ADVANCED OUTLINE OF THE FIRST INTERNATIONAL PIAAC REPORT[1]

The development and implementation of PIAAC – A collaborative effort

Form and Style of the first international report

A key objective of the first report is to present a comprehensive coverage of the policy issues that can be addressed with the PIAAC data. This approach has important implications on the form and style of the report as follows:

- *First*, the report is envisaged to be approximately 450 pages in length. This includes 200 pages of text and a further 250 pages of charts, data tables and technical annexes. For this reason, the report will comprise two volumes. The first volume will contain results and the second volume will consist primarily of the background and other technical aspects to the study.

- *Second*, while the first report will contain some advanced analyses involving modeling and multivariate statistical analysis, this will be limited in scale and presented in a simplified format using simple to read graphics. Notes on method will be included in footnotes to corresponding annex tables and/or boxes if necessary. An extended presentation of such analyses will be reserved for the planned series of thematic reports based on PIAAC data.

- *Third*, it is envisaged that most of the indicators presented in chapters 3 to 6 of Volume I will focus primarily on one skills domain (probably literacy) due to space limitations. Indicators based on the other domains will be released as a comprehensive package via the web. However, the initial report will exploit the measurement of multiple domains where possible by creating a derived variable that reflects performance in multiple domains (*i.e.*, low performance in none, one, two or three of the assessment domains). This derived variable will be used to examine profiles and consequences of disadvantage/advantage in multiple assessment domains.

- *Fourth*, a more in depth analysis of proficiency in problem solving in technology-rich environments and of the assessment of reading components will be reserved for the planned series of thematic reports based on PIAAC data.

The first report will contain approximately 100-120 indicators. It is envisaged that each section presenting a set of indicators will begin by contextualizing the relationship to be examined. Examples of questions that will be addressed in setting the context include: *Why are these relationships important for policy? What does other research and evidence say about these relationships? How does PIAAC add value?* The presentation and analysis of indicators to follow will be oriented toward a non-technical policy audience using graphics only. Corresponding tables with point estimates and standard errors for experts and other interested persons will be made available for each chart in an annex to each chapter contained in the report. In analysing the indicator, an emphasis will be placed on identifying overall patterns and insights that can be gleaned from the data chart with only a very limited write up of the numbers and details contained in the charts and corresponding data tables. Countries will be identified or listed in limited ways, for example, when countries deviate from identified patterns and/or certain patterns of results can be linked to specific country contexts. More precisely, examples of questions that will be used to analyse and summarize indicators include: *What are the one to three most interesting patterns that can be gleaned from the chart? Are there any identifiable links between patterns and country specific contexts? What insights can be derived from the data presented? What can be learned vis-a-vis policy relevant implications that are briefly outlined?* Finally, key summary points highlighting insights and other implications for policy, practice and research will conclude each chapter.

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[1] REFERENCE: Excerpt from OECD document COM/DELSA/EDU/PIAAC (2012) 6 – PRODUCING THE FIRST INTERNATIONAL REPORT FOR PIAAC AND THE REPORTING OF DATA

In summary, in presenting the data from PIAAC in the first international report, an emphasis will be placed on:

- Motivating the analysis by outlining briefly the policy relevant context
- Describing briefly the added value of PIAAC
- Highlighting a small number of patterns that can be gleaned from the charts presented
- Identifying countries in limited ways when countries deviate from major patterns and/or when patterns can be linked to specific country contexts
- Drawing out policy relevant implications of the issues that can be related to the data presented.

THE OBJECTIVES AND BROAD CONTENTS OF THE TWO VOLUMES OF THE FIRST INTERNATIONAL REPORT ARE PRESENTED IN SUMMARY FORM BELOW

VOLUME I: OECD SKILLS OUTLOOK: FIRST RESULTS FROM THE OECD SURVEY OF ADULT SKILLS

EDITORIAL – FIRST EDITION OF THE OECD SKILLS OUTLOOK

CHAPTER 1: THE SKILLS NEEDED FOR ADAPTING TO CHANGE IN THE 21ST CENTURY

Introduction
Structural change in the economy and society

The pervasive role of technological change
 ❖ The continuing spread of computers and ICTs
 ❖ Skill biased change in production structures
 ❖ Skill biased change in occupational structures and job tasks
 ❖ Skill biased change in modes of service provision
 ❖ Skill biased change in patterns of consumption

Other key factors involved in structural change
 ❖ Skill biased change in work and organizational practices
 ❖ Globalisation
 ❖ The expansion of formal education
 ❖ Demographic change and ageing: the need to invest in skill formation over the lifespan
 ❖ Institutional variation

Impact on the demand for text-based processing skills
 ❖ Trends in processing text-based information at work
 ❖ Trends in processing text-based information outside work

Summing up the implications for policy

CHAPTER 2: **CROSS-COUNTRY COMPARISONS OF THE LEVEL AND DISTRIBUTION OF ADULT SKILLS DIRECTLY MEASURED IN PIAAC**

Introduction
Comparing the average level of adult skills
 ❖ On the PIAAC literacy scale
 ❖ On the PIAAC numeracy scale
 ❖ On the PIAAC problem solving in technology rich environments scale
Comparing the distribution of adult skills
 ❖ On the PIAAC literacy scale
 ❖ On the PIAAC numeracy scale
 ❖ On the PIAAC problem solving in technology rich environments scale
Comparing the lowest performers on the literacy scale using reading component measures
Comparing low performance in multiple domains
Comparing changes in the distribution of literacy and numeracy skills
Summing up the implications for policy
Annex 2. Data values for the figures

CHAPTER 3: **HOW IS SKILL PROFICIENCY DISTRIBUTED AMONG VARIOUS SOCIO-DEMOGRAPHIC GROUPS IN DIFFERENT COUNTRIES?**

Introduction
 ❖ Age
 ❖ Gender
 ❖ Educational attainment
 ❖ Immigration status
 ❖ Language status
 ❖ Parents' education (socioeconomic status)
 ❖ Occupational status
A summary of the relative importance of socio-demographic characteristics linked to low skill proficiencies
Synthetic contrast groups
Summing up the implications for policy
Annex 3. Data values for the figures

CHAPTER 4: **THE SKILL PROFICIENCY OF WORKERS AND THE USE OF THEIR SKILLS IN THE WORKPLACE**

Introduction
The skills of the labour force
 ❖ Skill utilization in the workplace
 ❖ Education and skill mismatch

Summing up the implications for policy
Annex 4. Data values for the figures

CHAPTER 5: DEVELOPING AND SUSTAINING FOUNDATION SKILLS

Introduction
- ❖ Skill-age profiles
- ❖ Educational experience
- ❖ Organized adult learning practices
- ❖ Work practices and other structural characteristics of the job
- ❖ Social, cultural and other daily practices outside work

A summary of the relative importance of practice-oriented and socio-demographic factors linked to the development of skill proficiencies
Summing up the implications for policy
Annex 5. Data values for the figures

CHAPTER 6: THE LINK BETWEEN FOUNDATION SKILLS AND OUTCOMES

Introduction
Economic outcomes of adult skills
- ❖ Employability
- ❖ Earnings

The structural inequality of adult skills
- ❖ Social outcomes of adult skills
- ❖ Trust
- ❖ Political efficacy
- ❖ Volunteering
- ❖ Health

Summing up the implications for policy
Annex 6. Data values for the figures
REFERENCES
ANNEX A. TECHNICAL BACKGROUND
Annex A1. Notes on Indices

VOLUME II: THE BACKGROUND OF THE OECD SURVEY OF ADULT SKILLS (PIAAC)

CHAPTER 1: WHAT IS THE PIAAC STUDY?

Introduction
An overview of PIAAC
The competence related concepts that are measured
- ❖ Skills domains
- ❖ Engagement in skill related practices at work and outside work

How the concepts are measured
An analysis of the correlation among the skills directly measured
The relationship of PIAAC to previous adult skills surveys
Organization of the report

CHAPTER 2: PIAAC SURVEY METHODOLOGY

Introduction
- ❖ Survey methodology
- ❖ Assessment design
- ❖ Target population and sample frame
- ❖ Sample design
- ❖ Sample size
- ❖ Data collection
- ❖ Scoring of tasks
- ❖ Survey response and weighting

CHAPTER 3: PIAAC ASSESSMENT INSTRUMENTS

Introduction
Scaling the literacy, numeracy and problem solving (in technology rich contexts) skills

Measuring literacy in PIAAC
- ❖ Defining literacy
- ❖ Examples of literacy tasks

Measuring numeracy in PIAAC
- ❖ Defining numeracy
- ❖ Examples of numeracy tasks

Measuring problem solving in technology rich environments in PIAAC
- ❖ Defining problem solving in TRE
- ❖ Examples of problem solving in TRE tasks

REFERENCES
ANNEX A. FURTHER TECHNICAL BACKGROUND
Annex A1. Response probabilities in PIAAC (RP80 vs RP67)
Annex A2. PIAAC governance, standards and quality assurance
ANNEX B. THE DEVELOPMENT AND IMPLEMENTATION OF PIAAC – A COLLABORATIVE EFFORT

PROPOSED THEMATIC ANALYSES USING PIAAC DATA[2]

The following 11 topics were recently presented as possible topics for a programme of in-depth thematic analyses using data from PIAAC. The choice of possible topics was based on a consideration of the relevance of the policy issues addressed, the areas in which PIAAC can add value to the existing knowledge base and the feasibility of the analysis.

At this point the topics remain suggestions, as the PIAAC BPC has not yet determined the scope or content of a programme of thematic analysis following release of the first international report in October 2013.

- TR 1:   Digital literacy, problem solving in Technology Rich Environments and using ICTs

    This report will focus on the assessment of problem solving in technology-rich environments, the concept of digital literacy that was embedded in the literacy domain, as well as the extent of ICT use both at work and outside work. The purpose is to build a better understanding of the competencies of adult populations in coping with an increasingly ICT based environment both in the workplace and outside work. The analysis will build on what is presented in the first international report and allow for a more in-depth analysis. The report will be organized into to five chapters as follows. The first will focus on the ICT and TRE concepts that were measured, and why these are important in our everyday lives. The second chapter will provide a descriptive comparative analysis by focusing on levels and distributions of the ICT and TRE related measures. The third chapter will look at how problem solving skills, digital reading and other ICT related practices are distributed across key socio-demographic characteristics like: age, education, gender, native and labour force status, type of occupation, e-learning participation and literacy skills. The fourth chapter will focus on ICT and TRE in the workplace. And the final chapter will examine the outcomes (*e.g.* return to skills and employability) that are associated with different profiles of technology use and technology related competencies.

- TR 2:   A closer look at the population with low levels of proficiency

    This report will focus on low skilled adults scoring at Levels 1 and 2 on the various domains as well as the reading components measured in PIAAC. The purpose is to consider the learning needs of different groups of low skilled adults and shed light on how to improve the literacy of low skilled adults (Level 1 and 2). The report will be organized into four chapters as follows. The first chapter will present an overview of the characteristics of adults who perform at levels 1 and 2 on PIAAC's various domains, including their distribution by age, gender, education and other socio-demographic variables. The second chapter will introduce the reading component measures and provide a detailed comparative profile of each component (vocabulary, spelling, word recognition). The third chapter will examine latent profiles of component skills among various synthetic contrast groups so as to understand better the socio-demographic make-up of groups with specific reading needs. Chapter 4 will conclude with a discussion of what the various patterns imply for policy and practice.

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[2] REFERNECE: OECD Document 6b – PROPOSED THEMATIC ANALYSES USING PIAAC DATA

TR 3: The use of skills in the workplace

This report will focus on skills requirements at work. The purpose is to look at how skills are used in the workplace by exploiting the wide range of specific skill requirements made available by PIAAC. The report will be organised in four chapters as follows. The first chapter will provide a descriptive comparative analysis of skills requirements. Chapter 2 will explore the variation of these direct measures of skills requirements across other commonly used indicators such as occupation codes and qualification levels. Chapter 3 will examine differences in skills requirements across countries, industries and firm characteristics. Chapter 4 will look at differences across socio-demographic characteristics and explore whether these differences are correlated with observed skill levels or result from other factors such as choice, discrimination or mismatch. The last chapter will present evidence on skill biased technical change, changing work practices and changing skill requirements in the workplace by exploiting PIAAC jointly with IALS and ALLS.

- TR 4: Skills mismatch

  This report will expand on work previously conducted by OECD on skills mismatch. PIAAC will offer a unique opportunity to develop a direct measure of mismatch by comparing observed individual skill levels to job skills requirements. More specifically, in addition to shedding light on skills underutilisation and its causes and consequences, this direct measure will allow exploring the existence of and reasons behind skills deficits. Chapter 1 will present cross-country evidence of skills mismatch based on this more precise measure and compare it with alternative measures commonly used in the literature, including both self-reported mismatch indicators and measures based on qualification attainment and requirements. Chapter 2 will attempt to disentangle the link between skills mismatch and mismatch in terms of field of study. Chapter 3 will explore the variation in skills mismatch across specific socio-demographic characteristics, notably gender, age, educational attainment and nature of qualification (vocational versus academic), immigration status, family composition, job characteristics and job requirements. Chapter 4 will explore the consequences of skills mismatch on wages, job satisfaction and training participation. The final chapter will attempt to draw conclusions on the evaluation of skills mismatch over time by exploiting IALS and ALLS.

- TR 5: Ageing, separating age-period-cohort effects, and the development and sustenance of key cognitive skills over the lifespan

  This report will examine various factors that are thought to be important for acquiring and maintaining skills as well as changes in skills over time. The purpose is to understand better the factors that are implicated in the development and sustenance of skills from both a life cycle perspective at the individual level as well as the structural perspective at the country level. The analysis will build on the analysis presented in chapter 5 of the first international report but with greater emphasis on trend analysis in order to separate age, period and cohort effects. The first chapter will focus on changes in the supply of skills. In exploiting the data for countries who participated in IALS, ALLS and PIAAC, the second chapter will attempt to separate age, period and cohort effects; assess skill appreciation and depreciation; and assess whether increases in educational attainment are reflected in improvements of skills over time. The third chapter will investigate the micro determinants of skills for all PIAAC participating countries including educational experiences, practice engagement and socio-demographic profiles. The fourth and final chapter will investigate the macro determinant of skills by focusing on institutional and other system level factors.

- **TR 6.:Skill formation among adults: participation patterns in adult education and training**

  This report will focus on participation patterns in adult education and training. The purpose is to use comparative adult learning data to identify international patterns of who is and who is not participating in adult learning, including unequal chances to participate; and to discuss various motivating factors that can help to explain observed inequalities in participation. The first chapter will map out participation patterns across countries. The second chapter will update analyses on the sociodemographic make up of participation and integrate findings from other adult education survey data such as the EU adult education and training survey. The third chapter will consider the role of work, the economy and employer financing in the training of adults, and in doing so integrate other data sources such as the EU Continuing Vocational Education and Training survey. The fourth chapter will attempt to identify individuals for whom employers' provision was a barrier in training participation from those for whom workers' demand was low. This will allow identifying and discussing the right policies for the right group of workers in the final chapter.

- **TR 7.The cognitive foundation skills of youth**

  This report will focus on the skills of youths. The purpose is to investigate the inequalities in cognitive foundation skills among youths and the factors that drive differences including parental background, educational attainment, tracking, the quality of education and ICT related practices. The first chapter will present a comparative overview of youths' skills and conduct a trend analysis with previous adult skills surveys for countries where this is possible to do so. The second chapter will focus on equity, socioeconomic gradients, and social mobility. The third chapter will address the skills outcomes of different learning pathways (*e.g.* leaving at the end of compulsory schooling, completing a full secondary education, undertaking tertiary studies) and their interaction with participation in the labour market. The fourth chapter will consider the quality of education as reflected in the variability of cognitive foundation skills as well as the link to PISA. PIAAC respondents aged 16-27 will belong to cohorts that have been the subject of evaluation in PISA in most participating countries, thus permitting an analysis of the relationship between the outcomes of the two studies for the under 30 age group.

- **TR 8.The skills and qualifications of immigrants in comparative perspective**

  This paper will focus on the skills of immigrants differentiating between immigrants whose qualifications were acquired in the host country and those whose qualifications were acquired elsewhere and between first and second generation immigrants. The purpose is to explore important issues such as: *i.* whether returns to skills depend on where the qualifications and work experience were acquired; *ii.* the relationship between outcomes and measured skills as opposed to formal qualifications; and *iii.* the role of language proficiency in the labour market outcomes and occupational choices of immigrants. The first chapter will present a comparative overview of the skills of immigrants by socio-demographic characteristics as well as by place where qualifications were acquired. The second chapter will consider the labour market performance of immigrant, the returns to their skills and the extent to which their skills may be underutilised. The third chapter will consider the social integration of immigrants by examining skills use outside of work, as well as social outcomes such as trust, volunteering and political efficacy.

- TR 9. The social outcomes of skills

  This report will focus on the social outcomes that are linked to skills. It will build on chapter 6 in the first international report allowing for more in-depth analysis of the relationship between

  skills, education, trust, political efficacy, volunteering, and health. The first chapter will provide a brief overview of what is known empirically about the relationship between education, skills and various social outcomes. The second chapter will focus on understanding the mediating role that the specific skills measured in PIAAC may play in the observed link between education and social outcomes. A structural model will be applied to the PIAAC data in an attempt to identify the role skills play in raising social outcomes, and the mediating role of skills between education and social outcomes. The analysis will take account of various background and other mediating variables such as training, and work and everyday practices. The third chapter will summarise in depth analysis of the effects of skills on social outcomes on the basis of longitudinal data sources (*e.g.,* UK NCDS and US PSID/NLSY). The focus will be on identifying the effects of skills developed during the early stages of the lifecycle on social outcomes later in adulthood. The final chapter will conclude with a discussion of the implications of the evidence for policy and practice.

- TR 10.   Skills and GDP growth

  This report will focus on the effect of skills on GDP growth. It will be more technical in nature because it involves the construction of a synthetic time series with a number of assumptions as well as advanced econometric modelling. The availability of comparable measures from IALS in 1994 to ALLS in 2003 and PIAAC in 2011 will significantly improve the quality of previous attempts to construct such times series, as well as endogenous growth studies seeking to correct for high rate of measurement error in first-differenced cross-country education data.

- TR 11.   Skills and labour market outcomes

  This report will focus on the link between skills and labour market outcomes, notably in terms of relative earnings and the likelihood of being employed. Chapter 1 will explore the link between the likelihood of being employed and individual skills as emerging from the direct assessment, field of study and whether studies were general or vocational, along with some individual characteristics. This investigation will be supplemented by an analysis of how the identified relationships vary across countries as a function of different policy and institutional settings in the labour market and in education and training. Chapter 2 will explore the relationship between wages and the same skills variables mentioned above to assess the returns to skills, field of study and general/vocational education. Chapter 3 will compare workers and unemployed/inactive individuals based on their current or recent employment experience. The chapter will look at the use of generic, interpersonal and communication skills as potential determinants of employability. Sensitivity of the results to the time elapsed since the last job should be explored to account for the fact that self-reported skills use at work will be less reliable the longer this period has been. Corrections may also be required for selectivity into the sample, because the data will only cover the non-employed who have been in employment at some stage in the previous year.