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The Explanations for Unemployment Scale: An Eight-Country Study on Factor Equivalence

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Abstract

Explanations for Unemployment have been studied through a 20-item scale created by Furnham (1982) on three theoretical dimensions: the individualistic, the societal, and the fatalistic. In this study we revised this scale to co-ordinate it with contemporary social and economic facts and through metric testing-adjustments and multivariate statistical analysis we arrived at a 19-item scale retaining eight of the original scale items. This revised scale was statistically and theoretically valid as its factor structure closely resembled the original factor structure Furnham had described. For the second stage of the study, data were collected from eight countries and

multilevel covariance structure analysis was applied to the data pool. The final structure can be considered universal for seven of these countries, meaning that the structure people employ to explain unemployment is the same across countries. The individualistic factor was clearly supported in this structure. The second factor narrowed the societal spectrum to industrial management and educational provision and the third factor appeared as a transformation of the fatalistic dimension to a “helplessness” factor. The three factors were investigated for their scoring differences across countries and overall.

Introduction

Economic behaviour is reflected in both individualistic and societal functions within several social-psychological phenomena and has been studied extensively for many decades. Furnham and Lewis (1986) have addressed several of the related facets, devoting a large part to unemployment and its psychological consequences on the individual and society. Unemployment is considered a Social concern and a (socio)economic issue viewed as a possible source of psychological and physical ailments or illnesses. Unemployment and psychological health are related in terms of the psychological reactions and their stages and cycles, with immobilisation and shock appearing at the first stages and with internalisation and inertia being typically observed as long-term reactions to unemployment (Furnham & Lewis, 1986).

Studies on unemployment and psychological health (e.g., Feather, 1990; Furnham, 1983; Goldman-Mellor, Saxton, & Catalano, 2010; Jackson & Warr, 1984; Lewis, Webley, & Furnham, 1995) have addressed psychological and social adjustment, effects of unemployment on family life, governmental policies and reactions, education about unemployment, etc. Furthermore, long term unemployment can modify the way the unemployed explain its causes, producing more fatalistic explanations (Hayes & Nutman, 1981). Further research (Turner, Kessler, & House, 1991; Waters & Moore, 2001, 2002) has shown that self-esteem is also affected by long-term unemployment although this seems to vary across educational levels, being a function of baseline levels of self-esteem as well. Locus of control is another related factor which can offer explanation mechanisms to the unemployed as they may adopt internal locus of control explanations for unemployment. If they do so, they exhibit better coping strategies and suffer less from depression, managing the circumstances in a more effective way than when they adopt an external locus of control explanation for unemployment (Cvetanovski & Jex, 1994). In a more general sense, explanations for unemployment are considered attributions related to psychological processes and are linked to expectations which then, in turn, affect beliefs about the causes of success and failure (Furnham & Lewis, 1986).

Explanations for unemployment have been studied through the Explanations of Unemployment Scale for British samples (Furnham, 1982; Furnham & Lewis, 1986), contrasting the explanations the unemployed would give with explanations given by employed participants. Three main axes of explanations were described: a) individualistic reasons, expected to be favoured by the employed participants attributing unemployment to personal disposition; b) societal reasons, and c) fatalistic reasons. Both (b) and (c) were expected to be provided as explanations mainly by the unemployed, as they would be attributing their unemployment more to external (societal, chance) than to internal (individualistic) reasons. Apart from verifying the hypotheses, Furnham's study produced a 20-item seven-point Likert scale with eight items assessing individualistic explanations, eight items assessing societal explanations and four items assessing fatalistic explanations. Another study with the same instrument was later conducted in New Zealand (Lewis et al., 1995) supporting the 1982 findings and the original scale structure. However, cross-cultural studies that followed the 1982 study (e.g., Feather, 1985; Ward, 1991) only partly replicated factor patterns. Not only the identity but even the number of factors were different across countries as Feather (1985), using 27 items, described six factors, namely Lack of Motivation, Recession and Social Change, Competence Deficiency, Defective Job Creation, Personal Handicap, and Specific Discrimination. In addition, Ward (1991) described seven factors, and although differences have been individually described for various countries, these differences have not yet been summarized (e.g. meta-analysis, or culture invariance modeling or multilevel covariance structure modeling). However, Furnham argues that “although different studies have empirically derived rather different factors, it seems quite possible to categorise

these into one or other theoretical framework: i.e. individualistic (internal, voluntary, effort, ability), societal (external structural, task difficulty) and fatalistic (cyclical, luck, chance, uncontrollable).” (Furnham, 1988, p.133) providing further evidence and introducing a cross-cultural issue in that explanations for unemployment may vary across national groups as a function of the prevailing economic conditions in each country (Furnham & Hesketh, 1988). Whatever the outcomes though, these and other studies (e.g., **Payne & Furnham**, 1987) indicated the need for cross-cultural testing of the Explanations of Unemployment Scale (EoU) both in terms of factor structure and of differences in the explanations used across cultures. For possible differences across cultures to be revealed though, the factors assessed through the Scale should be comparable and methodologically and statistically equivalent across these nations (Poortinga, 1989; Poortinga & van de Vijver, 1987; van de Vijver & Leung, 1997; van de Vijver & Poortinga, 2002; van de Vijver & Tanzer, 1997). Another issue concerns the original 1982 EoU scale’s ability to assess contemporary facets of unemployment; although comparability with previous findings should be preserved for cross-cultural studies, it is common practice to devise and test new items for scales with possibly outdated items. We initially set out to meet this goal, trying to elaborate on new revised items and test their metric properties along with the 20 original EoU items. We then pursued the factor equivalence goal through an extensive cross-cultural study.

Aims of the Study

The aim of the current study is two-fold. The *first stage* is the metric procedure followed to obtain a new, revised, scale based on the original EoU 1982 scale. This revised scale should at least resemble the initial three-factor structure as described by Furnham so as to allow for further cross-cultural testing under the comparability prerequisite. The *second stage* would be to test for the revised scale’s factor equivalence across a number of cultures and to arrive into an overall factor structure valid for the assessment of culture-free explanations of unemployment. This testing would be available for the current study through the implementation of Muthén’s methods (1994, 2000) as extended to exploratory factor analysis by van de Vijver and Poortinga (2002). The method (Multilevel covariance structure analysis – in short MCSA) has been applied by the first author and his colleagues to social axioms cross-cultural data and to family cross-cultural data (Gari, Panagiotopoulou, & Mylonas, 2008; Mylonas, Pavlopoulos, & Georgas, 2008, respectively). It was shown to be able to isolate item discrepancies and response style effects, so as to allow either for item deletion or for alternative clustering-of-countries techniques or for both and other techniques in order to arrive at a theoretically acceptable statistically equivalent factor structure for the respective scales. The MCSA method (or even parts of it) has been successfully applied to other data sets by other researchers for factor equivalence testing reasons (e.g. Cheung, Leung, & Au, 2006; Fischer et al., 2009; van Hemert, van de Vijver, & Poortinga, 2002; van Hemert, van de Vijver, Poortinga, & Georgas, 2002).

Stage 1: Revision of the Original EoU Scale

The first aim was to translate the original 1982 EoU items into Greek, as the new items would be devised in Greek and tested in a Greek sample. We followed the usual procedures of back-translation in order to avoid cultural and language bias, thus arriving at a set of 20 items in their Greek translation. We were concurrently conducting interviews with more than 50 unemployed males and females of various professions and skills so as to gather the raw material for devising the new items¹ for the revised scale. In all, 24 new items were devised and all 44 items were tested in Greek samples of employed and unemployed participants. The samples consisted of 124 employed and 126 unemployed Greek adults aged 18 to 62, 111 males and 139 females. If our methods and analysis were successful we should arrive at a new set of items which would resemble or even identify with the original three factors described originally in Furnham’s work. This should hold for the overall sample. That is, the factor structure should be the same for both employed and unemployed participants regardless of their possible variations in rating the explanations for unemployment.

¹My sincere thanks to Anna Mitsostergiou and Georgia Kyvetou for their invaluable help during the preliminary scale-revision stages involving collection and formation of the interview data, back-translation procedures, and new item formation. They also successfully conducted their own degree studies primarily testing for metric properties and differences between samples of employed and unemployed Greeks.

Cross-Cultural data analysis methodology was applied across groups in the analysis (unemployed vs. employed). Multilevel Covariance Structure Analysis, Exploratory factor analysis models and Tucker's congruence coefficients were evaluated. Customary psychometric methods were also employed, such as internal consistency analysis and confirmatory factor analysis, along with intraclass correlation coefficients. However, for the sake of brevity only parts of these analyses will be presented here.

Confirmatory Factor Analysis Models for the Original 20-item EoU scale

We first tested the possibility that no new items would be required; if the CFA outcomes were acceptable, this would mean that the 1982 original EoU scale would still be able to distinguish the three facets originally described. We tested the overall sample, as well as the unemployed sample and the employed sample separately, but the outcomes were not satisfactory: for the overall sample (N=250) the chi-square value for 170 degrees of freedom was 683.49 and statistically significant at the .001 level. The root mean square error of approximation was .11 and the adjusted goodness of fit index reached only .73. For the employed and unemployed samples, the fit indices were similar, thus the initial hypothesis that the theoretical three-factor structure would not be present in the original 20-item scale version was supported and the 44-item revised version was now under scrutiny.

Multilevel Covariance Structure Analysis for the 44-item Revised EoU Scale

As we should test for possible item-bias, we first evaluated internal consistency results and explored for problematic items. We then performed MCSA to the overall sample data, taking the employed-unemployed subgroup parameter into consideration, in order to single out the items with the largest discrepancies in the structure. The method involves the computation of two correlation matrices, one estimated between-groups matrix computed on the higher-level means and one pooled-within correlation matrix computed at the individual level (Cheung et al., 2006; van de Vijver & Poortinga, 2002). The two matrices are factor analyzed and a target rotation follows to arrive at a factor structure which may or may not need further multilevel modeling depending on the intra-class correlation coefficients estimated for each of the items. In our quest, several items with high intra-class correlation estimates were to be removed as they were posing a threat to the scale's invariance and this was successively done through the aid of internal consistency estimates and exploratory factor structures recomputed for each of the successive steps. When there were no more cross-group differences to be modeled, 33 items remained in the analysis (16 original EoU and 17 new items). Through a maximum likelihood exploratory factor analysis model a set of 19 items (8 original EoU items and 11 new ones) were selected forming three distinct and quite strong factors. We finally recomputed the MCSA solution for these 19 items to investigate the intra-class correlation indices (ICC) and the results were very satisfactory as the mean intraclass correlation index reached only .01 -not exceeding the .06 limit. The final 19 items which form the new revised EoU scale are presented in Table 1. The three factors that emerged were quite similar to the original ones described by Furnham, namely the Individualistic factor with 6 of the 8 original EoU items and one new item, the Societal factor (emphasis on State provision) with 6 new items and one original EoU item, and the Fatalistic factor (emphasis on socioeconomic and technological changes) with five new items and one original EoU item.

Table 1
Items for the revised EoU Scale and three-factor solution loadings

Method: Maximum Likelihood, orthogonal rotation	% of Explained variance	17.8	14.8	13.9
Target rotated matrix				
(total variance explained = 46.5%)				
18 Unemployed people do not try hard enough to get jobs	.80	.11	-.05	
8 Lack of effort and laziness among unemployed people	.79	.03	.09	
12 Unemployed people are too fussy and proud to accept some jobs	.78	.02	.00	
3 Unwillingness of unemployed to move to places of work	.60	.00	.08	
6 Inability of unemployed people to adapt to new conditions	.57	.13	.22	
10 Lack of intelligence and ability among unemployed people	.57	-.15	.15	
32 Unemployed people lack self knowledge and pursue jobs not corresponding to their qualifications	.56	.35	.17	
24 The educational system does not correspond to the current job market	-.05	.74	.07	
27 Poor educational system	-.08	.67	.21	
42 Unemployed people do not qualify for contemporary market needs	.21	.66	.07	
40 Lack of vocational guidance and counseling	.12	.60	.16	
19 Incompetent industrial management with poor planning	.12	.58	.06	
28 Production facilities and enterprises have been displaced at other areas or even at other countries	-.13	.52	.29	
33 Employers will easier hire someone without family obligations	.11	.34	.47	
44 Job positions' overlap and company merging	-.06	.29	.60	
34 Enterprises have embraced technology evolution	.15	.19	.76	
36 Demographic and population changes	.15	.15	.61	
35 High levels of wages/salaries result into less people employed	.05	.08	.67	
11 The introduction of widespread automation	.16	-.02	.61	
D=.00054 KMO=.82 Bartlett's test of sphericity, $\chi^2(171)=1,262.8, p<.001$ Tucker's Φ coefficients for target rotation reached 1.00 for all 3 factors				

The number before each item is the 44-item version number of the item. All items numbered 1-20 are the original 1982 EoU items.

Reliability estimates: Individualistic Factor (items 18, 8, 12, 3, 6, 10, and 32): $\alpha=.83$,
Societal Factor (lack of provision by the State) (items 24, 27, 42, 40, 19, and 28): $\alpha=.73$,
Fatalistic Factor (socioeconomic-technological changes) (items 33, 44, 34, 36, 35, and 11): $\alpha=.73$.

From a metric perspective, reaching the above factor structure was quite satisfying but only if the new-revised scale remained "Greek". However, this was not our main intention, as we were about to explore the universal character of the scale in the second stage of the study².

Stage 2: Factor Equivalence of the Revised EoU Scale (EoU-R) Across Eight Cultures

At this stage a cross-cultural study was conducted with datasets from eight countries (five European, one Asian, one Latin-American, and the U.S.). Specifically, the countries providing these datasets were Brazil, Greece, Poland, Romania, Spain, Turkey, the U.K., and the U.S.A. The instrument in its English form was initially translated into each country's official language and was then back translated accordingly. The country collaborators administered the 19-item EoU-R scale to employed and unemployed samples within their countries and then the overall sample was formed (N=1894) with the following characteristics: Brazil (N=411, $n_{emp}=208, n_{unemp}=203$), Greece (N=250, $n_{emp}=124, n_{unemp}=126$), Poland (N=156, $n_{emp}=102, n_{unemp}=54$), Romania (N=204, $n_{emp}=106, n_{unemp}=98$), Spain (N=238, $n_{emp}=125, n_{unemp}=112, n_{other}=1$), Turkey (N=200, $n_{emp}=100, n_{unemp}=100$), U.K. (N=199, $n_{emp}=150, n_{unemp}=33, n_{other}=15$), U.S.A. (N=236, $n_{emp}=144, n_{unemp}=90, n_{other}=2$). From these, 47.3% were males and 52.7% were females (mean age=34 years).

The statistical analysis which followed was aimed at possibly uncovering a factor structure which could be "universal" for these eight countries. To do so, we employed MCSA once more treating each of the eight countries as a separate unit in the analysis. That is, we analysed 1894 cases at the individual level and eight countries at the aggregated, higher-order, country level of analysis. The two correlation matrices were estimated and the ICC indices were computed. Finally, the factor structures for the two matrices were put to Procrustean rotation and the outcome is presented in Table 2. However, there were several problems with this factor solution. One serious problem was that the mean ICC index was too high (.12), so it was very unlikely that the computed factor structure represented satisfactory equivalence levels. Moreover, a number of cross-loadings appeared for this factor solution, even under the very stringent cutoff point of .60. Although the overall percentage of explained variance was rather high (51.96%, with the first factor explaining 18.95%, the second 16.67% and the third 16.34%), only the first factor could be clearly identified as the "individualistic" one. The other two factors were blurred by the several cross-loadings and did not seem to distinguish between the societal and fatalistic explanations.

² We should note that in Stage 1 items were administered in their Greek form to Greek samples, thus they had to be translated into English after reaching the factor solution and then a back-translation procedure followed.

Table 2*Procrustean rotation solution for the 19 EoU-R Scale items - eight-country data*

0,46	0,77	0,39	Q1 "Incompetent industrial management with poor planning"
0,54	0,27	0,75	Q2 "Unwillingness of unemployed to move to places of work"
0,95	0,21	0,09	Q3 "Inability of unemployed people to adapt to new conditions"
0,25	0,74	0,60	Q4_N "The educational system does not correspond to the current job market"
0,64	0,24	0,61	Q5_N "Unemployed people lack self knowledge and pursue jobs not corresponding to their qualifications"
0,29	0,35	0,85	Q6_N "Unemployed people do not qualify for contemporary market needs"
0,17	0,84	0,49	Q7 "The introduction of widespread automation"
0,22	0,73	0,65	Q8_N "Lack of vocational guidance and counseling"
0,22	0,77	0,42	Q9_N "Job positions' overlap and company merging"
0,13	0,41	0,88	Q10_N "High levels of wages/salaries result into less people employed"
0,26	0,70	0,64	Q11_N "Production facilities and enterprises have been displaced at other areas or even at other countries"
0,90	0,21	0,31	Q12 "Unemployed people do not try hard enough to get jobs"
0,89	0,23	0,34	Q13 "Lack of effort and laziness among unemployed people"
-0,07	0,73	0,53	Q14_N "Employers will easier hire someone without family obligations"
0,88	0,38	0,06	Q15 "Unemployed people are too fussy and proud to accept some jobs"
0,46	0,65	0,53	Q16_N "Demographic and population changes"
0,27	0,74	0,56	Q17_N "Enterprises have embraced technology evolution"
0,19	0,79	0,54	Q18_N "Poor educational system"
0,96	-0,13	-0,02	Q19 "Lack of intelligence and ability among unemployed people" .

For the above-mentioned reasons, we decided to examine the metric qualities of our data and test for possible artefacts in the data that might be caused by extraneous factors such as response styles. Indeed, by simply plotting the 19 item-means for each of the eight countries we noticed a general haphazard pattern holding for all countries but for one; for this country the means for each of the items were higher than all other countries and were rather undifferentiated (see Figure 1). This country was Brazil and unhappily it had to be removed from the dataset in order to recalculate the MCSA solution for the remaining seven-country data. This seemed like a case of an inverse-acquiescence effect, as participants seemed to disagree with every single item. One more finding corroborated this decision. By computing the Brazilian factor structure through simple exploratory factor analysis we found that this structure was unifactorial, a fact that verified the undifferentiated manner that Brazilians used to answer the 19 questions of the EoU-R scale. Such a decision is a very difficult one for any cross-cultural dataset but it had to be taken as the factor structure was heavily burdened by the inclusion of the Brazilian data. However, the Brazilian data may be revisited in another study, under procedures that might offer a remedy for the biasing effects.

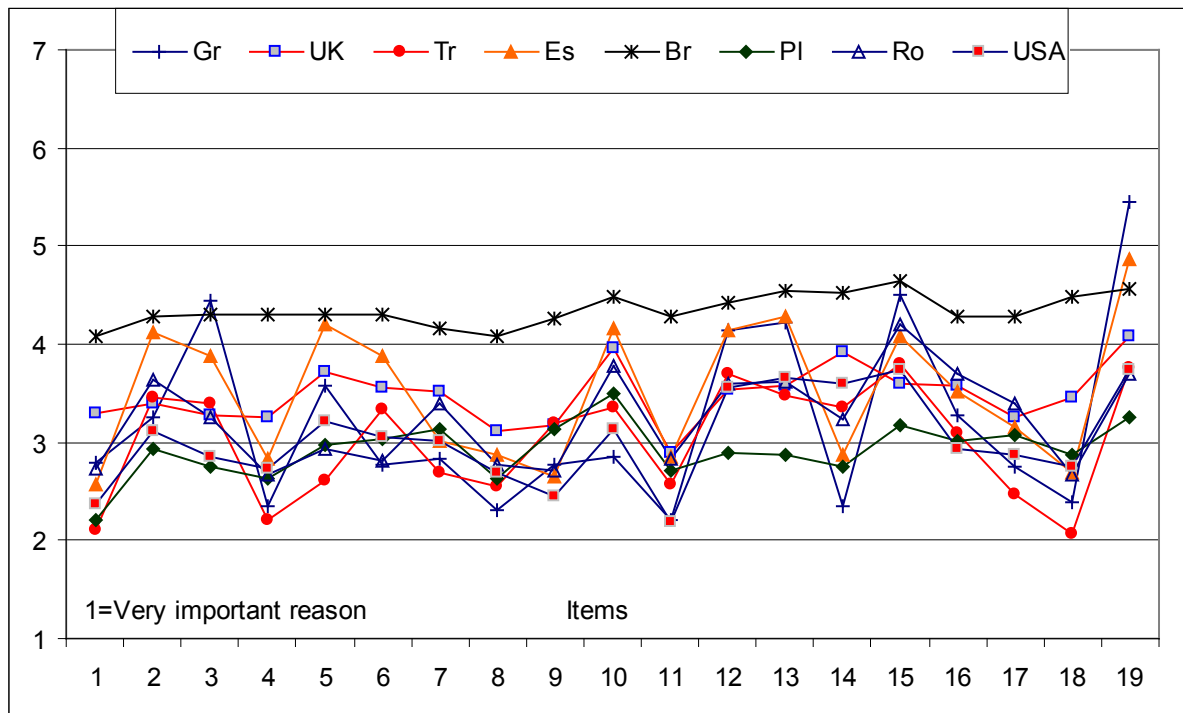


Figure 1: Means for all 19 EoU-R items by country.

With seven countries remaining in the analysis, we once again employed MCSA treating each of the seven countries as a separate unit in the analysis, analysing 1483 cases this time at the individual level and seven countries at the aggregated, higher-order, country level of analysis. The two correlation matrices were estimated and the ICC indices were once again computed. Finally, the factor structures for the two matrices were put to Procrustean rotation and the outcome is presented in Table 3.

Table 3

Procrustean rotation solution for the 19 EoU-R Scale items - seven-country data

0,40	0,82	-0,01	Q1 "Incompetent industrial management with poor planning"
0,70	-0,04	0,65	Q2 "Unwillingness of unemployed to move to places of work"
0,88	-0,17	-0,27	Q3 "Inability of unemployed people to adapt to new conditions"
-0,04	0,82	0,47	Q4_N "The educational system does not correspond to the current job market"
0,73	0,36	0,22	Q5_N "Unemployed people lack self knowledge and pursue jobs not corresponding to their qualifications"
0,27	-0,05	0,86	Q6_N "Unemployed people do not qualify for contemporary market needs"
-0,20	0,91	0,30	Q7 "The introduction of widespread automation"
-0,10	0,59	0,76	Q8_N "Lack of vocational guidance and counseling"
-0,37	-0,10	0,33	Q9_N "Job positions' overlap and company merging"
0,14	0,35	0,90	Q10_N "High levels of wages/salaries result into less people employed"
0,01	0,31	0,86	Q11_N "Production facilities and enterprises have been displaced at other areas or even at other countries"
0,95	-0,18	-0,09	Q12 "Unemployed people do not try hard enough to get jobs"
0,97	-0,01	-0,13	Q13 "Lack of effort and laziness among unemployed people"
-0,48	0,34	0,43	Q14_N "Employers will easier hire someone without family obligations"
0,82	-0,05	-0,40	Q15 "Unemployed people are too fussy and proud to accept some jobs"
0,52	0,56	0,40	Q16_N "Demographic and population changes"
0,08	0,82	0,37	Q17_N "Enterprises have embraced technology evolution"
-0,19	0,87	0,29	Q18_N "Poor educational system"
0,92	-0,02	-0,29	Q19 "Lack of intelligence and ability among unemployed people"

For this solution, the overall explained variance reached 44.69% with the first factor explaining 19.06%, the second factor explaining 14.28% and the third one explaining 11.35% of the overall variance. Seven individualistic items (six 1982 EoU items and one new item) formed the first and strongest factor. The second factor was a five-item factor mainly portraying education and industrial management reasons. Although this factor comprises the technology-evolution and automation items, these items seem to be considered as man-

agement choices and not simply of the “evolution” kind. Finally, the third five-item factor is the depiction of the helplessness the unemployed experience as they are *deprived* (low qualifications, poor vocational guidance and counseling), *underprivileged* (high salaries are given to few), and *helpless* (they cannot move to new places of work where the production lines have been displaced -possibly for taxation and labour cost reasons). Three items did not load on any of the factors and were not retained in the calculation of the factor aggregate scores; still, their factor loadings were quite high, but as target rotations produce unusually high loadings, a very high cutoff score is necessary to decide on item inclusion (in our analyses, a cutoff loading score of .60 was imposed). The factor means by country are presented in Figure 2.

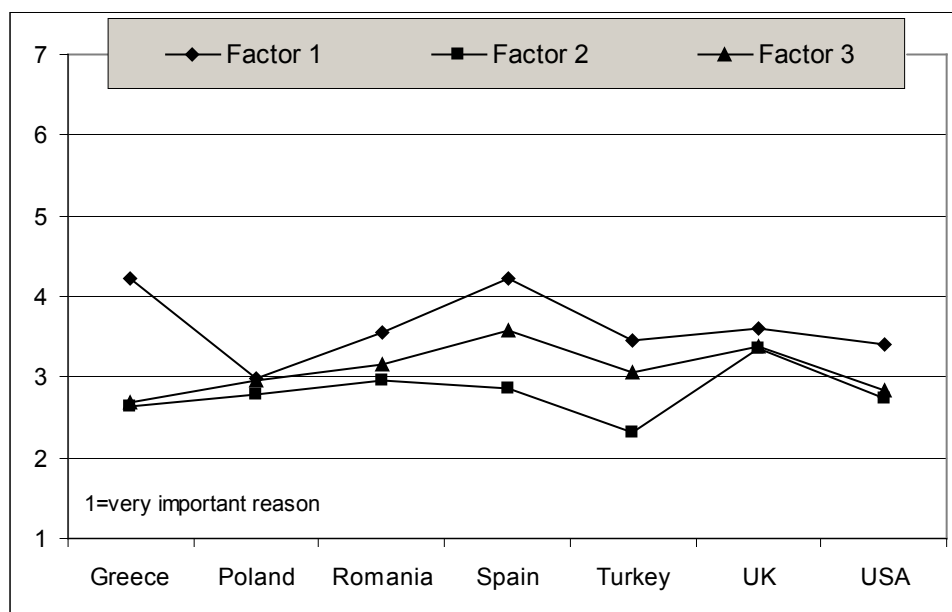


Figure 2: Mean scores for each of the three factors by country (seven-countries solution).

The overall means regardless of country are 3.68 ($SD=1.37$), 2.80 ($SD=.99$), and 3.09 ($SD=1.05$), respectively for the first, second, and third factors. A repeated measures analysis of variance design revealed statistically significant differences with the “societal” and “helplessness” explanations scored higher than the individualistic explanations ($F_{2, 2964}=418.19, p<.001, \eta^2=.22$; the quadratic contrast was statistically significant at the .001 level explaining 24% of the total variance). A closer look at each of the seven countries revealed that the factor scores differed at a statistically significant level for each and every country although the measures of association for the Polish and the U.K. data were practically zero³. For the Greek, Turkish, Romanian, Spanish, and the U.S. data, the second factor, portraying societal reasons such as industrial management and poor education was scored the highest with the “helplessness” factor closely following; the individualistic factor received the lowest scores in all five countries. Finally, through a profile analysis with repeated measures design for all seven countries, it was shown that their differences in factor scoring are not the same across countries as the parallelism of profiles hypothesis was rejected ($F_{12, 2952}=36.88, p<.001, \eta^2=.13$). The multivariate flatness hypothesis was also rejected emphasizing the overall factor scoring differences across countries.

Conclusions

This study served two purposes: (a) the revision of the EoU Scale as this would incorporate the up-to-date unemployment parameters to the scale and it would re-evaluate the original EoU items in respect to the original theory as well, and (b) gaining some understanding of factor equivalence levels for the revised EoU scale, so this revised scale could be employed in further research without the hindrance of the lack of factor invariance. Although the current results are not final, they are quite promising in terms of the new insight into

³The Polish and the U.K. samples consisted mainly by employed participants. This could be the reason for the high scores observed for the individualistic dimension, nearly matching the scores for the other two dimensions.

the explanations of unemployment issue they offer. Other methods such as country-clustering techniques could and should be employed in order to enhance bias reduction following the general framework offered by the ecocultural taxonomy hypothesis (Georgas & Berry, 1995). The EoU-R scale should also be a means to understand how unemployment and its causes are perceived both by the employed and the unemployed within the economic system of a nation, to aid intervention techniques preventing the negative consequences triggered by long term unemployment.

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