and its long-term impacts on the workforce is generally not sustained during the recovery and government policies lack the long-term vision necessary to assure that the future workforce is prepared to meet the requirements of the future economy's demand for education and skills.

The key questions going forward are: (1) What kinds of jobs or occupations will define the economy's future growth over the next ten to twenty years and how many of these jobs could the economy generate if it had a sufficient supply of qualified labor resources? (2) What will be the skills and educational requirements of this emerging economy? And, (3) where will these future workers come from—will they be new entrants to the workforce, younger workers already in the workforce being upskilled and retrained, older workers remaining in the workforce beyond the normal retirement age, or movers from other regions within the country or from other countries? These are some of the questions and issues that I want to explore in this paper.

The Future Demand for Workers

The composition and size of the future workforce will be determined by a complex range of economic and socio-political forces that reflect changing global, national and local market conditions as well as new technologies and other innovations that affect how work is accomplished as well as where this work is performed.

Modeling the future structure of an economy, whether this economy is of a metropolitan area, a nation, or multi-national region, is not new. Among the results of this modeling are employment forecasts by sector and sub-sector for a period extending usually twenty or more years into the future. Annually, the economy changes slowly but over five, ten or more years these changes can become dramatic.

Consider the Portuguese economy going back just ten years. The shift from extractive to manufacturing to services has fundamentally changed the distribution of jobs and the educational and skills requirements of these jobs. These shifts are evident in Table 1 that presents the value added by major sector in 1996 and 2006.

And, while the mix of jobs has been changing, the work that is performed by these jobs has also been changing. For example, what an auto mechanic does today and the technology he has to understand and use is very different from the mechanic's

job twenty or thirty years ago. And, just think of the clerical worker and how that job has changed, and in many businesses it has disappeared all together. Secretaries were replaced by voice mail and email and those that remain are now executive assistants often with post-high school educations and college degrees where thirty years ago, high school preparation was the standard requirement.

Table 1

Sectoral Contribution to Gross Value Added In Portugal,
1996 and 2006
(percentage contribution)

Sector	1996	2006	Change
Agriculture	5.5	2.9	- 2.6
Industry	28.9	24.3	- 4.6
Manufacturing	19.0	14.7	- 4.3
Services	65.6	72.8	7.2

Source: U.S. Statistical Abstract, 2010.

These two principal dynamics—structural change in the economy reflecting shifting demand patterns linked to demographic, social, and competitive forces and technological change reflecting how work is done and possibility where it is done—combine to determine how many net new jobs the economy can generate over time as well as how existing jobs may be reshaped over time, some being eliminated, while others are redefined.

This evolution within the existing workforce will be constrained by labor agreements and traditions but will likely experience accelerating change as the large number of post-World War II workers retire, what we in the U.S. refer to as the “baby boomers” and who now range from 48 to 64 years old. Over the next twenty years, approximately 50 percent of people working today will leave the workforce. This large exodus of workers will facilitate innovation and technological change in the workplace and accelerate the process of structural change in the economy.

There is surprising little research in any of the developed nations that explores the labor force implications of this dramatic change that will take place in the workforce between now and 2030. This research is critical to determining what future educational and skills requirements an advancing economy will demand in order to achieve its growth potentials.

What do we know about the changing structure of Portugal’s economy, the number of jobs this future economy will require and the types of occupations and their

educational and skills requirements that will define Portugal's economic future? Surprisingly, we do not know much. There are GDP estimates and forecasts for the Portuguese economy only to 2015. These show no growth in 2008, a decline of 2.7% in 2009, and a slow re-acceleration beginning in 2010 (+ 0.3%) to a peak of 1.4% annual growth in 2014 and 2015.

Employment forecasts go out only to 2011 and indicate that the employment base will not have regained its pre-recession level by the end of that year. And, with GDP growth peaking at 1.4% in 2014, regaining the 2008 employment peak of 5.2 million jobs could take as long as five years. And, this slow rate of GDP growth will have little affect on reducing unemployment from its current peak level of 10.8% (April 2010). Still, even with little or no net job growth, the economy is generating new jobs while continuing to lose old jobs.

What is not clear is what types of jobs are growing and what types of jobs are declining. Even though the Portuguese economy is not projected to accelerate significantly during the first five years of the recovery, there will be significant changes occurring within what otherwise appears as very slow job growth. This "churn" will reflect retirements and other separations from the workforce as well as sectoral and occupational shifts within the economy driven by changing demand patterns for Portugal's exports and the continuing adoption of new technologies and new efficiencies by the private sector. Unfortunately, there do not seem to be any analyses and forecasts qualifying these structural changes.

To provide some insight as to what these changes might look like, consider the occupational forecasts for the 2008-2018 period released recently by the Bureau of Labor Statistics of the U.S. Department of Labor. These are presented in the Tables 2 and 3. Employment in the goods-producing sectors is projected to experience little net change although changes within the four primary sectors are significant: construction will add 1.3 million jobs while manufacturing is projected to lose 1.2 million jobs. In contrast, the services-producing sectors are projected to add 14.5 million net new jobs but here again there will be significant differences in the number of new jobs that each sector generates.

Three services-producing sectors are projected to account of almost 60 percent (57.4%) of the net new job growth in the U.S. over ten years generating 8.4 million net new jobs. While it is clear that the pattern of future job growth is changing, in order to better determine how these changes could affect the nature of work and the educational and skills requirements of future workers, these jobs need to be expressed in terms of their constituent occupations. There are two ways to organize these data: (1) by the fastest growing (by percent) or (2) by the largest numerical growth. These two listings provide a different view of the future.

Of the 20 fastest growing occupations in the economy, one-half are related to healthcare. Healthcare is projected to experience rapid growth in response the aging of the population. And, as health care costs rise, the demand for lower wage

health care occupations will increase. The effect of this cost factor can be seen in the differential growth rates among health care occupations. The cost factor will result in shifting the types of the work done among health care occupations with lower cost occupations assuming greater responsibilities. Of the 20 fastest growth occupations, 12 will require at least a 2-year college degree (or higher) and nine of these twenty occupations will have a wage level of at least double the national average.

Table 2
U. S. Employment Projections by Sector, 2008-2018
(in thousands)

Sector	Number	% of Total
Goods-Producing	10	
Agriculture	-17	
Mining	-104	
Manufacturing	-1,206	
Construction	1,337	
Services-Producing	14,531	100.0
Healthcare	4,012	27.6
Professional (1)	2,657	18.2
Educational	1,683	11.6
Administrative	1,411	9.8
Hospitality	838	5.8
Government	788	5.4
Other Services	704	4.8
Retail Trade	654	4.5
Transportation (2)	446	3.1
Finance/Insurance	322	2.2
Art/Entertainment	304	2.1
Wholesale Trade	256	1.8
Real Estate	236	1.6
Information/media	118	0.8
Management (3)	102	0.7
Utilities	-56	

Source: U.S. Bureau of Labor Statistics

(1) includes scientific and technical services, (2) includes warehousing, (3) of companies and enterprises.

Occupations projected to experience the greatest numerical job gain over the 2008-2018 period are different from the fastest growing and have different educational and skills training requirements. The 20 occupations with the largest job gains will

account for one-third of all the new jobs, 5.8 million in total. Health occupations continue to lead the list but also included are education, sales and food services. Three of these largest job generators are also on the fastest growing list: home health aides, personal and home care aides, and computer software application engineers. The others represent a large job base that will generate a large number of new jobs even at a slower growth rate just because these occupations were large to begin with. Twelve of these occupations require only on-the-job training while only seven require some education beyond high school. Ten of these largest growth occupations have wage levels below the national average.

Table 3

Occupations in the U.S. with the Fastest and
Largest Numerical Growth, 2008-2018
(in rank order)

Fastest Growth (%)	Largest Numerical Growth
Biomedical engineers	Registered nurses
Network systems and data communications analysts	Home health aides
Home health aides	Customer Service Reps
Personal and home care aides	Food services workers
Financial examiners	Personal and home care aides
Medical scientists	Retail salespersons
Physician assistants	Office clerks
Skin care specialists	Accountants and auditors
Biochemists and biophysicists	Nursing aides and orderlies
Athletic trainers	Postsecondary teachers
Physical therapist aides	Construction laborers
Dental hygienists	Elementary school teachers
Veterinary technicians	Truck drivers
Dental assistants	Landscape and grounds keeping
Computer software engineers	Bookkeeping and auditing clerks
Medical assistants	Executive secretaries and administrative assistant
Physical therapist assistants	Management analysts
Veterinarians	Computer software engineers
Self-enrichments education teachers	Receptionists and information clerks
Compliance officers	Carpenters

Source: U.S. Bureau of Labor Statistics

Occupations experiencing the fastest declines reflect jobs most vulnerable to technological change and shifting markets and demand patterns. Manufacturing

activities as well as administrative-support occupations will be the primary sources of job losses over the analysis period. The 20 occupations projected to experience the fastest declines all pay below the national average wage and all had low levels of educational and skills requirements that could be satisfied with various levels of on-the-job training.

Preparing the future workforce will require educating and training workers to meet the requirements of future jobs. In the U.S., many the jobs that are projected to grow the fastest will require post-secondary education although there will be a continuing large numerical workforce requirement for workers with skills that can be acquired by on the job training that could build on a high school level education. The distribution of these future education and skills training requirements is shown in Table 4.

Table 4

Percent Change in U.S. Employment by
Education and Training level, 2008-2018

Education and Skills Level	Percent Change
Associate degree (2 years)	19
Master's degree	18
First professional degree	18
Bachelor's degree (4 year)	17
Doctoral degree	17
Postsecondary vocational award	13
Bachelors or higher degree with work experience	8
Moderate-term on-the-job training	8
Work experience in related occupation	8
Short-term on-the-job training	8
Long-term on-the-job training	8

Source: U.S. Bureau of Labor Statistics

In addition to these net new jobs, there are the replacement jobs that must be backfilled as large numbers of older workers (the baby boomers) begin to retire over the coming twenty years. In the U.S., where net new employment growth over the 2008-2018 period is projected to add 15 million new jobs, there will be 36 million jobs vacated by retirements and other departures from the workforce during this same period. The process of backfilling existing jobs will also contribute to the economy's restructuring as many of the vacated jobs will be eliminated and replaced by jobs with different education and skills requirements.

Being able to differentiate between new jobs and replacement jobs is important as they are likely to have different qualification requirements: newly created jobs will have higher skills requirements for entry while the vacated jobs will have higher experiential requirements. The percentage of new versus replacement jobs will also vary widely by sector and occupation. For example, for professional and related occupations in the U.S. approximately 45% of the 11.9 million new workers will be needed to fill “new” jobs while only 15% of the 5.7 million total retail and related sales jobs will be net new jobs and all of the 2.1 million production jobs available during the 2008-2018 period will be replacement jobs.

A recent study (February 2010) authored by the European Centre for the Development of Vocational Training (CEDEFOP) states that by 2020 there will be 7 million net new jobs generated in the 27 countries of the European Union plus Norway and Switzerland and that these new jobs will be in addition to 73 million replacement jobs representing a total demand for 80 million new workers. As a result of the projected changes in the mix of jobs in the EU economy, the demand for higher levels of education and skills is projected to continue growing. While the trends reported here are broadly consistent with what has been projected in the U.S., the general nature of occupational descriptions and educational and skills requirements provide sufficient information for the design and implementation of targeted educational and skills development programs.

The employment and occupational projections and associated education and skills training requirements for the United States cannot be applied to the European economy or that of any other country. However, they do show that structural change is underway and will have significant long-term impacts on future workforce development to assure that it is prepared to support the economic transformation that is underway now and has been accelerated by the cyclical economic forces unleashed during the recent recession. Not knowing what these occupational changes will be could put the nation’s economy at a severe disadvantage as it attempts to remain competitive in the global market place where other countries are strategically altering the mix of education and skills levels within their workforces to capitalize on new technologies and innovations to improve their competitive economic positions at the expense of countries not attentive to their changing workforce requirements.

The Supply of Future Workers

While more is known about the future supply of workers than about the future demand for workers, what is known is limited to basic demographic descriptions: gender and age, and general educational levels with this information being largely national in scope. However, to answer the key question, what will be the sources of workers comprising the future workforce, requires further detailing than presently exists.

The source of future workers will affect its qualifications and therefore its education and skills training requirements. Dividing the sources of the future workforce into four primary categories will demonstrate this point. These will be: (1) new entrants to the labor force, these are largely children who are currently enrolled in elementary and secondary schools; (2) then there are the current workforce age 18-45 years, the large majority of these workers will still be in the workforce in 20 years; (3) there are also older workers (45-65 years old) who might have retired at an earlier time but may want to work at some level beyond the normal requirement age; and (4) finally, movers into the economy, workers shifting from rural or less urban centers to larger metropolitan areas or moving across national boundaries in search of employment.

The European Centre for the Development of Vocational Training attempts to answer the question: Will Europeans have the right skills? The answer developed in its report reflects current educational and skills training trends over the 2010-2020 period and incorporates three primary dynamics: (1) newly educated workers entering the workforce for the first time; (2) younger workers already in the workforce completing their formal education; and (3) the retirement of older workers with lower levels of education and skills training. No attempt is made to incorporate the adoption of new workforce development initiatives over this period to accelerate the process of workforce advancement.

The analyses project a decline of low qualification workers (32.6% of all workers in 2000 to 19.5% in 2020) and a corresponding increase of high qualification workers (increasing from 19.9% of all workers in 2000 to 32% of workers in 2020). The research also found that on average women will have higher qualifications than men and that over the forecast period each age cohort would be better qualified than previously cohorts; for example, in 2020 workers 55 years old and over would be better qualified than that same age group in 2010.

These data for Portugal show the same patterns as for the European Union but with a higher percentage of workers with low qualifications in both 2000 and 2020 but achieved greater improvement over this period. An examination of Table 5 identifies several key trends that point to future workforce development needs in Portugal in order to achieve a more competitive economy. Labor force participation rates (60.8% and 62.2% respectively in 2000 and 2020) are relatively low and are projected to improve only slightly over this twenty-year period. Higher labor force participation would result in the growth of total personal earnings and this income growth could support further job growth in consumer services benefiting small and medium-size businesses and thereby adding to the vitality of local economies.

It is also clear that the population of work force age that is not participating in the labor force is less well qualified than the workers actively engaged in the workforce. This would suggest that these potential workers may be excluded from the workforce due to their skills deficiencies and to increase their labor force

participation rates would require these potential workers to undertake further education and skills training.

Table 5
Workforce Qualification Change in Portugal
By Population and Labor Force, 2000 and 2020
(in thousands)

Qualification Level	2000	%	%EU	2020	%	%EU
Population*	8,539			9,503		
Low	7,017	82.2	43.2	5,494	57.8	29.3
Medium	962	11.3	40.7	1,998	21.0	44.7
High	560	6.5	16.1	2,011	21.2	26.0
Labor Force	5,189			5,913		
Low	4,075	78.5	32.6	2,942	49.8	19.5
Medium	690	13.3	47.5	1,467	24.8	48.5
High	424	8.2	19.9	1,503	25.4	32.0

Source: CEDEFOP, Future Skill Supply in Europe: Medium-term Forecast up to 2020, Synthesis Report. * working age population age 15 years old and over.

The qualifications of the Portuguese workforce have experienced and are projected to achieve substantial gains over the 2000-2020 period. The percentage of workers with high qualification is projected to triple increasing from 8.2% to 25.4% of the labor force. However, in spite of these gains, a large gap will still exist that could reduce the ability of the Portuguese economy to support the growth of high value added jobs.

In 2020, the Portuguese labor force with low qualifications will account for 50% of all workers while the EU average will be 20% and workers with medium qualifications in Portugal will account for 25% of all workers, just one-half the share found in the EU on average. Closing these gaps offers the opportunity to accelerate the advancement of the Portuguese economy as investment and innovation are attracted to and are supported by concentrations of higher quality workers.

Interestingly, there is no effort in the CEDEFOP research to match the workforce and its qualifications to the requirements of future occupations or jobs. However, there is some concern expressed that workers may become over qualified for their jobs suggesting that the workers' qualifications are increasing faster than job requirements. Even though this seems unlikely except in a stagnant or declining economy, CEDEFOP suggests that this imbalance could generate frustration among younger workers (such as seen during the recession with significantly higher unemployment rates among younger workers).

What is not considered here is that economies with a higher quality workforce will be more attractive to business investment and be better able to support the development of efficient and technologically advanced businesses assuming the other infrastructural requirements are present. Otherwise, this highly qualified workforce can move to locations where their education and skills may be more productively employed. While there are real and substantial barriers to migration, economically motivated migration is an ever-present factor in building advanced and competitive economies in the global context.

Concluding Remarks

We know that the economy is changing and that this change is structural and, in combination with growth, will alter the mix of jobs across all sectors. We also know that the occupations within sectors are being changed by technology and other innovations, by comparative labor costs, and by global competition. What we do not know is the exact nature of the emerging economy in Lisbon or in Portugal or even more broadly across the European Union. There is some general information on the qualifications levels of the future workforce in Portugal and in the EU but this is not sufficiently detailed to know whether the workforce is properly qualified to drive the economy's advancement.

The supply and quality of the labor force is a major factor determining the type and rate of economic growth. In order to better manage investment in human resources development, the current and future demand for workers—both the number and their occupational requirements—need to be determined. This will permit the essential education and skills development programs to be established and the required curriculum to be designed and implemented.

Both a shortage (not enough) of workers and an inadequately qualified workforce can constrain the economy's growth and development. However, solutions to these potentially two related problems are very different. Not having enough workers will require initiatives to attract more workers into the workforce from within the resident population by increasing labor force participation, retaining older workers, or by attracting new workers from external sources. Not having the required mix of education and skills requires upskilling workers currently in the workforce and raising educational standards within the primary and secondary school systems.

Having a workforce with the required education and skills in sufficient numbers will be attractive to capital investment in support of business expansion and business relocation. This should be a key strategy at the local and national levels to advance their competitive positions relative to their peer economies. The absence of sufficiently qualified workers will drive up costs and will generate inefficiencies resulting in a weaker competitive position.

The key questions that should focus workforce development research are as follows:

(1) Are there a sufficient number of workers to fill future job requirements?

(1b) If not, what options or strategies will resolve this shortage?

Increasing labor force participation?

Extending the work life of the current workforce?

Encouraging in-migration?

(2) Are the workers currently in the workforce and those newly entering the workforce properly prepared for the jobs of the future?

(2b) If not, education and skills development programs need to be refocused and redesign, incentives need to be offered, institutions and laws may need to be changed.

If the answer to this second question is yes, then the analysis must be flawed. The existing and persistent unemployment that exists in Portugal and throughout Europe and the United States confirms the mismatch between jobs and workforce qualifications and this mismatch will be magnified by the transition of cyclically unemployed workers into structurally unemployed workers. Re-employing these workers who have been by-passed by the economy's accelerated structural changes, as well as preparing workers currently in the workforce and those first time workers entering the workforce to work productively over their long work life will require continuing education and skills training.

The challenge of workforce development over the next twenty years will be great. Without continuing and more advanced education and skills training those workers qualified to work in the old economy will be left out of the new economy. The pace of technological change will continue to accelerate changing (1) the mix of jobs and (2) the nature of work and in the absence of continuous upskilling of their workers, national economies will see their competitive position in the global economy decline. Workforce development represents the greatest long-term return on investment and will clearly differentiate advancing economies from lagging economies in the future.