Data sources currently available to ICBS on adult education

The Survey of Vocational Training Institutions

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June, 2014

SOME KEY BACKGROUND QUESTIONS

HOW CAN WE INTEGRATE OUR DATA SOURCES TO ESTIMATE THE ACTUAL SIZE OF ADULT EDUCATION, AS ACCURATELY AS POSSIBLE?

HOW CAN WE ACCOUNT FOR MULTIPLE COUNTS WHICH MIGHT HINDER SUCH ESTIMATION?

A unique data source on adult education currently available to ICBS is the Survey of Vocational Training Institutions.

The original purpose of this survey[1] was to capture the population of Short-cycle Tertiary institutions and students not covered by administrative files. For this purpose, questionnaires were annually sent to each relevant educational institution[2], which were expected to fill aggregate student counts by various breakdowns. The counts obtained from this survey were then added to the figures obtained on this level from the Ministry of Education (teacher training non-academic tracks, technicians' and practical engineers' programmes supervised by this Ministry) and the Ministry of Economy (technicians' and practical engineers' programmes supervised by this Ministry). Official statistics on Short-cycle Tertiary education in Israel is then based on the Ministries' administrative files plus the

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[1] Then named "Survey of Post-Secondary Institutions".
[2] The source is the ICBS Business register. All relevant institutions are addressed. Since there is no sampling involved, this survey can rather be considered a census.

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additional survey data (see Annex A). This practice lies on the assumption that there are programmes not supervised by the State, but which comply with the ISCED Level 5 definition as for content, length, intensity and entry requirements.

In 2013 a thorough reform was introduced to this survey as for its target population, and it is currently directed to all institutions running educational programmes for adults. Stemming from the hardship to discern institutions running Short-cycle Tertiary programmes from other adult education institutions, it was decided to actively cover data for both categories, seeking to positively cater for all adult-oriented formal and non-formal education, and only after collection to use the collected information to discern between the different programme types.

Aggregated data reported by institutions

A special challenge posed by this survey is the fact that it is collected through questionnaires being filled by the educational institutions. Since it's not feasible to receive detailed, individual and identified data in these reports, the sort of data thus obtained is aggregative, so for every reported programme we only have student counts by age and sex, and counts of new entrants (see questionnaire excerpt on Annex C).

The challenge lies in the need to integrate this data with individual records obtained from administrative data files. For this aggregate type of data there is no record matching option available, so we might not be able to make sound estimates of double counts between the different sources.

We may assume that such duplicities would be generally negligible, except for those cases where we might be double-counting programmes and institutions, and not just students. That is, programmes reported to our survey could appear on the Ministry of Economy vocational training files as well. One major challenge to address is learning to deal with this possible duplicity, and devising ways to tackle its potential statistical threats. One possible approach could be to try and identify the providers of these programmes at both the Ministry of Economy's files and the ICBS Business Register.

Such an exercise could not only end up in more accurate statistics, but it could also help lower response burden on institutional respondents.

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The algorithm used for identifying non-formal education

In what follows, we seek to describe the process by which the collected data is allocated either to the "Short-cycle Tertiary" or "Non-formal education" categories.

The current format of the survey means not just a larger scope, but also moving from a survey with one pre-defined target population (Short-cycle tertiary programmes) to a survey which includes a priori at least two different categories (Short-cycle tertiary programmes and non-formal adult programmes) thus transferring the allocation of the programmes by category to a later stage, following data collection itself.

Discerning formal from non-formal programmes is a challenge, and this case can be seen as an exercise in the local operationalization of ISCED 2011 Level 5 – as well as of adult non-formal education as a default byproduct of this process.

The minimum length required for a programme to be considered (formal) tertiary education is of full-time 2 years (see ISCED definition in Annex B). A thorough investigation was then initiated in ICBS so as estimate the equivalent of this length in academic hours, which is for this purpose the most relevant type of information collected by the survey. After applying the length and other criteria, the resulting algorithm for classification was devised, as depicted in the following chart:
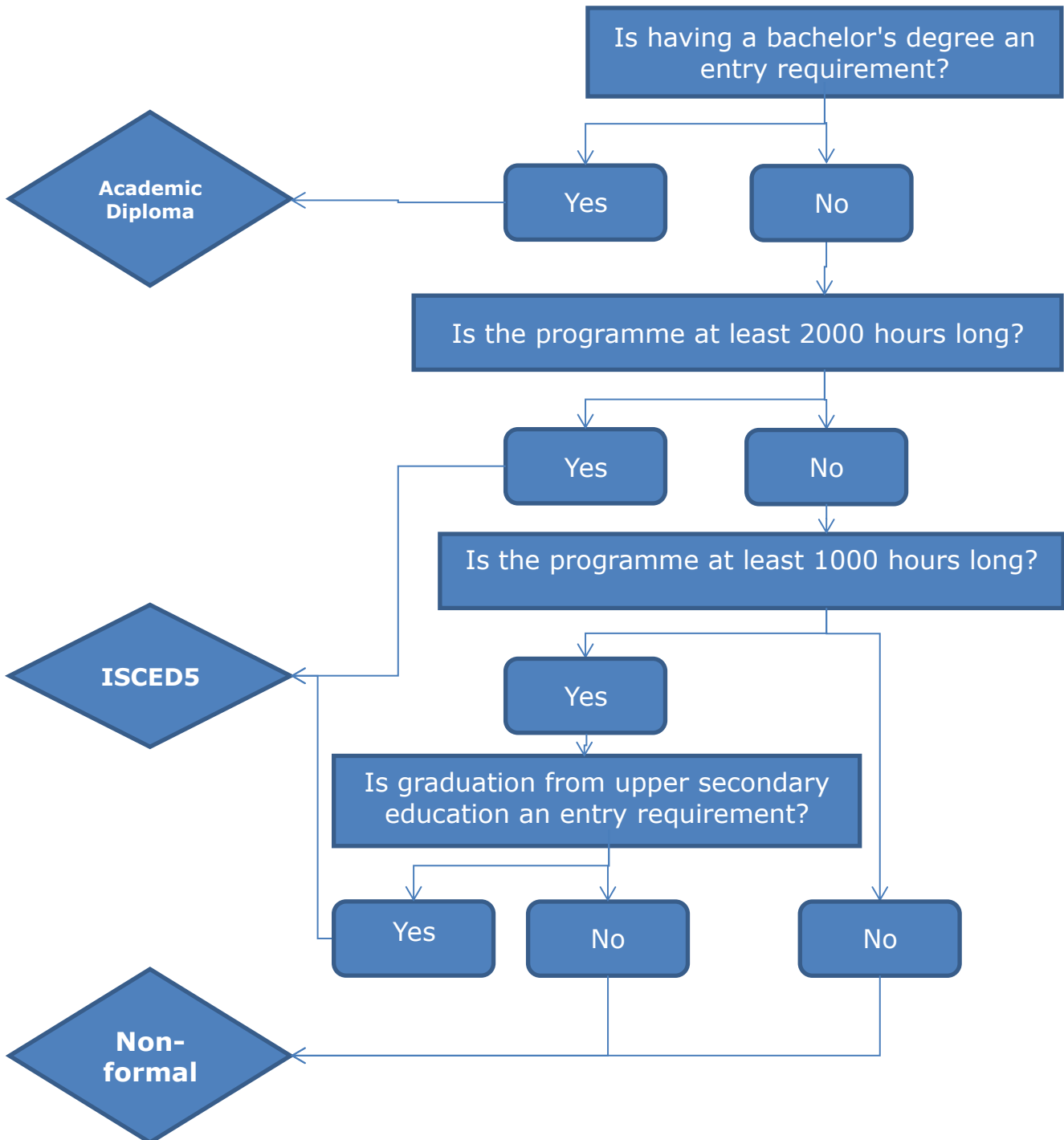
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                          ┌─────────────────────────────┐
                          │ Is having a bachelor's degree│
                          │   an entry requirement?     │
                          └─────────────────────────────┘
                              │                  │
                        ┌─────────┐        ┌─────────┐
      ◇ Academic   ←────│   Yes   │        │   No    │
        Diploma         └─────────┘        └─────────┘
                                                │
                          ┌─────────────────────────────┐
                          │ Is the programme at least    │
                          │     2000 hours long?         │
                          └─────────────────────────────┘
                              │                  │
                        ┌─────────┐        ┌─────────┐
                        │   Yes   │        │   No    │
                        └─────────┘        └─────────┘
                                                │
                          ┌─────────────────────────────┐
                          │ Is the programme at least    │
                          │     1000 hours long?         │
                          └─────────────────────────────┘
                              │                  │
        ◇ ISCED5    ←────┐ ┌─────────┐
                           │   Yes   │
                           └─────────┘
                          ┌─────────────────────────────┐
                          │ Is graduation from upper     │
                          │ secondary education an entry │
                          │       requirement?          │
                          └─────────────────────────────┘
                           │           │              │
                     ┌─────────┐ ┌─────────┐    ┌─────────┐
                     │   Yes   │ │   No    │    │   No    │
                     └─────────┘ └─────────┘    └─────────┘
        ◇ Non-
          formal   ←──────────────────────────────
```

- Is having a bachelor's degree an entry requirement?
  - Yes → Academic Diploma
  - No → Is the programme at least 2000 hours long?
    - Yes → ISCED5
    - No → Is the programme at least 1000 hours long?
      - Yes → Is graduation from upper secondary education an entry requirement?
        - Yes → ISCED5
        - No → Non-formal
      - No → Non-formal

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A category which was initially unknown of was created ad-hoc for programmes aimed at Bachelor's degree graduates. This category still requires analysis, and may be considered as formal education after consultations with higher education specialists.

Programmes similar in length and intensity to practical engineer's programmes (for which we have individual, detailed data, and are considered to be the most obvious case of ISCED Level 5 in Israel), that is, at least 2000 hour-long, are almost automatically considered to be ISCED 5. Although for the sake of the algorithm no such requirement was used, in fact all cases found to comply with the length requirement also complied with the entry requirement of upper secondary graduation[3].

For borderline cases as for length (1000-2000 hours) it was deemed a mandatory condition for the programme to have an entry requirement of upper secondary graduation in order to be classified as ISCED Level 5.

As can be learned from the above chart, all programmes which failed to comply with these length and entry requirements were classified as non-formal adult education.

Some final thoughts

In the case described in this document, the definition of "non-formal" education was derived empirically from the survey data, in an ad-hoc effort to define the Short-cycle Tertiary population within the survey and its complementary categories. This is opposed to a deductive method, in which a theoretical, rather than operational, definition is elaborated. The downside of the inductive method used in this case is the potentially limited ability to generalize. If we try to add new data sources to a category which was defined in a such a way, it will become imperative to define a priori its relevance to our data collection, especially so if we aim at making it internationally comparable at some point.

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[3] The exception made for these programmes of not considering the entry requirement has to do with too many missing values in the entry requirement field.

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Annex A

POST-SECONDARY EDUCATION (NON-ACADEMIC)
STUDENTS IN TERTIARY TYPE B EDUCATION(1),
BY FIELD OF STUDY(2), YEAR OF STUDY, SEX AND AGE

Year of study, sex and age / Other אחר	Arts, design, and architecture אמנויות, עיצוב וארכיטקטורה	Clerical work, law, administration, economics etc. פקידות, משפטים, מינהל, כלכלה ודומיהן	Para-medical occupations מקצועות עזר רפואיים	Qualified nurses אחים/יות מוסמכים/ות	Practical engineering, technical work, etc. הנדסאות, טכנאות ודומיהן	Teacher training (3) הוראה(3)	Total סך הכל	שנת לימוד, מין וגיל
1,265	876	1,364	600	1,177	4,793	5,442	15,517	תשל"א 1970/71
1,801	1,835	2,353	607	1,219	7,355	11,057	26,227	תשל"ה 1974/75
1,737	1,375	2,176	475	1,961	7,857	11,770	27,351	תש"ם 1979/80
874	1,003	2,384	748	1,567	13,288	11,872	31,736	תשמ"ה 1984/85
807	1,503	1,944	742	1,273	10,747	8,291	25,307	תש"ן 1989/90
1,339	4,541	6,905	738	1,334	18,245	9,446	42,548	תשנ"ה 1994/95
2,385	5,410	7,084	510	2,056	27,092	11,059	55,596	תש"ס 1999/00
4,031	3,705	5,083	2,952	2,376	27,259	13,005	58,411	תשס"ז 2006/07
2,726	3,651	3,959	1,701	2,419	30,540	15,303	60,299	תשס"ח 2007/08
2,966	3,813	4,245	1,159	1,947	32,532	15,317	61,979	תשס"ט 2008/09
3,161	4,540	3,818	1,363	1,974	32,993	17,560	65,409	תש"ע 2009/10
2,030	3,376	4,486	1,526	1,963	32,889	19,117	65,387	תשע"א 2010/11
4,172	**4,433**	**5,804**	**3,209**	**2,100**	**35,610**	**18,060**	**73,388**	**תשע"ב 2011/12 -**
								סך כולל GRAND TOTAL
3,355	*4,418*	*5,455*	*3,039*	*1,900*	*33,068*	*18,060*	*69,295*	*חינוך עברי - סך הכל* Hebrew education - total
								שנת לימוד YEAR OF STUDY
2,855	2,010	4,353	2,149	908	16,639	6,349	35,263	א 1
458	1,614	1,064	447	605	11,661	5,373	21,222	ב 2
29	659	38	263	362	4,768	4,946	11,065	ג 3
13	135	-	180	25	-	1,392	1,745	ד 4
								מין SEX
1,723	1,543	938	830	332	23,730	3,532	32,628	גברים Men
1,632	2,875	4,517	2,209	1,568	9,338	14,528	36,667	נשים Women
								גיל AGE
914	1,978	2,044	631	747	17,000	13,973	37,287	עד 24 Up to 24
1,111	1,735	1,573	859	358	8,881	1,564	16,081	29-25 25-29
1,330	705	1,838	1,549	795	7,187	2,523	15,927	30+ +30
817	*15*	*349*	*170*	*200*	*2,542*	*-*	*4,093*	*חינוך ערבי* Arab education

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Annex B – Excerpt from the ISCED 2011 definition of Level 5

16. ISCED LEVEL 5 – SHORT-CYCLE TERTIARY

A. PRINCIPAL CHARACTERISTICS

207. Programmes at ISCED level 5, or "short-cycle tertiary" education, are often designed to provide participants with professional knowledge, skills and competencies. Typically, they are practically based, occupationally specific and prepare students to enter the labour market. However, programmes may also provide a pathway to other tertiary education programmes. Academic tertiary education programmes below the level of a bachelor programme or equivalent are also classified as ISCED level 5.

208. Entry to ISCED level 5 programmes requires the successful completion of ISCED level 3 or 4 with access to tertiary education. Programmes at ISCED level 5 have more complex content than programmes in ISCED levels 3 and 4, but they are shorter and usually less theoretically oriented than ISCED level 6 programmes.

209. Although ISCED level 5 programmes are usually designed to prepare for employment, they may give credit for transfer into ISCED level 6 or 7 programmes. Upon completion of these ISCED level 5 programmes, individuals may in some education systems continue their education at ISCED level 6 (bachelor or equivalent) or long first degree ISCED level 7 (master or equivalent) programmes.

210. Programmes to be classified at ISCED level 5 are referred to in many ways across the world, e.g. master craftsman programme, (higher) technical education, community college education, technician or advanced/higher vocational training, associate degree or bac + 2 programmes. For international comparability purposes the term "short-cycle tertiary" is used to label ISCED level 5.

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Annex C

Programme questionnaire, January 2014

Identification number

1. Name of programme_____

2. Name of location where programme takes place

3. Number of study hours requested for completion of the programme _____

4. Number of months over which the programme extends_____

5. Study time (morning, evening, morning and evening) _____

6. Entry requirements:
   1. Completion of high school or matriculation exam
   2. Completion of lower yeshiva
   3. Interview or classification test
   4. First academic degree
   5. Short-cycle tertiary education diploma
   6. Other, pls supply details: _____

7. Professional body which grants certification (in addition to institution of study)
   1. State office (like Ministry of Economy, Health, Education): _____
   2. Professional association (like accountants' association): _____
   3. Other societies (like Israel society of stocks): _____

8. Number* of students in programme, as of January 2014
   pls don't include:
   1. Students in a recognized academic programme
   2. Students in a recognized programme for practical engineers/technicians
   3. Students in grades 13-14 of high schools
   4. Students in secondary education or preparatory courses for academic studies
   *where no accurate numbers are available, supply estimate

Total students in programme	Age groups			Gender		
	Age 30 and above (born 1983 and earlier)	Age 25-29 (born 1984-1988)	Age 24 or younger (born 1989 and later)	Male	Female	
						Total
						Thereof new students

New students: students who started their studies after Oct 1, 2013 and did not continue an earlier term