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VET producing second class citizens? Comparative analyses of the VET and tertiary education nexus

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Introduction

This chapter tackles the questions related to citizenship in a rather indirect manner. Acquisition of educational credentials at a basic stage is today commonly agreed as a kind of citizens' right, and we also know that the opportunity of access to these credentials that is unequally distributed everywhere, is also dependent on the institutional structure of education. One of the major changes in educational structures of the last decades has been to shift from organisationally tracked structures at the lower secondary level to comprehensive structures until the end of compulsory schooling, and this change has been motivated by an increase of equality of opportunity in access to educational credentials. The split between 'higher'- and 'lower'-level programmes has been postponed to a stage after compulsory education by this change. Some countries, however, have not followed this change until recently, and among these countries we find some commonly known as comprising comparatively successful VET systems at upper secondary level, among them Austria, Germany, and Switzerland.

Another major structural change in education during recent decades has been that (part of) the more advanced VET institutions have been upgraded to the post-secondary or tertiary level, thus leading to more differentiated and broader higher education systems that include more vocationally or professionally oriented institutions besides traditional universities. This change conventionally called 'mass higher education' is closely related to a change in the previous educational careers, as the access to the postponed VET-programmes or institutions shifted – at least to some degree – to the programmes that previously were the pipeline towards the traditional universities. Historically, in the tracked structures, these had been the

[1] In: Marhuenda-Fluixá, Fernando, Ed. (2017) Vocational education beyond skills formation. VET between civic, industrial and market tensions. Bern: peter lang, p.411-434; see also the presentation at the conference: http://www.equi.at/dateien/valencia-pdf.pdf

more or less elitist higher-level academic school in general education (gymnasia, and the like), that have also broadened in their access structure.

Taken together the two structural changes of comprehensiveness at the lower secondary level and 'mass higher education' at the tertiary level, however, have given some leeway for the upper secondary level, where VET traditionally had been situated, and the relationship between vocational and general (academic) has become much more complex than before.

In terms of standard careers and equality of opportunity these changes have been appraised quite ambiguously, and to some part controversial. The comprehensive structure seems widely established and is currently opposed only in a few countries, while influential players (e.g., European Commission or OECD) also expect it to increase equality of opportunity. Mass higher education, however, has always been perceived more contradictorily. On the one hand it expands access to education, as more young people prolong their education careers. On the other hand the expanded access towards higher education involves institutional differentiation and is spread across a wider spectre of programmes and/or institutions, which carry higher or lower levels of value and esteem. Two classical formulations, coined by famous (but somehow forgotten) publications, have characterised these ambiguities in case of the US 'Community Colleges', where these changes have occurred earlier than in most other countries. One is that of the 'diverted dream' (Brint/Karabel 1989), and the other is that of 'cooling out' (Clark 1960, 1980). The message is twofold: first that the broadening of higher education by vocationally oriented institutions would divert some part of the younger people, mostly from less privileged backgrounds, towards educational careers that are of lower value than those they would have accessed in the previous structure; second, that this decision would be (seemingly) transferred from institutional selection procedures to the 'choice' of individuals (the 'diversion'), thus hiding the still working tracking mechanisms of the institutional structure. The cooling out mechanism includes as a decisive element the institutionalisation of guidance procedures as a (partly) substitute for selection procedures.

The two structural changes thus have shifted the main selection procedure from the lower secondary level in traditionally tracked structures to the stage of access to higher education, and have simultaneously changed the selection procedures by on the one hand expanding the pool of individuals potentially selected for higher education and on the other hand by shifting the focus of selection from 'externally' decisions predefined by structures towards 'internal' decisions by the individuals in more 'permeable' structures. Through the quantitative

expansion towards mass higher education, access has become much more of a successful standard career, which has previously been the acquisition of decent employment after secondary education, including kinds of vocational education and/or training. This shift towards higher education has also – overtly or silently – changed the structures and positioning of upper secondary education that increasingly became a transitional stage between compulsory education and higher education, and it also changed the position of compulsory education that increasingly received a preparatory role towards higher education.

The expansion of elite higher education (per definition max. 15% participation) to a mass institution can be interpreted as signalling an increasing 'pull' for the majority of young people (and their families), for which higher education previously had been something exclusive (at the same time exclusionary) that was not among consideration for them. A basic assertion of this chapter is that these increasing 'pull-signals' are a very important aspect for the understanding of how the structures of secondary education work in the structuring of the selection patterns and procedures towards higher education. These structures are not well understood, because a comprehensive perspective on secondary education is mostly lacking, and because the discourses mostly look separately on lower and upper secondary cycles, and on general and vocational education. Depending on these structural aspects of secondary education these 'pull-signals' will work differently, and the position of vocational education will play a substantial role in this signalling structure. Empirically there is a high degree of diversity in these structures, which is not sufficiently taken into account in research. The following dimensions seem important in these structures:

- *Configurations of lower and upper secondary education*. Here we find at least three different structures, (i) comprehensive systems with an integrated foundational compulsory school typically in the Nordic countries, where primary and secondary schools are more or less integrated (the 'ground-school'), and a marked transition occurs after compulsory school between lower and upper secondary education; (ii) comprehensive systems that separate primary school from integrated lower and upper secondary schools (the high school), typically in the Anglophone countries, and (iii) overtly tracked systems that separate primary schools from secondary school, and comprise an integrated academic lower and upper secondary school track (gymnasium, bound towards higher education) in parallel to a separation and transition from the compulsory lower secondary track to a diverse structure of vocational education.

- *Configurations of general, academic and vocational education*. Here we find on the one hand different structures of vocational education, which have been (to some extent misleading in the view of the author) for a long time conventionally classified by the threefold Greinert-Typology (school, 'dual' apprenticeship, on-the-job), and on the other hand different configurations of academic and general education also (which are often neglected), with a more or less marked institutional differentiation between (higher level) academic and (lower level) general education. This differentiation is clear in the overtly tracked systems (type iii above), where primary school already prepares for the separation of students between the integrated lower and upper secondary academic school (gymnasium-type institutions) on the one hand, and a mass compulsory school on the other (the latter also mostly preparing for vocational education tracks). The above type (ii) with integrated primary and lower secondary school mostly makes an institutional distinction between an upper secondary academic school track and other more vocationally oriented tracks (here different configurations exist with more comprehensive structures as in Sweden or more distinct institutions as in Finland); in contrast the above 'high school' type (iii) does not separate the academic track as own institutions but provides this education through more informal differentiation within the high school by specific programmes, awards, etc. This latter type does also typically not separate vocational education in own institutions at the upper secondary level.

In the next section these different configurations are analysed a bit more deeply using empirical data about the configurations of differentiation at the lower and upper secondary level, and trying to understand the features of how the 'pull' towards higher education might work in the 'signalling-structures'. The purpose is to propose a more elaborate typology of educational structures. The result of this analysis is that the comprehensive structures are much more tracked covertly than expected by the policy discourses, in particular those of type (iii).

Then in a next step the relationship between this typology and aspects of inequality is analysed using the PIAAC data in a cross-sectional way.[2] Concerning the definition of inequality the distinction established in sociological research between two kinds of

[2] 24 countries and regions participated in the first round of the PIAAC survey in 2011-12, first published in OECD 2013; the cross-sectional analysis was performed using two groups of countries: all participants of the first wave, and a selection of advanced capitalist countries according to the Esping-Andersen welfare regimes (liberal Canada, UK-England, US; Nordic: Denmark, Finland, Sweden; Continental: Austria, Germany, Netherlands (partly Belgium-Flanders).

inequalities is made, first inequalities of achievements or competences, and second inequalities of access. The focus is on the competences, because these are now seen as the more important ones that influence and structure the inequalities of access in various ways. This step gives quite unexpected results about how the educational structures relate to the competence distribution among the adult population that has been estimated by the PIAAC data: the tracked structures are not related to substantially higher inequality of competences.

These results are finally discussed towards the overall question of VET producing second class citizens. The result is that the relationship between educational structures and the production of citizens has become much more complicated than it was in the past, when a clear distinction of elite and mass education produced citizens of different class. Major distinctions seem to exist between different cultures and welfare models as well as between the 'ideology' and the 'reality' level (if this distinction can be still made in today's constructivist times). One question concerns how elitist education structures can be measured, and how they relate to broader notions and selection procedures of elites in society: in which sense are the elite higher education institutions of today, which are outstanding because of their research achievements and capacities, producing societal elites? Another question concerns the missions of vocational education, also in combination with the missions of related occupations and professions that were kept alive, in relation to the missions of higher education and their changes: how are the different kinds of knowledge, skills and competences included in the missions related to citizenship? How do the related ideologies and political discourses address the broader societal duties of citizens: is there a difference between vocational and higher education, and if yes, where are the lines of differentiation?

Identifying institutional structures of tracking and vocational education

Based on the above considerations about typologies the empirical structural positioning of vocational education is analysed here by using three comparative data-bases:[3] first participation at secondary level by the institutional classifications provided by the OECD-

[3] This analysis builds on previous comparative work that tried to find structural and achievement relationships between primary, secondary and tertiary education; see Lassnigg 2009, 2011.

Education-at-a-Glance-(EAG) statistics, second more detailed tracking variables within schools at age 15 observed by PISA[4] through surveying the principals, and third the participation patterns of the population attended in initial education surveyed by the PIAAC-data. Taken together, these information bases allow to draw a more differentiated comparative picture of the patterns of initial education in various countries of the OECD and beyond than by the conventionally used single indicators. The following aspect can be combined on a cross-sectional country-by-country level:

- age of first tracking by institutions/programmes in compulsory education (PISA)

- early vocational education: proportion of VET at age 15 (PISA)

- proportion of VET at upper secondary level (EAG)

- participation in different tracks of tertiary education (EAG)

- combinations of participation in education and employment, as well as affection of unemployment and non-employment by younger age groups 15-29 (EAG)

- attention by levels and categories of initial education of the population (PIAAC)

- participation in adult education (PIAAC)

The analysis of these data give some more differentiated patterns of how vocational education is embedded in different countries in the overall institutional structures of education from compulsory to higher education. Concerning the positioning of VET in the aggregate patterns of education careers the following aspects seem important with respect to the questions raised above about the institutionalised role and significance 'pull-signals' of higher education in different structures. These aspects can be formulated as questions:

- how strong is the position of VET at upper secondary level in terms of participation?

- how is it situated in the flow of careers in terms of the timing of the decision to be taken: does VET start at earlier or later age?

[4] The wider analyses have used variables from the PISA 2009 and 2012 survey among the principals that indicate the proportion of 15-year old students experiencing different versions of grouping by achievement within class or within school. Three variables are available in 2009 across all subjects and in 2012 only in math: (1) proportion of students that undergo an exam for achievement-grouping, (2) proportion of students in different classes within school according to achievement (2009 named 'streaming', 2012 ability grouping between classes), (3) proportion of students according to ability grouping within classes. The argument in this chapter uses the variable (2) about streaming.

- how is participation in VET institutionally related to (early) tracking in compulsory education?

- how is participation in VET related to the differentiation of structures in higher education due to participation in short term vocationally oriented vs. long term scientific programmes?

According to the first wave of PIAAC, the participating countries (N=23) can be described at a four-dimensional space by levels of education (tertiary, secondary, and less than secondary), and by additionally taking into account the proportion of vocational education (fig.1).[5] Using these rough indicators, we can descriptively identify four quite clearly distinct clusters, two of which can be extended to more indistinct groups:

- LOW EDUCATION cluster (ES, CY, IT): these countries are forming a clearly distinct group with more than one third of the population below secondary education, and all of them less than 40% secondary and less than 30% tertiary education.

- VET (CZ, AT, SK) and VET extended (plus PL, DE, SE) clusters: Qualifications from vocational education are owned by a high proportion of the population only in a few countries, which can already be perceived as exceptions to the mainstream of the expansion of higher education: we find six countries with comparatively high secondary education and comparatively low tertiary education. In five of these countries more than half of the population own secondary education, and in four of these countries half to two thirds of secondary graduates also own vocational credentials (CZ, AT, PL, DE). Two further countries (SK with a lower proportion of VET, and SE as a special case that does not really fit into any cluster) show some similarities to this group; the proportion of tertiary education, however, despite comparatively low to the average of PIAAC countries, differs quite markedly in this group, between 15-20% (AT, CZ) and 30% (DE), in the conventional classification these proportions give the benchmarks for elite (15%) and mass (30%) higher education.

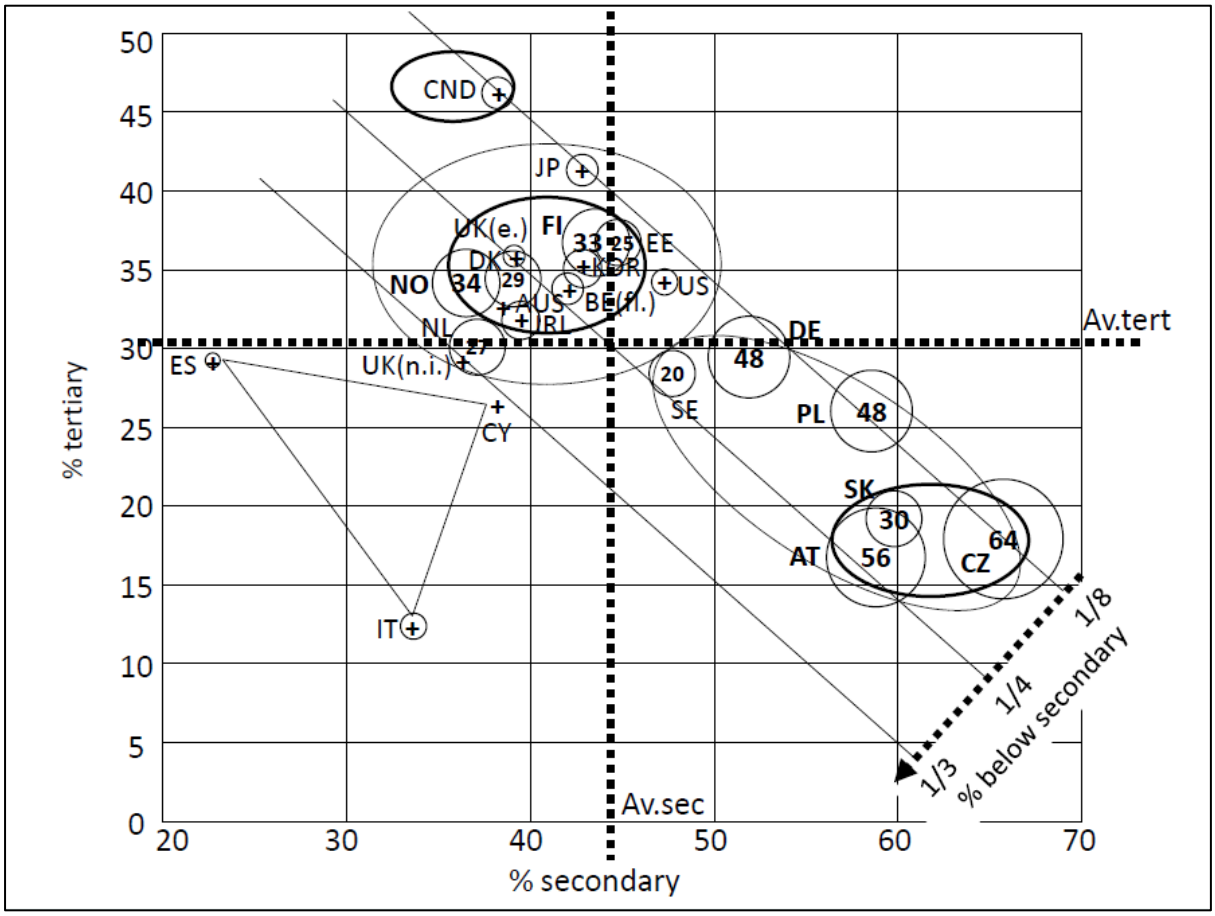
- TERTIARY (UK-e.-n.i., FI, EE, NO, DK, KOR, AUS, BE-fl., IRL) cluster, and three further countries (JP with more tertiary educated, US more secondary, and NL with both less tertiary and secondary and more low educated) in tertiary extended clusters; in these clusters

[5] The three levels (tertiary, secondary and less than secondary sum up to 100%, so the oblique lines as a third dimension give the levels of low educated, resulting from the sum of tertiary and secondary education; the fourth dimension is given by the proportion of vocational education of secondary education, as indicated by the size of the bubble and the country labels (bold labels VET over 30%; regular labels VET 20-30%; + VET below 20%).

comprising together half of the PIAAC first wave countries (14 of 23), the proportion of secondary education among the adult population ranges mostly below average (35-45%), however, the proportion of VET among secondary graduates differs: the range lies between zero and one third, thus more tertiary education does not necessarily rule out vocational education; the VET proportion is higher (grossly 30-35%) in Nordic countries (NO, FI, DK), Estonia and the Netherlands (25-30%), compared to the Anglophone countries (UK, US, AUS, IRL), as well as the East-Asian countries (JP, KOR) and Belgium-Flanders (where it lies below 20%).

- Canada is outstanding with the highest proportion of tertiary education (almost 50% which would indicate the benchmark of universal tertiary education), and an overall highly educated population.[6]

Fig.1 Comparison of education structures of populations in PIAAC participating countries



Source: Own calculation and picture based on PIAAC data (Lassnigg/Vogtenhuber 2014)

[6] See also the chapter about Canada in the present volume that explains the structure more deeply.

In comparing these clusters, we find three different structures with respect to the representation of secondary level vocational education in the educational attainment of the population. In the VET cluster(s), participation in vocational education seems to be an alternative pathway to higher education, with a proportion of VET in the total population between 25-40% (i: CZ, AT, SK, PL, DE, SE); in the TERTIARY cluster(s) vocational education seems to form two fairly distinct groups of countries, one which includes secondary vocational education as a distinct but more complementary pathway with participation in VET between 10-15% and some division of labour between secondary and tertiary institutions (ii: FI, NO, DK, EE, NL), and another group of countries where tertiary education almost completely dominates and VET participation at secondary level is only very small (iii: UK, US, AUS, IRL, JP, KOR, BE-fl) – in this third group vocational education seems to be embedded as a part in (differentiated) tertiary education structures (this structure seems most clearly pronounced in Canada).

Asking, how these attainment patterns are embedded in the wider institutional structures, analyses of the data from PISA and EAG[7] can be utilised, that give information about tracking structures at age 15 and participation at the overall upper secondary level. These data do not represent the population but only the young cohorts enrolled in education, and thus can indicate changes towards the current institutional structures (whereas the above structures based on PIAAC respondents represent a kind of longer term average qualifications structure of the population built up through the five to six decades since the 1940 and 1950s till the 2010s).

Fig 2 shows basic structures of how vocational education has been built into the education structures in the 2000s. Two observations must be mentioned: first that the broad variety between countries is distributed only gradually (not very distinctively), consequently countries can be grouped to some types that, however, are not very homogenous; second, an underlying expansionary dynamic of participation must be taken into account that makes the typology rather transient than stable. Three dimensions are basically combined:

[7] The data sources differ from PIAAC that collects survey information from the respondents to the achievement testing, as PISA collects information from the school principals where the testing takes place, and EAG rests on mixed information bases, partly from surveys and partly from official national sources as the Statistical Offices and/or government agencies. Thus there might be inconsistencies between the information sources, from which robust typologies can be derived by triangulation and informed judgement based on further qualitative sources.

Fig. 2: VET-typology based on combined PISA and EAG information

	...combination with EAG 2006: proportion of VET at upper secondary level			
	1 early select low-medium VET upS (10-45%)	2 modest postp.sel. low-medium VET upS (5-45%)	3 early select high VET upS (60-80%)	4 late select medium high VET upS (35-65%)
• **PISA 2006: A first classification of VET structures** • 1: one programme, 1st selection 16, no VET at 15 – *AUS, CND, [NZ], UK, US* – *DK, FIN, [IS], NO, SE* – *PL, ES, [LV]*				AUS DK, FIN, NO, SE, [IS] PL, ES
• 2: 1st selection 13-15, low VET at 15 (below 20%) – *[EL], IT, [PT, LUX], EE, [LT]*		IT, [EL, PT]	[LUX]	
• 3: 1st selection 13-15, medium VET at 15 (20-40%) – *IRL, JP, KOR, [RO]*		IRL, JP, KOR		
• 3a: 1st selection 13-15, high VET at 15 (40%+) – *[SI]*				
• 4: 1st selection 10-12, low VET at 15 (below 20%) – *CZ, [HU], SK, [BG, MEX, TR]*	[HU, MEX, TR]		CZ, SK	
• 5: 1st selection 10-12, medium VET at 15 (20-40%) – *BE*, GER, [CH]*			BE*, DE, [CH]	
• 6: 1st selection 10-12, high VET at 15 (40%+) – *A, NL*			AT, NL	

Source: PISA 2006 (first selection between programmes; VET at age 15 = early VET), EAG 2006 (proportion of VET at upper secondary level = late VET); Explanation: all countries in PISA and EAG, VET-participation is missing in EAG for most anglophone countries (CND, NZ, UK, US), and for some transition countries (LV, LT, RO, SI, BG); countries in [ ] not represented in PIAAC (NZ, IS, LV, PT, LUX, LT, RO, SI, HU, BG, MEX, TR, CH)

- begin of tracking at lower secondary level that has been gradually postponed from age 10-12 (early tracked structures) to age 16 (comprehensive structures), with several countries lying in between)

- early starting of VET participation before age 15, that to some part overlays the early tracking structures, however, not all tracked structures also include an early start of vocational education

- VET participation at the whole of upper secondary level, which includes early starting structures, and can also comprise quite extended age groups of young adults up to the mid-twenties within the upper secondary level (thus including structures where vocational education can take place in three parallel tracks, upper secondary, post-secondary, and

tertiary/higher education, which might be difficult to distinguish and also might be not consistently classified in national and/or international perspectives).[8]

So we can find diverse structures between two extreme poles represented by a small minority of countries.

- One pole is represented by the traditional structure with a tracked lower secondary level, combined with early starting and high participation in VET at upper secondary level, and comparatively low participation in tertiary or higher education on the one extreme (represented most purely by Austria; only the Netherlands[9] fall in the same category with early selection, high early VET and high VET at upper secondary level);

- the other pole is represented by a comprehensive structure with mainly general education at upper secondary level, and VET postponed to the postsecondary or tertiary level on the other extreme (represented most purely by Canada and the US).

Tertiary education has a polarised positioning and sends oppositional signals in these extreme types: on the one end it is exceptional with low participation (resembling a traditional elite-structure with more or less dominating universities within the tertiary level), on the other end tertiary education is perceived as a predominating norm (resembling a universal structure) but is at the same time differentiated to levels with different value and a high degree of selection to the different levels within tertiary education.

Looking at the empirical structures, however, these extreme types are exceptions, and most countries lie in between, with less distinct and simple structures (whereas the political discourses might be influenced by the images of the extreme types, putting them against each other). Empirically these 'in-between-structures' can be grouped to the following types:

- comprehensive structures at lower secondary level with late selection, providing VET in different ways at upper secondary level, in parallel to higher education (this structure can be found in the Nordic countries, in Australia, and in Spain and Poland)

[8] The German structure, as an example, comprises (i) the large Dual apprenticeship system with participation well into the 20-25-age group including participants with abitur/university access credentials, (ii) post-secondary institutions like the 'Berufsakademie', (iii) two tracks of higher education, Fachhochschule which is more vocationally oriented, and university which is more academically oriented) – depending on what is classified as 'tertiary', the proportions might differ substantially.

[9] This classification shows that the quite common grouping of the ‚Germanic' apprenticeship systems of Germany, Switzerland, and Austria do not fall in the category, if systematically classified by available indicators.

- structures with moderately postponed first selection, providing VET to different but lesser degrees at upper secondary level (comprising the East-Asian countries Japan and Korea, together with Ireland, with higher VET participation, and some Mediterranean countries, Italy, Greece, and Portugal with lower VET participation)

- early tracked structures with low to medium proportions of early starting VET, gradually increasing to high participation in vocational education at upper secondary level, that also might provide access to tertiary education (this structure appears in Germany, Switzerland, and Belgium with more early starting VET, and in the Czech and Slovak Republics with less early starting VET).

The empirical structures indicate much less clear-cut answers to the questions posed above than the discourses about the positioning of VET often signify. The positioning of VET at upper secondary level and in the flow of careers is diverse, and can be interpreted on the background of a gradual movement of countries along the expansion of tertiary education that simultaneously changes the basic missions of all sectors and levels of education. This change is overseen or neglected, if the different educational structures are interpreted as a kind of a discrete shift from VET to higher education, implicitly assuming that both structures, VET and higher education, would remain the same – often this assumption is underlying the discourse. However, using quantitative information about participation the wider changes in VET and higher education either, according to their inner structures, qualities, missions, etc. cannot be seen. VET is very diverse in many terms, and its comparative statistical descriptors are reduced to whether instruction is combined with work or employment or not (and this descriptor is only valid to some part, when the real combination of instruction and employment is confronted with its institutionalised combination; see Lassnigg 2015). In higher education, differentiation has been observed since decades; however, its comparative statistical representation is also to some extent problematic. The OECD indicators have distinguished between the categories A (academic, main cycle), B (vocational, short courses), and C (academic, second cycle, doctorate), however, different layers of higher education have been classified differently in different countries (e.g., university and non-university institutions are sometimes in the same category, sometimes not, thus the differentiation cannot be seen always in the statistical representations).

Another distinction, which is even more important and more overseen or neglected, concerns the tracking differentiation at lower secondary level. The structures are conventionally

distinguished by comprehensive ones on the one hand and openly tracked ones that comprise different types of schools on the other. In the PISA data, the point of a first distinction between tracks by age of students, and the number of tracks at age 15 are observed at the structural level. At the process level, a further distinction is made concerning the schools in which the assessment is performed: questions to the principals are asked about what fraction of students are allocated in different kinds of tracks within school, or within class, or if individualised distinctions/adaptations in instruction are made. These variables give very important information about practices within comprehensive schools, however, at the same time the use of these variables can be misleading, if the school structures are not taken into account: if tracking occurs structurally between school types, distinctions within schools might be absent, and using these variables only would signify a comprehensive structure (of course, the structures are more complicated, as differentiation within schools might also additionally appear in combination with tracking between school types).

The use of these variables provides important information about linkages between tracking in compulsory school and VET structures at upper secondary level. A combination of PIAAC data with structural information from PISA was used for the further analysis of VET and higher education participation in PIAAC countries. Two main results follow from these analyses: First, the distinction between comprehensive and openly tracked structures is much less definitive than mostly assumed; second, the relationship between tracked structures and assessment results in terms of achievement levels and inequalities is much more blurred than expected.

A glance at structures and competence measures

In contemporary sociology two quantitative measurements of inequality are used, one concerning participation, the other – having gained more attention in recent decades – concerning competences. Competences are deemed even more important, because they should be the basis of progressing in life (this might be questioned of course by a perspective that focuses more on credentialism and doubts about the measurement of competences).

Nevertheless, it is interesting, how structural traits of education are related to the measurement of competences. PIAAC is an attempt to measure competences among the adult

population in participating countries in literacy and numeracy, and allows comparison of the levels and the distributions of competences. A recent study (Lassnigg/Vogtenhuber 2014) has tried to explore these relationships more thoroughly. On a cross-sectional basis a set of comparisons between two groups of countries (all PIAAC-participants, and a selection of advanced capitalist countries based on the types of welfare regimes) was made:

- The proportion of tertiary education credentials was compared with the level and distribution of measured competences that against a widely held assumption (and against publications by the OECD) does not really indicate that expansion of tertiary education necessarily increases the stock of competences among all countries, and less so among the advanced group; the inequality of the distribution of competences is not related to tertiarisation in all countries, and by tendency increases in the advanced countries (more s in numeracy). In particular the three countries from the liberal welfare model (US, UK, CND), with a high proportion of tertiary education show in numeracy comparatively low levels and high inequality of competences.

- Concerning VET the analysis first looked at the achievement tracking structures at age 15 taken from PISA data, secondly related this structure to the proportion of VET and tertiary education alternatively, and thirdly compared two versions of tracking, one only considering the raw PISA variables of tracking *within* given schools, the other also considering the tracking between school types that goes hand in hand with a high proportion of VET in some typical countries. This analysis in first instance shows that comprehensive structures do not mean abolition of tracking by achievement, this takes only another form. At age 15 a differentiation of pupils to groups within class ranges typically between 30% and 70% of the cohort, whereas a streaming differentiation of grouping between classes within schools is much more widespread in the Anglophone countries and Korea (ranging between 80% and almost 100%), than in the Nordic or Continental countries. The latter groups overlap with the Continental countries ranging between 10% and 60%, and the Nordic countries in a range between 15% and 40% of a cohort in tracked classes within schools. Secondly, the correlation of the amount of tracking with the respective proportion of VET and higher education shows clearly a negative relationship between tracking within schools and VET (R^2=.47), and a positive relationship of the amount of tracking with higher education (R^2=.23). If tracking within schools is interpreted as an indicator for the selectivity of structures, then this selectivity – against an intuitive assumption – is increasing with tertiarisation. The third step confronts two measurements of tracking with the level and the inequality of the PIAAC

achievement scores, one measurement taking only into account ('covert') selectivity *within* schools, the second also adding the ('open') selectivity *between* school types in the early tracked systems (with the PISA variable about the age of first tracking taken as the indicator). From widely held assumptions inequality of competences should increase with open selectivity, and – depending on opposing background ideologies about the role of achievement grouping – the level of achievement might increase or decrease. Reading levels show less or no relationship to tracking, numeracy shows by trend a negative relationship, the comparison of the two versions of tracking shows a decrease of the relationship in both domains of achievement; that means that stronger selectivity would have less influence on achievement levels. In terms of inequality by trend more selectivity is increasing inequality, however, the relationship is stronger if only covert tracking is considered; the additional consideration of open tracking by different school types *reduces* the correlation with inequality.

In sum, these results are clearly at odds with the widely held assumptions that an increase of tertiary participation would imply a decrease of educational inequality, and also indirectly corroborates the above result that tertiarisation does not necessarily increase the stock of competences, as the correlation of tertiarisation with the increasing selectivity might lessen the level of competences.

Conclusions: Diversity and gradual changes instead of classes, democracy and citizenship as challenges for VET

The analysis of structures of educational structures using statistical figures cannot give a complete picture of the structural changes going on, however, can rule out some widely and persistently held assumptions about the social effects of educational structures. Overall the analysis indicates that the dynamic changes in participation cannot be reasonably described in terms of discrete distinctions of classes any more. In particular two distinctions are much less definitive than assumed, first the distinction between comprehensive and tracked structures, and second the distinction between general and vocational education (which has particularly among human capital economists also a strong connotation with the higher education and VET distinction).

The analysis of the distinction between openly tracked structures including different school types and more hidden tracking practices within comprehensive structures indicates much less marked structural differences and consequences than is expected at a superficial first glance. In particular the Anglophone type comprehensive structures include a high degree of tracking in compulsory school that even reaches into the primary level (US).

Vocational education shows much more mixed and diverse structures than conventionally expected (and sometimes reified by defenders of strong secondary VET by pushing a discourse of whether 'VET for dummies' vs. 'VET not for dummies', and thus reinforcing a divide between 'good' and 'bad' VET structures, e.g., Switzerland vs. Anglophone structures). In particular a past distinction of two discretely separate worlds (if it ever has existed in such a sharp manner) between VET and higher education cannot be supported by the analysis. Studies of higher VET (CEDEFOP/ Le Mouillour 2011) have already shown the blurring of these distinctions, and the differentiation of levels and institutions in the studies and concepts of 'mass higher education', and the more inclusive concept of tertiary education also point to these gradual structural changes.

Thus a picture of the tertiarisation of education structures that assumes a discrete choice between persisting institutions in either secondary VET or alternatively in tertiary higher education (often understood synonymously with university education) is misleading in two respects: first, a choice of VET at secondary level is still related to somewhat different probabilities to continue in higher education, however, VET seems also much less separate from higher education than expected by the 'discrete view', as a high participation in VET is not related to a markedly lower participation in tertiary education at country level. Second tertiarisation does not only mean a shift in participation from one persistent institution to another persistent institution, but also means a change of institutions (which is not shown by the statistical indicators, but must also take into account additional qualitative information about the institutional structures. Paradigm cases are, e.g., the history of the US Community Colleges that have changed from general to vocational institutions (analysed by the seminal study of Brint/Karabel 1989, and augmented by the cooling out model of Clark 1960) or the development of the various kinds of polytechnics or Fachhochschule institutions until very recent times that in most cases have changed vocational institutions into tertiary level institutions (e.g., in Finland and Switzerland in the 1990s, which often have posed new questions about the structuring of higher education, and about dynamics of 'academic drift' attempting to make higher VET more similar to universities, which sets in motion new

processes of differentiation and regrouping within universities and previous higher education institutions, as e.g., in the UK with the unification and differentiation dynamic).

On this background the question can be posed of how citizenship might be embedded in these manifold dynamics. First, citizenship concerns the right to education, and equal opportunities of access. From this perspective structural distinctions in participation are in need of legitimation, and the VET vs. higher education distinction is mostly legitimated by occupational, employment, and economic benefit vs. (only formal) educational benefits – here it has always been difficult to demonstrate clear and unambiguous preferences for VET. Second, the distinction has traditionally been related to issues of stratification in society, with higher education producing an elite responsible for the decisions about the course of society, and VET producing qualified people responsible for running the economy embedded in the wider and higher level decisions. From this topic the (quite heavily) persisting discourse about VET producing 'second class citizens' has emerged that is echoed (particularly in countries with strong VET systems in the past) by opposing discourses of better (short term) pragmatic opportunities on the labour market for VET completers and a futile overproduction from higher education leading to overeducation and mismatch.

Confronting these polarised discourses with the gradual empirical picture, this pattern rather points to a 'mismatch' between the discourse level and the empirical representations, which calls for an explanation. A plausible line of thinking could be to interpret the defensive discourse as a shadow of the history of VET producing well-functioning workers but well-adapted 'second class citizens' in terms of contributing to the elite-owned thinking and conceptualising about the broader development of society and about control of employment and the economy – the knowledge, skills and competences for latter discourse is related to traditional universities whereas VET by and large draws a distinction to this discourse by orienting students towards the 'real things' of instrumental and technical knowledge, skills and competences. This distinction might be related to the distinction of the two and three cultures of literature/philosophy, science/technology, and sociology/social sciences drawn first by C.P.Snow (1959) and augmented later by W.Lepenies (1985). Originally VET was very much related to the 'second culture', with the upcoming of the sciences as part of the university and the emerging technological institutes within higher education. The culture of technocracy in the 20th century might be seen as a forerunner of the emerging third culture of the social sciences, with economics and business administration as a mediating force departing from the second culture. The growth of the service sector has contributed to the

broadening of VET and a movement of professionalization in this field, that has been detected more or less in parallel with the 'two cultures' view in the 1960s (Wilensky 1964).

Based on this view of a cultural dynamic of the emergence of the three cultures (and of their various interrelations) the observed blurring in the institutional structures of VET on the one hand and general and higher education on the other, can be interpreted as complex processes of widening and re-groupings of perspectives, as well as of bodies of knowledge and knowing. The concrete structures are also influenced by the occupational structures, and the more basic social, political and economic configurations. Tertiarisation of VET might in this vain be seen as a movement of gradually taking more command over an occupational field, and thus in an stylised way moving up from second class to more first class citizens – often being eyed distrustfully by the already established first class citizens. It must also be admitted that this movement is not a linear and very direct one, but might have many faces.

References

Brint, S. / Karabel, J. 1989. The Diverted Dream: Community Colleges and the Promise of Educational Opportunity in America, 1900-1985. Oxford, New York: OUP.

CEDEFOP / Le Mouillour, I. 2011. Vocational education and training at higher qualification levels. Research paper No.15. Luxembourg: Publications Office of the European Union.

Clark, B. R. 1960. The "Cooling-Out" Function in Higher Education, American Journal of Sociology, 65(6), pp. 569-576.

Clark, B.R. 1980. The "cooling out" function revisited, New Directions for Community Colleges Volume 1980, I32, pp. 15–31. DOI: 10.1002/cc.36819803204

Lassnigg, L. 2015. The Political Branding of Apprenticeship into the "Dual System": Reflections about Exporting the Myth of Employment Transition, in Myths and Brands in Vocational Education ed. by A. Heikkinen and L. Lassnigg, Newcastle: Cambridge Scholars (p.78-98).

Lassnigg, L./ Vogtenhuber, S. 2014. Das österreichische Modell der Formation von Kompetenzen im Vergleich, in: Statistik Austria (Hrsg.), Schlüsselkompetenzen von

Erwachsenen – Vertiefende Analysen der PIAAC-Erhebung 2011/12, Vienna: Statistik Austria (p. 49-79). Internet http://www.equi.at/dateien/lassnigg-vogtenhuber_2014_ko.pdf (German Version; detailed results in German: http://www.equi.at/dateien/IHS-PIAAC.pdf), see English Presentation at http://www.equi.at/material/valencia-pdf.pdf

Lassnigg, L. 2009. Some insights about VET from Large-Scale-Assessments? Presentation at DECOWE CONFERENCE "Development of Competencies in the World of Work and Education", 24-26 September 2009, Ljubljana, paper: http://www.equi.at/dateien/Ljubljana-decowe-paper.pdf; annex-data: http://www.equi.at/dateien/ljubljana-decowe-annex.pdf; presentation: http://www.equi.at/dateien/ljubljana.pdf

Lassnigg, L. 2011. VET and Higher Education: two worlds, two frameworks? Presentation at International DEHEMS CONFERENCE "Employability of Graduates & Higher Education Management Systems", 22-23 September 2011, Vienna. http://www.equi.at/dateien/Vienna-DEHEMS.pdf

Lepenies, W. 1985. Die drei Kulturen. Soziologie zwischen Literatur und Wissenschaft. Munich: Hanser (in Engl. Between Literature and Science: The Rise of Sociology. Cambridge: CUP 1988).

OECD 2013. OECD Skills Outlook 2013: First Results from the Survey of Adult Skills, OECD Publishing. http://dx.doi.org/10.1787/9789264204256-en

Snow, C.P. 1959. The two cultures. The Rede Lecture. Cambridge: Cambridge University Press. http://s-f-walker.org.uk/pubsebooks/2cultures/Rede-lecture-2-cultures.pdf

Wilensky, H.L. 1964. The Professionalization of Everyone? American Journal of Sociology Vol. 70, No. 2 (Sep.), pp. 137-158.