Chapter 9
The Societal Embeddedness of Academic Markets: From Sex to Gender in the Swiss Context

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The last 10 years have been characterised by significant changes in the Swiss academic market. The system is becoming more international, the chair model is giving way to a department-based model, and attempts are being made to integrate historically segmented sub-markets into a single national market. These transformations have been substantial.

In this context, although the percentage of women has increased at all levels of the higher education system (they represent more than 50 % of high-school graduates and university entrants), women remain largely under-represented in the academic profession, and a comparison of the positions that men and women occupy shows evidence of both horizontal and vertical segregation. Indeed, a leaky pipeline characterises academic careers: the higher the status in the academic hierarchy, the less women there are, to such a degree that they represent only 17 % of the professoriate (OFS 2011). What do these inequalities tell us about the Swiss academic market, and, more generally, of the interplay between the different dimensions underlying the market changes?

This work draws on several quantitative research studies looking at academic careers (Goastellec et al. 2006, 2007, 2010, 2013) and the relationship between science and society (Crettaz Von Roten 2011a). Framed in a societal perspective, this

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chapter identifies sex differences and the discrete barriers to gender equality. More broadly, the gender issue (i.e. questions regarding the socially constructed nature of gender) provides a starting point for analysing change in the Swiss academic market and giving a broader perspective on transformations and barriers in academic markets in general.

In this perspective, we differentiate between sex and gender as categories of analysis: 'sex' is used to describe differences between the way men and women are represented in the academic career. 'Gender', reflects the social construction of such differences, turning differences into inequalities: gender is considered here to be the product of 'Social forces (that) either have a causal role in bringing gendered individuals into existence or (to some substantial sense) shape the way we are qua women and men. And the mechanism of construction is social learning.' (Mikkola 2011). More widely, we adopt the position of Mikkola (2011) that 'Feminine and masculine gender-norms, however, are problematic in that gendered behaviour conveniently fits with and reinforces women's subordination so that women are socialised into subordinate social roles'. As a result, although we do not consider gender a unitary notion, we assume that collectively Swiss academic women are more alike than different and thus constitute a relatively homogeneous group. By focusing on the career of academic women, we thus attempt to characterise the embeddedness of the academic market in society, as 'institutions anchored in wider political arrangements and cultural systems of meaning' (Hamilton 1994).

To achieve these goals, the first part of the chapter draws on quantitative analyses to describe sex differences in academic careers. The second part discusses these sex differences by revealing gender barriers at societal, systemic, organisational and individual levels. Finally, the concluding part builds on the 'sex to gender' issue allowing a broader reflection on the societal embeddedness of academic markets and its potential implications.

9.1 Sex Differences in Academic Careers

Sex differences in academic careers can be analysed from different angles. To start with, we look at the actual composition of the academic profession, drawing on statistics from the OFS (Federal Statistical Office) and the results of the EuroAC research project.[1] This can be complemented by looking at the historical evolution

[1] The EuroAC research study entitled 'The Academic Profession in Europe: Responses to Societal Change' took place between 2008 and 2011 in 10 European countries, employing a common survey to characterise the academic profession. The Swiss study was conducted in February and March 2010, using an online questionnaire based on that used in the CAP ('Changing Academic Profession') project, with minor alterations to reflect the Swiss context. All Swiss universities and applied sciences universities (including teacher training universities) were asked to participate in the project, with the questionnaire being distributed to approximately 18 000 academics. A total of 1471 complete questionnaires were returned, along with 2206 incomplete questionnaires. After a detailed check of the completed questionnaires, 1424 were considered usable for further analysis.

of this series, and also by analysing the success of national instruments designed to develop academic careers, including a target for improving the representation of women in academia. The study of these instruments, implemented by the Swiss National Science Foundation, is particularly revealing as they represent an excellence criteria (for obtaining funding granted by external assessors), and, increasingly, an unavoidable step in academic careers.

9.1.1 Different Instruments

Independent of the type of data analysed, women always appear under-represented in the Swiss academe. The higher the academic position, the fewer women there are: starting from 50 % of the student body, women represent 40 % of doctoral holders and 16 % of the professoriate (OFS 2009).

The same applies to the percentage of women with Swiss National Science Foundation (SNSF) fellowships. In recent decades, the SNSF has developed funding instruments for researchers, ranging from grants for doctoral students to support for professorships. A large number of tools have been created, designed to support the different stages of an academic career (from assistant to professor) and the multiple activities of faculty members (teaching and research), while also taking account of the specific nature of different disciplines and institutions and the gender inequality issue. Six main categories of individual funding have been implemented by the SNSF. The Marie Heim-Vögtlin programme (MHV) provides specific support for women whose career path has been slowed down or interrupted due to family constraints. The five other programmes specifically address each stage of an academic career. For researchers starting out, the ProDoc programme funds doctoral students, while a Fellowship prospective researcher award provides funding for the last stage of the doctoral studies or for a first post-doctoral research position. A Fellowship for advanced researcher award finances a second post-doctoral research abroad, while an Ambizione grant then allows academics to return to Switzerland for 1–3 years of research in a HEI other than the institution awarding the doctoral degree. Lastly, the funding for Fellow Professors provides 4–6 years of funding with an autonomous research team to develop original research in a Swiss Higher Education Institution.

Comparing the representation of women in the different fellowships also shows that the more advanced the career fellowship, the less women there are: they represent 45 % of the doctoral candidates, one third of the prospective fellows, one fourth of the post-doctoral fellows and 30 % of the advanced fellows (Table 9.1).

From a historical perspective, the representation of women has improved: as a proportion of SNSF fellows,[2] women increased from 26 % in 1996–2000 to 37 % in

[2] SNSF Prospective researcher fellowships are aimed at supporting researchers at the beginning of their career through a research stay abroad. This programme is targeted at doctoral candidates nearing completion (6–24 months stay) and postdoctoral researchers (12–36 months stay abroad). Fellowships are attributed through SNSF commissions based in each higher education institution.

Table 9.1 The proportion of women among SNSF fellows (in %)

		Women % 2003–2007
Fellows		36.2
	Juniors	36.9
	Doctoral candidates	47.7
	Post-doc	29.6
	Advanced	34.8
	SNSF	33.9
	Biology and Medicine foundation	40.5
Unsuccessful candidates		40.0
	Juniors	46.0
	Doctoral candidates	50.0
	Post-doc	44.3
	Advanced	33.8
	SNSF	38.7
	Biology and Medicine foundation	14.3
Total		37.0

Source: Goastellec et al. (2010)

2003–2007 (Goastellec et al. 2010). Similarly, they represented 23 % of the SNSF fellow professors in 1999–2000, and 31 % in 2004–2005 (Goastellec et al. 2007). Nevertheless, the proportion of women is higher among the unsuccessful SNSF fellow candidates than the successful ones (40 % versus 36.2 %). Furthermore, this pattern is repeated for the less prestigious fellowships; unsuccessful candidates always have a higher percentage of women compared to successful candidates. One could thus hypothesise that women have to face academic handicaps right from the beginning of their career, decreasing the probability of a first-level fellowship, and subsequently leading them to perform self-censorship.

9.1.2 The Disciplinary Bias

The situation of women in the academic labour market differs largely depending on the disciplinary fields. As revealed by the OFS (2011), the leaky pipeline in human and social sciences, medicine and pharmacy means that women start to become underrepresented between the time of their doctoral studies and reaching a professorship. However, in Law this process starts sooner, between the master's and the

Advanced researcher fellowships also imply a stay abroad (12–36 months) but the candidate must hold a doctorate, have at least a one year of post-doctoral activity, and present a project designed to 'deepen their knowledge' and improve their 'scientific profile'. In this case, fellowships are attributed at the SNSF level.

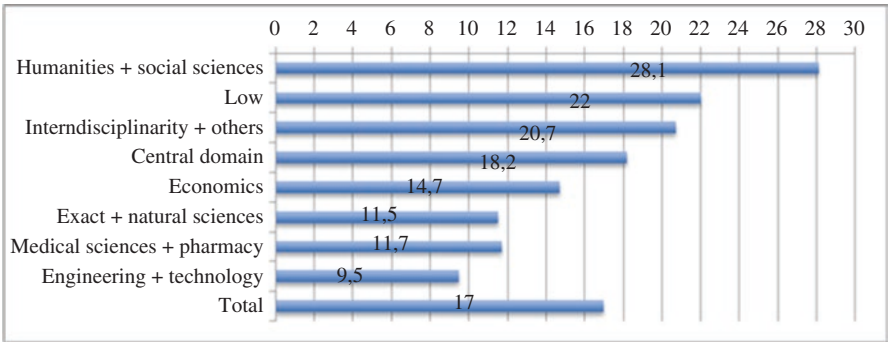

Fig. 9.1 Share of women (%) in the professorial body of universities with breakdown by field of study (2010) (Source: Conférence des Universités Suisses, Federal Statistical Office (OFS 2010, p. 51))

doctorate. The situation is starker in exact and natural sciences, economics and technical sciences, where there are always more men than women.

As a result, the proportion of women with a position in the professoriate is highest in human and social sciences (28.1 %), followed by law (22 %), economic sciences (14.7 %), medicine and pharmacy (11.7 %), exact and natural sciences (11.5 %) and technical sciences (9.5 %) (Fig. 9.1).

When analysing the proportion of women by discipline in the different instruments promoting academic careers, women are better represented in social and human sciences than the 'hard' sciences (Table 9.2).

What inference can be drawn from the gender dimension of the disciplines?

The research of Thomas (1990) on 'Gender and subject in higher education' showed that 'ideas about subjects, and ideas about gender, are, to a large extent, mutually reinforcing' (p. 172). Students in hard sciences (in this study we take hard sciences to mean physics and physical sciences) tend to perceive their field as 'objective' and 'value-free', and tend to establish a hierarchy of academic disciplines: 'The "harder", the more "certain", and the more "useful" a discipline' then the more important it was' (p. 172). Meanwhile, students in the so-called 'soft sciences' – here illustrated by disciplines of English and communications – define their fields as 'uncertain and subjective' (p. 173). As for the choice of subject study and further career, the author made the point that it was 'framed by questions of conformity and rebellion' (p. 176). Men studying physics conformed to the image of the 'successful physicist', while women in the same field were engaged in 'an act of non-conformity' and 'encouraged by single-sex schools or scientist parents'. However, 'the certainty of physics, so important to men, inspires less confidence in women because it depends on a negation of femininity, of those qualities which are socially acceptable but not intellectually acceptable' (p. 177). The conflict appears between being a 'good physicist' and an 'ordinary women'. As a result, the societal definition of the different disciplines, the type of qualities they are subjectively associated with, the type of professions they lead to, and the different social expectations towards men and women, lead to a subjective hierarchy of disciplines that

Table 9.2 The success rates for women, by type of fellowship and scientific field

	Number of requests			Number of grants			Success rate		
	Total	Women	Men	Total	Women	Men	Total (%)	Women (%)	Men (%)
Assistant professors	197	54	143	51	15	36	26	28	25
Human and social sciences	70	30	40	17	8	9	24	27	23
Maths, natural sciences and engineering	78	13	65	19	3	16	24	23	25
Biology and medicine	49	11	38	15	4	11	31	36	29
Ambizione	89	40	49	37	12	25	42	30	51
Human and social sciences	18	9	9	11	3	8	61	33	89
Maths, natural sciences and engineering	30	12	18	16	5	11	53	42	61
Biology and medicine	41	19	22	10	4	6	24	21	27
ProDoc	106	17	89	71	14	57	67	82	64
Human and social sciences	61	11	50	38	8	30	62	73	60
Maths, natural sciences and engineering	29	1	28	20	1	19	69	100	68
Biology and medicine	16	5	11	13	5	8	81	100	73
Fellowship (advanced)	148	53	95	94	26	68	64	49	72
Human and social sciences	57	32	25	33	13	20	58	41	80
Maths, natural sciences and engineering	14	4	10	10	2	8	71	50	80
Biology and medicine	77	17	60	51	11	40	66	65	67
Fellowship (early)	542	200	342	430	160	270	79	80	79
Human and social sciences	222	102	120	181	86	95	82	84	79
Maths, natural sciences and engineering	136	24	112	110	20	90	81	83	80
Biology and medicine	184	74	110	139	54	85	76	73	77
Total (without MHV)	1082	364	718	683	227	456	63	62	64

Source: OFS (2011). *Femmes et hommes dans les hautes écoles suisses. Indicateurs sur les différences entre les sexes*. Neuchâtel: OFS

comes with a subjective hierarchy of genders. Thus, the more gendered a society is, with highly differentiated roles between men and women, the stronger the hierarchy of disciplines and their gendered characteristic.

In the same vein, Barbara Crossouard (2011) studied the viva voce (the oral examination of doctoral studies in the UK), looking at the ways the jury addressed different academic subjects depending on the sex of the candidate, and identifying the underlying 'affective economies'. Crossouard's work indeed finds that the doctoral viva process 'involves the reproduction of gendered hierarchies', suggesting that even when women do access non-traditional disciplines, they are still subject to substantive stereotypes.

9.1.3 The Swiss Academic Market in International Comparison

By comparison with the European average, women represent 39 % of doctoral holders in Switzerland and 45 % in the EU27 (See figures 2009, p.49). Only seven countries have a lower percentage (the Netherlands, Norway, Belgium, Czech Republic, Greece, Japan and Malta). Women account for 27 % of researchers in Switzerland and 30 % in the EU27 – only six countries have a lower share of women researchers (Malta, Austria, Denmark, Luxemburg, the Netherlands and Japan) (*ibid*., p. 28). The same picture is visible in higher education governance. Only 13 % of institutions in Switzerland have a woman at the helm, compared to 32 % in Norway or 27 % in Sweden (*ibid*., p. 97). Additionally, women make up only 19 % of committee members, compared to 49 % in Sweden and 45 % in Norway (*ibid*., p. 99).

The EuroAC results[3] show that women represent 17 % of university senior academics.[4] This is the lowest share amongst the 12 European countries studied (the average is 26 %, and the maximum is found in Poland, with 38 %). University juniors have a higher percentage of women (40 %), but this is still below the average (46 %), and far from the maximum found in Ireland at 58 % (Goastellec and Pekari 2013).

Women are far better represented in the humanities and social sciences (52 %, equal to the average for EuroAC countries) than in life sciences and medicine (43 %, versus 46 % for the European average), business and law (35 %, versus 40 %) or physics and engineering (20 %, versus 26 %).

Among senior academics, the proportion of women working full time[5] in Switzerland is not considerably different to the proportion of men (92 % of the men

[3] The study included 12 countries: Austria, Switzerland, Ireland, the Netherlands, Poland, Germany, Finland, Italy, Norway, Portugal, the UK, and Croatia.

[4] To enable comparisons, analysis of the EuroAC survey data differentiated between senior academics (professors and other permanently employed academic staff) from junior academics (lower status and non-permanent staff).

[5] The EuroAC research only took into account academics working at least 50 % of a full-time load.

work full time compared to 86 % of the women – a difference of 6 %). However, this difference is more emphatic among junior academics (24 %). Here again, these differences between the sexes are above the European average (a 4 % difference for senior academics and a 12 % difference for junior academics). Furthermore, other things being equal, the probability of working full-time is negatively correlated with having children at home (this is true for Switzerland as well as Austria and Germany) (Goastellec and Pekari 2013).

The same trend is visible when looking at access to permanent employment: Switzerland is amongst those countries where women are less likely to be permanently employed. The gap between the sexes reaches 12 % for university senior academics and 9 % for university junior academics. Those who are married are also less likely to be permanently employed in Switzerland (Goastellec and Pekari 2013), testifying to the tension women face in managing both professional and family life. Role models in Swiss society follow a general trend of gender differentiation, with women being part of a subsystem bearing responsibility for childcare. As a result, the assimilation model dominates in the academic world: to become successful, women imitate men and adopt their characteristics.

9.1.4 Distribution Between Teaching and Research

The teaching-research nexus illustrates the assimilation model. Interestingly, Swiss senior academic women that responded to the EuroAC survey were more likely than men to say that their interest lies primarily in research (33 % versus 23 %). Still, senior academic women estimate they spend an average of 19 h a week on teaching related activities, where men spend 15 h. However, this does not seem to impinge on time spent on research related activities, with women and men estimating that they respectively dedicate an average of 19 h and 17 h a week to such activities (Goastellec and Pekari 2013). Men, in contrast, are more likely to occupy roles in institutional governance.

Swiss senior academic women are more often involved in scientific committees (87 %) than their European counterparts (the EuroAC average is 57 % of women). This can probably be linked to the strong internationalisation of the Swiss academic market, but it may also reflect their limited numbers among Swiss academics.

Academics were also questioned as to their perception of the influence they have on academic policies at the department level within their institution. Everything else being equal (controlling for status, type of institution, discipline, age and part-time work), women perceive themselves as having less influence than men do. This raises the question of whether this is a consequence of the broader societal context of gender inequalities.

In comparison with other countries, Switzerland has some of the highest differences between the sexes in academic careers, leading to gender inequalities for the representation of women and differences in professional practices. Still, when comparing countries such as Switzerland (where the gender gap is the most notable

amongst those accessing the most prestigious positions) with countries where the academic labour market is more open to women, the latter appear more gendered in terms of work related activities. Consequently, the EuroAC results rank Switzerland as one of the most unequal countries in terms of access to the professoriate, but amongst the least gendered when it comes to the work related activities of the professoriate. This does not mean that the Swiss academic world is not gendered: women appear to be disadvantaged from the beginning of the academic career through part-time positions, and having to work harder than men do to justify their worth in the academic community. One thus has to distinguish between the non-gendered behaviour of the Swiss professoriate, illustrating the assimilation model at play, and the gendered organisation of the academic career, echoing a strongly gendered organisation of the society.

9.2 From Sex Differences to Gender Equality Resistance

Sex differences in the academic world are better understood in the light of societal resistance to gender equality. Switzerland represents a society where the differentiation of gender roles remains strong, and where gaining equality of rights between men and women has been a long-running process.

9.2.1 The Product of History: Gender and Society

Several dimensions reflect the slow process through which women have obtained status in the public sphere.

Until 1953, Swiss women would lose their nationality when they married a foreigner (Wanner 1998). They are the last in Europe to have obtained the right to vote following a referendum among male voters (1971), while a majority of 70 % rejected a first attempt in 1959. Ludi (2005, p. 53) provides an accurate picture:

> […] opponents of women's vote understood the separation of male and female spheres at once as the triumph of civilisation and the realisation of a naturally given order, women's suffrage, in turn, as a "denaturation" of femininity. They regarded political exclusion of women as intrinsic to Switzerland's national identity, its presumed exceptionality among all other nations, of which they derived a feeling of superiority. Citizenship […] fashioned Switzerland's gender regime beyond its explicit political implications. It drew the line between public and private, between male and female in a particular way, finding its reification through legislation, the welfare state and the organisation of the labour market.

This understanding of the Swiss societal model has not disappeared with women's formal access to the political sphere. The gender role separation remains visible.

For example, the federal office for gender equality was instituted in 1976, but it was not until 1981 that an initiative put the principle of equal rights for both men

and women on the agenda (the right to equal salary was introduced into the Constitution in 1999). Moreover, it is only in 1984 that a woman obtained a position as a Federal Councillor.[6] In the same vein, while the principle of maternity insurance has been part of the Federal Constitution since 1945, it was only in 2004 that the Swiss population agreed to implement a right to paid leave for working mothers during the 14 weeks following childbirth. This partly explains why the fertility rate, varying between 1.42 in 2005 and 1.54 in 2010 (OFS 2011), is amongst the lowest in Europe. Additionally, foreign women (foreigners represent 22 % of the Swiss resident population, (OFS 2009)) have a higher birth rate than their Swiss counterparts, suggesting not only structural resistance but also subjective resistance linked to the early socialisation of Swiss women.

Indeed, conciliating work and family life remains difficult in Switzerland. For example, statistics reveal that when the first child is born (typically when the mother is around age 30), a large part of women reduce their working hours and another large part temporarily stop working to concentrate on the family (OFS 2008). More broadly, while a large share (72 %) of Swiss women work (compared with 65 % in New Zealand and 61 % in Portugal – OECD 2004), the opposite is true when it comes to full-time equivalent work (respectively 51 %, 52 % and 57 %). Additionally, Swiss women tend to remain in part-time positions throughout their working life – in other countries women are more likely return to full time positions once the children have grown up (OECD 2004).

This situation is partly reinforced by the lack of collective structures for children. This creates an extra difficulty, compounding the problems of conciliating family and professional life, and may reflect an implicit belief by some in Swiss society that women have to choose between a professional career and a family. This forced choice may result from the historical gender division between the public and private sphere (Ludi 2005) that also led to the federal policy 'not to intervene at all with respect to families with young children, as decisions in this area are considered by a large part of the population to be of private matter' (OECD 2004, p.16). Children start school when they reach between 4 and 6 years old (depending on the Canton) and very little early childhood care structures exist. Accordingly, a UNICEF study of early childhood care structures and education ranked Switzerland amongst the lowest quartile of all OECD countries (UNICEF 2008).

This tension is visible in the profiles of the fellows applying for a SNSF fellowship: while women are on average slightly older than men are when applying (which could imply a higher probability of women having children), men who apply for a mobility fellowship are twice as likely to have children as women are. More widely, this strong devolution of male and female roles between the private and public sphere is concomitant with the invisibility of women in the media, and thus the lack of women as role models for young girls considering an academic career (Durrer

[6] The Swiss government is comprised of 7 federal councillors that make up the Federal Council. Each federal councillor is responsible for one department of the federal administration, and the president of the confederation – considered a Primus Inter Pares – is elected annually from among group of councillors.

et al. 2009; for the role models, Steinke 1997 and 2005). Differences in wages (around 20 %) –which put women at a disadvantage– probably also negatively weigh on the reproduction of the societal organisation.

During the last 10 years, there have been several initiatives to fight gender inequalities in academic careers. One approach used specific tools, creating a Federal Office for Equity between men and women (1988), progressively introducing an equity office in each university (from the 1990s until the 2000s), and institutionalising gender studies. A second approach used generic tools, (federal programmes for gender equality with mentoring, system incentives, etc.) with policies taking account of the gender dimension in the programmes supporting academic careers (set targets for female representation) such as the 'academic body renewal', 'SNSF fellows professors' and 'SNSF junior fellows' programmes. However, these initiatives faced discrete resistance to gender equality.

9.2.2 Resistance at a Structural Level

When analysing women's trajectories in Swiss academia, it appears clear that right from the beginning of the career they are always disadvantaged by their professional status: at the time of a SNSF candidacy they are more often declared to be 'students' or 'other status' than men, while men were more often 'assistants' or 'scientific collaborators'. This illustrates the fact that, during the transition from the doctoral studies to post-doc, women are less professionally integrated into the academic workplace than men are.

The same type of differences appear at the level of the Swiss academic labour market: amongst university junior academics, women are much more often employed part time than men are (42 % of women academics are employed full time versus 66 % of men[7]). However, when candidates apply to an academic position, the research expectations do not account for this type of potentially prejudicial difference in working conditions: women are expected to publish as much as men do, even if they are hired on smaller, part-time contracts.

Higher education institutions probably play an important role in the creating those inequalities. When we analyse the institutional implementation of national programmes supporting academic careers, it appears that when universities are responsible for the implementation of a programme, they tend to reproduce the gender gap, in particular by employing women more often in part time positions and in teaching oriented positions (Felli et al. 2006). At the institutional level, studies have shown how nominating committees tend to focus on masculine criteria of scientific excellence and judge men and women differently on the basis of the same criteria, therefore reproducing the gender gap (Bureau de l'égalité 2007) and how the introduction of new roles tends to reproduce gender inequality (Bureau de l'égalité 2011).

[7] Data from the EuroAC research study, 2010.

Women who obtain a fellowship in order to improve their research record (before applying for an academic position) find that while conditions are similar for both men and women, there are visible inequalities in the benefits. The programmes supporting academic careers do not have the same impact for both genders: after their participation in the 'academic body renewal' programme, men were 2.6 times more likely than women to obtain a secured professorship position (Felli et al. 2006). The 'SNSF fellows professors' programme led to a similar, although less flagrant, result (Goastellec et al. 2007), while participants in the 'SNSF fellows' programme also found that more men were likely to obtain a full-time, secured position than women (Goastellec et al. 2010).

Moreover, when comparing the unsuccessful candidates for the SNSF fellows programmes, men appear to have better professional outcomes than women do. This trend is similar to that observed by Danell and Hjerm (2012) in the Swedish case, where 'women without a postdoctoral fellowship have a lower chance of becoming professors compared to men who have not held a postdoctoral fellowship position.' (p. 232). Thus, although fellowships have a greater impact on a man's career, obtaining a fellowship appears to be more important in defining the career path of women.

Two hypotheses stem from this:

First, we can reiterate Danell and Hjerm when they state that 'as long as competition over resources and positions is transparent, competitive women fare as well as men, but when men and women are allowed to compete over resources and networks in a more informal way, women are clearly worse off than men'. (2012, p. 232). Finally, this underlines the decisive impact of having formalised interventions and processes organising academic careers. The heart of the issue lies in the mix of formal and informal processes. A mix of social mechanisms exists that reinforces privileges and mechanisms that help compensate the disadvantaged, while formalised interventions have a more balanced mix of privileges, meritocracy and compensation policies than informal systems do. The Swiss academic sphere, characterised by a broad variety of different status levels and career paths, depending on both the institutions and the disciplines, has long been characterised by the low level of process formalisation. The SNSF incentives, illustrated by the introduction of various fellowships, are designed to push institutions to increase the formalisation and transparency of the processes. From a historical perspective, it seems that gender equality has been pushed by the Confederation onto the institutions' agenda. In the Swiss context, formalisation and reinforcement of the national actor appears to go hand in hand.

Second, the hypothesis can be made that women have to provide more proof of their legitimacy than men do to remain in the academic field: is this systemic resistance or personal choice? Probably this is a combination of both factors, as the following dimensions can testify.

9.2.3 *Invisible Inequalities: Between Systemic and Individual Resistance*

– A higher education academic system resisting equality?

The system's resistance to gender equality is not easy to grasp: of course, no formal rule limits women's access to a successful academic career. However, different research results help to reveal some of the invisible resistance.

As an example, women who did not obtain a SNSF fellowship represent 41 % of the non-fellows employed abroad, 30 % of the fellows employed in their alma mater, and 17 % of the fellows employed in other higher education institutions. Do women have to leave to succeed? Of the women that did not obtain a SNSF fellowship, 41 % went on to find a position abroad compared with 39 % of men, while 35 % of both women and men who obtained a fellowship later found a position abroad (Goastellec et al. 2010, Table 52). Additionally, from those that took part in the 'academic body renewal' programme, women represented a higher percentage of the group of fellows that found a position abroad (41 %) compared to women as a percentage of those finding national or local positions (Felli et al. 2007).

Discrete processes representing the reproduction of inequalities are probably at play. For example, we know that organised recruitment reduces the probability of women being hired. In particular, recruitment differences are known to depend on the number of women on the committee (Van den Brink et al. 2006). Activities are differently assessed for men and women: for example, the assessment of the scientific dossier is full of male stereotypes (Bureau de l'égalité 2007). Here, the small number of women in the Swiss academic labour market means that it is unlikely that women are well represented on recruitment commissions. Furthermore, differences in recruitment also depend on the different assessment regimes used (Musselin 2003): women are less disadvantaged by recruitment processes that use standardised evaluation criteria in comparison with more subjective criteria linked to personality. Here again, the issue of formalisation appears central. Moreover, a recruitment process that explicitly characterises the expected scientific profile, instead of making an open call through a large competition, favours less gender bias. Lastly, women always suffer less from inequalities in internal markets in comparison with external markets, but in this case, their career is less successful than those in the external market.

Besides the link between recruitment principles and gender inequalities, these elements inform us that the principles limiting the reproduction of inequalities vary depending on the higher education segment: the market for the scientific elites is most gender neutral with respect to excellence. In the national marketplace, specifying the scientific profile along with the expected activities is less gender discriminating than a totally open recruitment. Finally, internal markets are more favourable than external ones because they put the knowledge one has of future colleagues above the scientific profile.

The structural temporality of careers also appears detrimental: the Swiss academic market is characterised by a historical chair system, with the ordinary professor being at the top of an academic 'alimentary chain' composed of multiple successive status levels that are mainly short term and often part time. The articulation of a precarious position makes it difficult to conciliate the reality of the biological clock and the ideal temporality of an academic career (Fox 1995). An early tenure favours more equality (Musselin 2003) because it does not pit professional and private interests against each other. When comparing various academic labour markets in the EuroAC study, we have shown that the fewer full time positions there are in an academic labour market, the more men tend to occupy them (Goastellec and Pekari 2013).

9.2.3.1 Introducing New Tasks with a Discriminating Filter?

The third mission attributed to researchers (engaging with society) generates different mechanisms which create cumulative advantages for men. One advantage relates to status (a variation on the Matthew effect) while another relates to gender (a variation on the Matilda effect). A study at the University of Lausanne found that the media are less likely to contact people with lower academic status and women: a gender difference exists in the level of engagement with society even after the effects of status, age, and faculty are removed (Crettaz von Roten 2011b). Finally, nomination committees for men value activities related to the third mission, while the same committees consider such activities to undermine scientific quality for women (Bureau de l'égalité 2007).

9.2.3.2 Societal Resistance

The Science and Technology Eurobarometers have introduced items related to social roles. Results on such delicate questions need to be treated with caution since they can be influenced by social desirability. The 2005 Eurobarometer has shown that four out of five Swiss disagree when asked if a university education is more important for a boy than for a girl. The same proportion consider that if jobs are scarce, women have as much right to a job as men, and two out of three Swiss disagree that men make better political leaders than women. We could consider that Swiss society shows no gender resistance, but, by comparison the Nordic countries (Denmark, Sweden, Finland), the Netherlands and France all support more gender equality. Principles of gender equality are most widely upheld by Swiss women and Swiss people with a university education.

In 2010, seven out of ten Swiss agreed that women are underrepresented in top positions in research institutions and that government should support specific measures to improve women's representation. Unsurprisingly, women agree with this statement more than men (79 % versus 69 %). In addition, more educated people are more likely to support this statement. By level of education, only those who stayed

in full-time education until age 20 or over showed significantly different opinions between the sexes, with women agreeing more. Finally, the desire for specific measures to improve women's representation is dependent on the age group. Some 79 % of those aged between 15–24 and 76 % of those aged 55 or older were in favour of such measures, implying that people midway through their professional career, and thus directly confronted with marketplace issues, are less open to professional gender equality.

Specific measures may respond to different objectives, including an improvement in the way research is conducted. Two out of three Swiss think that it is true that if women were better represented, research would improve. Unsurprisingly, women agree more than men (69 % against 62 %). By level of education, there is a significant difference only for people who stayed in full-time education until age 20 or over (at this level, women agree significantly more). Comparatively, Swiss agree less than people from Cyprus and Greece (90 % and 79 %) and from Nordic countries (Sweden 76 %, Ireland 73 % and Denmark 70 %).

To sum up, Swiss society tends to show more resistance to gender equality than some European societies and to show heterogeneity within the society.

9.2.3.3 Individual Filters Resisting Equality?

Systemic resistance goes hand in hand with individual resistance that expresses the internalisation of social norms. When we study how women behave in application processes, for example, it appears that women are more likely to contact the secretary of the commission than men are (36 % versus 28 %), but men more often contact the president of the commission than women do (24 % versus 18 %). Additionally, we have previously seen that women that did not obtain a fellowship were less likely than men to remain in the university sector (57 % versus 68 %), which can also be interpreted as a choice influenced by the internalisation of social roles.

We have also previously seen that women applying for SNSF fellowships are more often single and without children than men. Amongst the junior fellows, 54 % of the women and 47 % of the men are single. Amongst advanced fellows, 31 % of men and 25 % of women have children. This could indicate the internalisation of women, taking on the necessary choice between a career and a family. Simultaneously, when questioned on the role played by their partner in their candidacy, 40 % of women saw it as important or very important, compared with only 17 % of men. The same trend can be observed regarding the role attributed to family (15 % versus 8 %). As a result, a candidacy for a SNSF fellowship appears more often than not to be subordinated to the partner's support or to the fact that a woman is single. This seems to illustrate a role conflict and public/private life tension.

Last, when it comes to their self-perception (as evaluated in the EuroAC research – Goastellec and Pekari 2013), everything else being equal, academic women are less likely than men to perceive themselves as influential in defining their departmental policies.

Individual resistance thus appears as intertwined with organisational, structural and societal resistance. In 2010, during a workshop organised for female doctoral students in a Swiss university as part of a mentoring programme for women, a doctoral student addressed the issue of the under-representation of women in the academic world. The student opined that "some professor positions should be adapted to women's needs", i.e. part-time work to make academic life compatible with family life… Her demand raised no response from her peers.

9.3 Conclusion: Changing the Sex of Universities, a Complex Operation?

What does this analysis of the Swiss academic market through the gender prism tells us about the interplay of dimensions hanging over change? Far from the image of the ivory tower, higher education labour markets are societally constructed.

At the sex level, academic markets are told to be democratising: women must increasingly be represented in academia. However, although research has shown for some decades now a clear historical trend with women improving their access to academic positions, barriers to equality are still at play. Yet, the academic market is the object of a gendered division of labour. This occurs in an objectified state, with gendered academic activities and status, and in an incorporated state, within the perception academics have of their work, of the academic labour market and the possible actions they have on it (Bourdieu 1998). However, this is also a representation of the social world: a likely conservative social conception of the necessary differentiation of roles.

How can we explain these inequalities and what do they tell us about the academic market's embeddedness? Gender resistance can be found at systemic, organizational and societal levels. As Thomas (1990) emphasised, 'Higher education does not actively discriminate against women; rather, through an acceptance of particular values and beliefs, it makes it difficult for women to succeed […]. Caught in between wanting to have highly valued social qualities and conforming to acceptable social behaviour, women in higher education are engaged in a process of negotiation and manipulation; their choices are, perhaps, based upon a more complex, awareness of reality than those of men's' (p. 179).

At the system level, for example, there seems to be a correlation between the proportion of women in a higher education system and their representation in the various disciplinary fields: the higher the share of women at the system level, the more equal their representation in the various disciplinary fields, including the historically most masculine ones. As well, the more common full-time employment is, the less inequalities structure gender relations. Still, increasing women's access to academic positions as a whole is a necessary requirement but not a sufficient condition to guarantee gender equality in accessing the most secure positions.

At an organizational level, recruitment processes are under scrutiny. As research has shown, the probability of a woman being recruited increases if there are women in the recruitment committee (see for example Van den Brink et al. 2006), and when recruitment criteria are standardized rather than being subjectively designed (Musselin 2003). The organization also plays with career timing: the later tenure is granted, the more women are disadvantaged. Precocious permanent employment favours equality because it does not oppose professional and family life. In the same vein, recruiting with tenure track instead of offering a straight full professorship also favours the representation of women. In fact, the barriers that exist have different configurations depending on the particular segment of the academic market: the gender mechanisms that hinder equality of access to top academic positions are not necessarily the same as those in less prestigious sectors, or in local markets.

At both systemic and organizational levels, the decisive dimension for equality seems to lie in the formalization of the academic recruitment processes, career stages and structures, etc. Formalized processes and policies have a more balanced mix of privileges, meritocracy and compensation policies. In the Swiss academic case, the current push towards formalization has largely been driven by the National Science Foundation, alongside an attempt to integrate a historically very diverse academic market.

This intervention by a national body in a system that has long been structured around cantonal power can be perceived as a necessary measure to overcome societal resistances in the area of gender inequality. Indeed, societal explanations appear important: a comparison of gender inequalities in European higher education systems shows that the largest inequalities occur in societies that have remained strongly gendered – the division of social roles (and rights) seem to work against equality. ‘There is a relationship between higher education and society, and society’s different elements; families, industries, schools. This relation is not a straightforward one, because society itself is not straightforward: its organization is riddled with contradictions and anomalies.’ (Thomas 1990, p. 180)

Finally, resistance to gender equality in the transformation of the academic market provides evidence of a strong societal embeddedness of academic markets. This may be a facet of the overall organization of the higher education system – with the career structures reflecting an elitist and reproductive view of the society – that illustrates the strong resistance of the chair-system organization, in the organization of processes such as recruitment. Or, this may reflect the self-perception men and women have of the necessarily gendered organization of society, where the academic market is the product of a specific civilization, and attempts to reform it come with strong internal, objective and subjective resistance. The understanding of transformation in academic labour markets thus calls for a historical and societal approach, in order to grasp these resistances and the broader requirements for overcoming them.

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