Online Appendices

I Online Appendix: French Club Championship

This section provides information on

- the rules of the French CC, including on players and Elo ratings used, I.1;
- match-Teams, I.2;
- the historical organization of the French CC, I.3;
- the ruling on the gender quota (January 1990), I.4;
- interviews by female players about the quota in Europe Echecs, I.5

I.1 Rules of the French Club Championship

The rules have been adapted over time, but the rules enacted by the French Chess Federation (FCF) in 2010 are quite representative of the rules in force during our sampling period.

I.1.1 Players

During a given season or year, an active player in France is registered (affiliated) with the French Federation, whether or not she participates in a tournament. Put it differently, active players are all players who paid their chess dues for the season. All players participating in the French Club Championship must be registered with the French Federation. All registered players have a FIDE country code (AUT, FRA, ...), whether or not they have a FIDE rating. A foreigner is a player with a non FRA code. However, some foreign players may also hold French nationality as dual nationality. This is the case of Fiona Steil-Antoni (born on 10 January 1989), who is a Luxembourgian chess player, playing under the LUX FIDE code, but eligible as a French woman because she holds the French citizenship. However, she is not considered as homegrown.

I.1.2 Ratings

We use the Elo reported during the match. The rule is such that the Elo to be taken into account for the match is the last Elo published by the FIDE (called the FIDE rating) or by the FCF in case the player does not have a FIDE rating. Unrated players get an official temporary Elo of:[103]

- 1499 if they are 20 years old or older;
- 1399 if under 20 but over 18 years old;
- 1299 if under 18 but over 16 years old;
- 1199 if under 16 but over 14 years old;
- 1099 if under 12 but over 10 years old;
- and 1009 if under 10 years old.

However, a club may request for an unrated player, at the time of licensing, an Elo different from the official temporary one that will be:

- automatically accepted if this estimated Elo is up to 200 points higher than the official temporary Elo;
- accepted or refused after examination of the supporting documents if this estimated Elo is 200 points higher than the official temporary Elo.

I.2 Details on Match-Teams

In 1990, each match-up was played over nine boards and each team had to include at least one French (by FIDE code or citizenship) female player. See Table A1 for the example between Lyon and Bordeaux in Division 1 in 1990. The first-named team in each pairing has the white pieces on the odd-numbered boards and black on the even-numbered boards.

Essentially, the top players of each team (by Elo rating) compete in the "first board," the next in the "second board," and so on. When there is a difference of more than 103 Elo points between two teammates, the higher rated player must play on a higher board. All teams must comply with the 103 point requirement for all players in the team regardless of gender. Thus, if both players are compelled to play on the last board of their team, Christine Flear from Lyon (A06609) could have played on the second board for Bordeaux.[104]

[103] In our data oc 328,588 complete games (with no forfeit, missing scores or missing Elo), 5.9% of the games have at least one unrated player.

[104] The 103 Elo points threshold has been slightly fluctuating, and for example was reduced to 100 points for the season 2015.

Table A1: Team Compositions of a Division 1 Match-up in 1990

	Lyon					vs	Bordeaux					Score
Board	ID	Elo	Gender	Fed	Age		ID	Elo	Gender	Fed	Age	of Lyon
1	B06165	2560	M	FRA	53		J01303	2395	M	HRV	34	0.5
2	H02571	2650	M	EST	28		A06596	2275	M	FRA	26	1
3	A05851	2495	M	FRA	32		H05654	2320	M	DEU	23	0.5
4	A09635	2500	M	FRA	30		A04899	2320	M	FRA	24	0
5	A05021	2435	M	FRA	38		A08270	2305	M	FRA	33	1
6	F02033	2425	M	SVK	45		B05179	2245	M	FRA	23	1
7	B06065	2415	M	FRA	38		B02658	2250	M	FRA	20	0.5
8	A07403	2335	M	FRA	35		A03714	2270	M	FRA	21	0.5
9	A06609	2225	F	FRA	23		A01961	1950	F	FRA	19	1

Notes: Team compositions of a Division 1 match-up in 1990 between Lyon and Bordeaux. ID is the French federation number of each player and Fed is their FIDE country code. For each game, the score is 0 for a loss, 0.5 for a draw and 1 for a win. Lyon won the match 6-3.

Female versus 'Marginal Male' Comparisons — Over the period 1990-2005 (before the reduction in the number of boards), we observe 2,003 match-team, where the female player could be compared to her 8th teammate, i.e., her lowest rated male teammate. The match-up in Table A1 between Lyon and Bordeaux offers 2 comparisons.

1. Lyon's female player, Christine Flear, A06609 (2225 Elo) could be compared to B02658 (2335 Elo and playing at board 8). Using the "winning-expectation" formula (see Equation 1), her winning probability is 0.35.

2. Bordeaux's female player A01961 (1950 Elo) could be compared to C00641 (2250 Elo and playing at board 7). Her winning probability is 0.15.

I.3 Historical Organization of the French Club Championship

Beginning in 1979, the French Club Championship consists of one division composed of six groups of four or five teams. In 1980, the championship is rearranged with a first division of 8 teams and a second division of four groups of 6 or 7 teams.

Between 1982 and 1985, the championship consists of a first division with either eight or ten teams, and a second group consisting of four, six, or eight groups of eight to nine teams.

In 1986, the first year of our data, the championship extends to a third division, consisting of 72 teams (9 groups * 8 teams). The second division comprises three groups of six teams and the first division consists of 10 teams involved in "all-play all" tournament in which each team played all the other teams in turn.

In 1987, the first division expands to 12 teams until 1992. The format consists of an eleven round "all-play all" tournament.

In 1990, the gender affirmative action is introduced in division 1. The second division expands to 32 teams (4 groups * 8 teams), and the third division to 96 teams (12*8).

In 1991, the affirmative action is introduced in division 2, and in 1992, in division 3.

In 1993, the first division expands to 16 teams and is organized, that year only, as a fifteen round all-play all tournament.

From 1994 to 2009, the first division retains 16 teams but divides them initially into 2 pools of 8 teams in which an all-round tournament is played. At the end of this phase, the first 4 teams of each group is placed in the high pool, the last 4 in the low pool. In each pool, only the teams that do not play together in the first phase meet. At the end of the season, the first team in the high group is crowned French team champion. The last 4 teams of the lower group are relegated to the second division.

During this period, certain adjustments are also made in the lower divisions. In 1995, the third division expands to 120 teams (15 groups * 8 teams), and a fourth division composed of 384 teams (48*8) becomes part of the French Club Championship. From 1996-2003, the number of teams expands in division 2 to 48 teams (4*12), and in division 3 to 160 teams (16*10).

In 2004, the championship is completely reorganized, except in division 1. The second division was composed of 16 teams, the third of 48 teams (4 groups * 8 teams), the fourth of 160 teams (16*10), and the fifth of 48 groups of 8 or 9 teams. Following this organization, the quota is extended to the fourth division.

In 2010, the composition of the French club championship changes, although the structure of five divisions remained unchanged. The first division comprises now 12 teams and is an eleven round "all-play all" tournament. Division 2 comprises 36 teams (3 groups * 12 teams), division 3 72 teams (6*12), division 4 180 teams (18*10), and division 5 54 groups of eight or ten teams. Each year, the groups from the same division must have an identical number of teams (eight or ten).

In 2015, the top division consists of one group of 12 teams; division 2 has 3 geographical groups of 12 teams (to minimize traveling requirements); division 3 has 6 geographical groups (East, North, North-West, West, South, South-East) with 11 or 12 teams; division 4 has 18 geographical groups of 10 teams; and division 5 has 50 areas of 8 teams. Under the current rules, each club can only have one team in each of the first two divisions, and in general has at most one team in each of the other divisions (the average number of teams per club is 1.5 in 2015). A player can only play in a given division if they played at most 2 games in better divisions.

Clubs from Monaco and Andorre are authorized to participate in the French club championship. They can access competitions in divisions superior to the third division, under the condition that they do not participate in the highest division of another national championship.

The first four divisions are managed by the national Technical Direction. The fifth division is organized by the regional leagues. There are currently still regional divisions that are not part of the National Club Championship.

I.4 Ruling on the Gender Quota (January 1990)

The quota was the result of a quite contested meeting of the French Chess Federation in January 1990. The International Master Krzysztof Pytel presented four proposals to promote female chess players, one of which was the introduction of a female player in the French Club Championship.[105] The minutes report discussion and divergent opinions (see below).[106] A first vote was about having one female chess player per team on a dedicated 9th board (which mirrors a rule Poland had since the early seventies while Pytel was playing there). This proposal was defeated with 6 yes, 8 no votes and 8 abstentions. After an agreement that it would be desirable to impose *a* quota of one female player at *some* division of the Club Championship (19 for, 2 against, 2 abstentions), a vote provided divergent opinions as to which division this should be. A final vote was 9 for division 1, 7 for divisions 2 and 3, with 2 abstentions and 3 people refusing to vote. Further, the requirement of a French female player rather than any female player received the most support (11 versus 2 votes, with 5 abstentions and 2 members refusing to vote). On the next day it was agreed (9 to 6 votes) that the female player would play on a separate 9th board rather than any board. While the rules were quite clear, even in the first year the requirement that women play on a separate 9th board was not followed. Rather, the rule of ordering players roughly by Elo rating to determine who plays on what board and otherwise providing the team leeway to select the order of players was implemented from the beginning of the quota in the 1990 season.

I.4.1 French Version

Fédération Française Des Echecs Agrée par le Ministère de la Jeunesse des Sports et des Loisirs. Membre fondateur de la fédération Internationale des Echecs. Comité Directeur, Paris 27 et 28.01.90. Procès verbal.

Séance du Samedi 27.01.90.

7. Secteur Féminin

M. Pytel présente 4 propositions:

a) Coupe de FRANCE Féminine Interdépartementale

Plusieurs départements répondent favorablement. En 1990 demi-finales et finales seront organisées à LYON et seront sponsorisées par l'Hôtel HOLLIDAY INN. Proposition adoptée

[105]The three other proposals were quite uncontroversial: A Women's (Interdepartmental) French Cup, which was adopted with 20 yes votes to 0 no votes and 2 abstentions, a French Women's Championship, where the debate was whether it should be international or national, and the creation of a French Female Chess Club, to provide a space for top French female chess players who may be eligible for the French National team in the Chess Olympiad (a biennial chess tournament, organized by FIDE, in which teams from all over the world compete). To the best of our knowledge the Women's (Interdepartmental) French Cup never happened.

[106]One proposes a delay of a year, another worries about imposing too many constraints on clubs and another that the quota should first be introduced in lower divisions.

par 20 voix pour, 2 abstentions et 0 contre.

b) Championnat de FRANCE Féminin

M. LOUBATIERE souligne les buts d'un Championnat de FRANCE Féminin International possibilité de faire des normes, valoriser Championnats et joueuses. Il précise qu'il y aura des prix spécifiques pour les Françaises.
Une discussion s'engage entre partisans d'un Championnat National réservé aux joueuses Françaises, partisans d'un Championnat International et partisans de l'organisation séparée de ces 2 Championnats.
M. CHEVALDONNET estime que l'on peut rendre attrayant un Championnat National réservé aux Françaises en organisant un Championnat toutes rondes, avec conditions de jeu et d'hébergement acceptables et prix substantiels, mais il s'interroge sure les possibilités du budget du secteur Féminin.
M. SERET se demande pourquoi un titre obtenu dans un Championnat National Féminin ne serait pas significatif, et M. TESTARD pourquoi le Championnat National Féminin ne pourrait pas évoluer comme le Championnat National Toutes Catégories l'a fait ces dernières années ?
Finalement il est décidé de lancer 2 appels d'offre pour début Juillet:

- un appel d'offre pour un Championnat National à 10 joueuses,
- un appel d'offre pour un Championnat International.

S'il n'y a pas d'organisateur la FFE organisera un Championnat Féminin.

c) Création d'un Club FRANCE Féminin

Les joueuses se disent satisfaites. Une vingtaine de réponses one déjà été reçues.
Mme MERLINI n'est pas satisfaite de l'encadrement de l'équipe de FRANCE Féminine.
Mme MERLINI demande le nombre de joueuses licenciées en France.
Le Comité Directeur approuve à l'unanimité la création du Club FRANCE Féminin.

d) Introduction d'une Féminine en Championnat de FRANCE Interclubs

M. MOINGT demande d'attendre 1 an.
M. THOMAS craint d'imposer trop de contraintes aux Clubs.
M. CHEN souhaiterait commencer par les séries inférieures.
Les avis sont très partagés, de multiples choix se présentant.
Un premier vote est fait sur la proposition de M. Pytel : une joueuse Française Nationale obligatoirement au 9ème échiquier.
Résultat : Pour 6 Contre 8 abstentions 8.
Il faut alors déterminer si le Comité Directeur souhaite ou non l'obligation d'une joueuse, à un certain niveau du Championnat. Résultat : Pour 19, Contre 2, Abstentions 2.
Dans quelles divisions ?
Vote préliminaire : Nationale I : 5 voix, Nationales I et II : 1 voix, Nationale II : 2 voix, Nationales II et III : 4 voix, Nationale III en 1991 : 2 voix, Nationales I, II et III : 1 voix

abstebtions : 4 voix, refus de vote : 3 voix.
Vote finale : Nationale I : 9 voix, Nationales II et III : 7 voix, abstentions : 2 voix, refus de vote : 3 voix.
Joueuse Française : 11 voix, joueuse Française ou étrangére : 2 voix, abstentions : 5 voix, refus de vote : 3 voix.
Sur quel échiquier (vote du dimanche matin) : 9ème échiquier : 9 voix, échiquier indifférent : 6 voix.
En résumé : En Championnat de FRANCE Interclubs de Nationale I, chaque équipe devra présenter une joueuse Française sur la 9ème échiquier, dès la saison 1990-1991.

I.4.2 English Version

French Chess Federation Agreed by the minister of youth, sports, and hobbies. Founding member of the International Chess Federation

Steering Committee. Paris 1/27/90 – 1/28/90

Minutes

Session of Saturday 01.27.90

Present: Mme Merlini, Mm. Bellet, Bernard, Bessler, Chen, Chevaldonnet, El Fani, Fortain, Garrel, Lamorelle, Langlois, Laquerriere, Lecomte, Loubatiere, Mathie, Mazens, Meinsohn, Miralles, Moingt, Peyrin, Seret, Sojka, Sourrouille, Testard, Thomas.

Represented: M. Boulier by M. Sojka.

Absent and excused: M. Ribous.

Absent and not excused for the moment: Mm. Faivre, Fuchs, Parrou, Renet (demissioner).

Attending the session: Mm. Coudray – National youth director, Delmont – National director of schools, Gervais – responsible for T.I.P., Lefort – responsible for the national plan for the development of chess, and many League Presidents.

The session is opened at 2:40pm under the presidency of M. Loubatiere, president of the FFE.

7. Women's sector

M. Pytel presents 4 propositions :

a) Women's Interdepartmental French Cup

Many departments respond favorably. In 1990, the semifinals and final will be organized in Lyon and will be sponsored by the Holiday Inn hotel. Proposition adopted by 20 votes for, 2 abstentions, and 0 votes against

b) Women's French Championship

M. Loubatiere underlines the goals of an International Women's French Championship:

the possibility to create norms and value for the championship and female players. He specifies that there will be specific prizes for the French.
A discussion begins between proponents of a National Championship reserved to French female players, proponents of an International Championship, and proponents for the separate organization of these two Championships.
M. Chevaldonnet estimates that one can make a National Championship reserved to French female players attractive by organizing a Championship in rounds with game conditions and acceptable accommodation and a substantial prize, but he asks about the possibility of the budget for the female sector.
M. Seret asks why a title acquired in a Women's National Championship wouldn't be significant, and M. Testard asks why the French National Championship couldn't evolve like the National Championship All Categories has done in the last few years?
Finally, they decide to have two calls for tenders in the beginning of July:

- One call for tender for a National Championship to ten female players,
- One call for tender for an International Championship.

If there is no organizer, the FFE will organize a Women's Championship.

c) <u>The creation of a French Women's Club</u>

The female players are satisfied. Around 20 responses have already been received.
Mme Merlini is not satisfied with the management of the French Women's team.
Mme Merlini asks for the number of licensed female players in France.
The steering committee approves unanimously the creation of the French Women's club.

d) <u>Introduction of a female player in the French Interclub Championship</u>

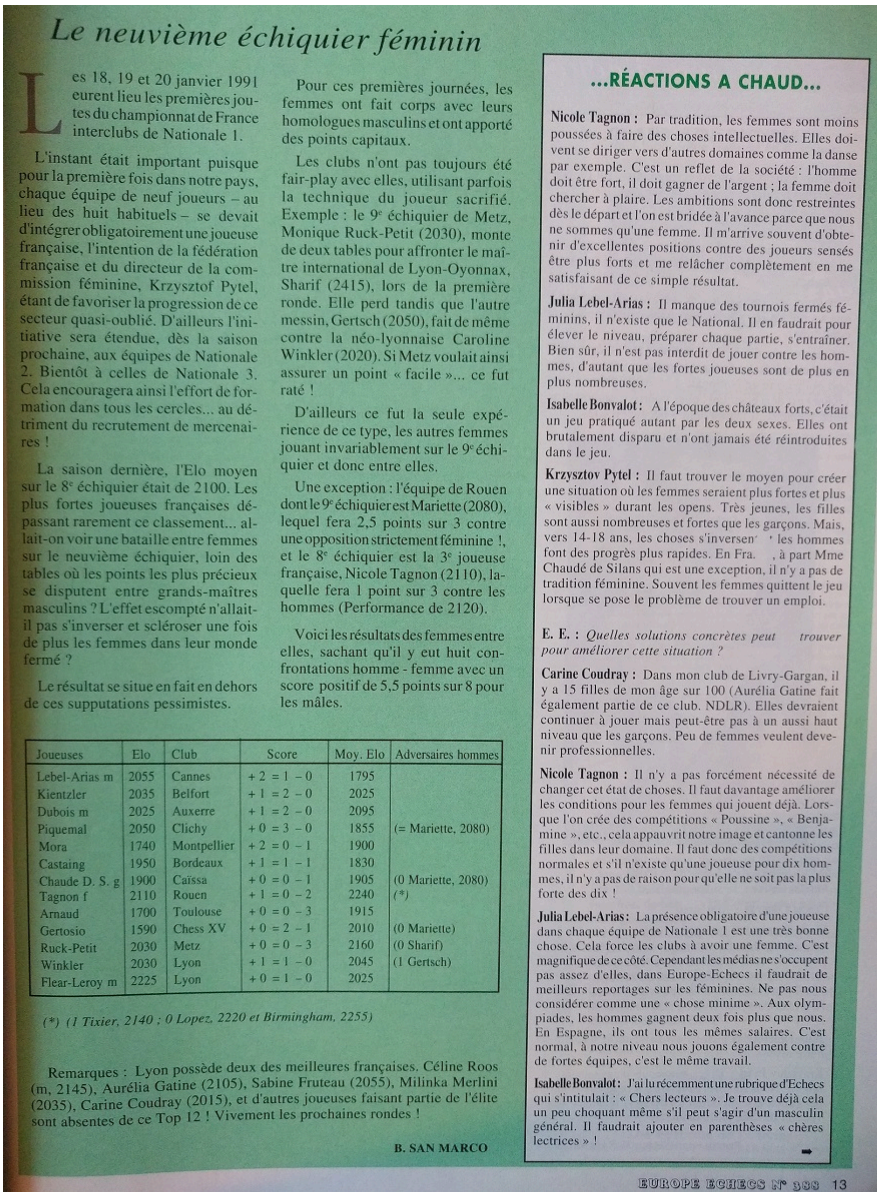
M. Moingt asks to wait one year.
M. Thomas worries about imposing too many constraints for clubs.
M. Chen would like to begin with the lower divisions.
The opinions are divide and multiple choices emerge.
A first vote is done on the proposition of M. Pytel: one female French division 1 player will be required on the 9th board. Result: 6 for, 8 against, 8 abstentions.
It is necessary to next determine if the steering committee wants or does not want a mandatory female player at a certain level of the Championship. Result: 19 for, 2 against, 8 abstentions.
In which divisions?
Preliminary vote: Division 1: 5 votes, Divisions 1 and 2: 1 vote, Division 2: 2 votes, Divisions 2 and 3: 4 votes, Division 3 in 1991: 2 votes, Divisions 1, 2 and 3: 1 vote, abstentions: 4 votes, refusals to vote: 3 votes.
Final vote: Division 1: 9 votes, Divisions 2 and 3: 7 votes, abstentions: 2 votes, refusals to vote: 3 votes.
A female French player: 11 votes, a female player from France or abroad: 2 votes, abstentions: 5 votes, refusals to vote: 3 votes.

Which board (vote from Sunday morning): 9th board: 9 votes, any board: 6 votes.

In summary: In the French Interclubs Championship in division 1, each team must present one French female player on the 9th board, beginning in the season 1990-1991.

I.5 Interviews about the Quota in Europe Echecs 386 - April 1991

Figure 19: Europe Echecs Interviews - April 1991



Le neuvième échiquier féminin

Les 18, 19 et 20 janvier 1991 eurent lieu les premières joutes du championnat de France interclubs de Nationale 1.

L'instant était important puisque pour la première fois dans notre pays, chaque équipe de neuf joueurs – au lieu des huit habituels – se devait d'intégrer obligatoirement une joueuse française, l'intention de la fédération française et du directeur de la commission féminine, Krzysztof Pytel, étant de favoriser la progression de ce secteur quasi-oublié. D'ailleurs l'initiative sera étendue, dès la saison prochaine, aux équipes de Nationale 2. Bientôt à celles de Nationale 3. Cela encouragera ainsi l'effort de formation dans tous les cercles... au détriment du recrutement de mercenaires !

La saison dernière, l'Elo moyen sur le 8e échiquier était de 2100. Les plus fortes joueuses françaises dépassant rarement ce classement... allait-on voir une bataille entre femmes sur le neuvième échiquier, loin des tables où les points les plus précieux se disputent entre grands-maîtres masculins ? L'effet escompté n'allait-il pas s'inverser et scléroser une fois de plus les femmes dans leur monde fermé ?

Le résultat se situe en fait en dehors de ces supputations pessimistes.

Pour ces premières journées, les femmes ont fait corps avec leurs homologues masculins et ont apporté des points capitaux.

Les clubs n'ont pas toujours été fair-play avec elles, utilisant parfois la technique du joueur sacrifié. Exemple : le 9e échiquier de Metz, Monique Ruck-Petit (2030), monte de deux tables pour affronter le maître international de Lyon-Oyonnax, Sharif (2415), lors de la première ronde. Elle perd tandis que l'autre messin, Gertsch (2050), fait de même contre la néo-lyonnaise Caroline Winkler (2020). Si Metz voulait ainsi assurer un point « facile »... ce fut raté !

D'ailleurs ce fut la seule expérience de ce type, les autres femmes jouant invariablement sur le 9e échiquier et donc entre elles.

Une exception : l'équipe de Rouen dont le 9e échiquier est Mariette (2080), lequel fera 2,5 points sur 3 contre une opposition strictement féminine !, et le 8e échiquier est la 3e joueuse française, Nicole Tagnon (2110), laquelle fera 1 point sur 3 contre les hommes (Performance de 2120).

Voici les résultats des femmes entre elles, sachant qu'il y eut huit confrontations homme - femme avec un score positif de 5,5 points sur 8 pour les mâles.

Joueuses	Elo	Club	Score	Moy. Elo	Adversaires hommes
Lebel-Arias m	2055	Cannes	+ 2 = 1 – 0	1795	
Kientzler	2035	Belfort	+ 1 = 2 – 0	2025	
Dubois m	2025	Auxerre	+ 1 = 2 – 0	2095	
Piquemal	2050	Clichy	+ 0 = 3 – 0	1855	(= Mariette, 2080)
Mora	1740	Montpellier	+ 2 = 0 – 1	1900	
Castaing	1950	Bordeaux	+ 1 = 1 – 1	1830	
Chaude D. S. g	1900	Caïssa	+ 0 = 0 – 1	1905	(0 Mariette, 2080)
Tagnon f	2110	Rouen	+ 1 = 0 – 2	2240	(*)
Arnaud	1700	Toulouse	+ 0 = 0 – 3	1915	
Gertosio	1590	Chess XV	+ 0 = 2 – 1	2010	(0 Mariette)
Ruck-Petit	2030	Metz	+ 0 = 0 – 3	2160	(0 Sharif)
Winkler	2030	Lyon	+ 1 = 1 – 0	2045	(1 Gertsch)
Flear-Leroy m	2225	Lyon	+ 0 = 1 – 0	2025	

(*) (1 Tixier, 2140 ; 0 Lopez, 2220 et Birmingham, 2255)

Remarques : Lyon possède deux des meilleures françaises. Céline Roos (m, 2145), Aurélia Gatine (2105), Sabine Fruteau (2055), Milinka Merlini (2035), Carine Coudray (2015), et d'autres joueuses faisant partie de l'élite sont absentes de ce Top 12 ! Vivement les prochaines rondes !

B. SAN MARCO

...RÉACTIONS A CHAUD...

Nicole Tagnon : Par tradition, les femmes sont moins poussées à faire des choses intellectuelles. Elles doivent se diriger vers d'autres domaines comme la danse par exemple. C'est un reflet de la société : l'homme doit être fort, il doit gagner de l'argent ; la femme doit chercher à plaire. Les ambitions sont donc restreintes dès le départ et l'on est bridée à l'avance parce que nous ne sommes qu'une femme. Il m'arrive souvent d'obtenir d'excellentes positions contre des joueurs sensés être plus forts et me relâcher complètement en me satisfaisant de ce simple résultat.

Julia Lebel-Arias : Il manque des tournois fermés féminins, il n'existe que le National. Il en faudrait pour élever le niveau, préparer chaque partie, s'entraîner. Bien sûr, il n'est pas interdit de jouer contre les hommes, d'autant que les fortes joueuses sont de plus en plus nombreuses.

Isabelle Bonvalot : A l'époque des châteaux forts, c'était un jeu pratiqué autant par les deux sexes. Elles ont brutalement disparu et n'ont jamais été réintroduites dans le jeu.

Krzysztov Pytel : Il faut trouver le moyen pour créer une situation où les femmes seraient plus fortes et plus « visibles » durant les opens. Très jeunes, les filles sont aussi nombreuses et fortes que les garçons. Mais, vers 14-18 ans, les choses s'inversen[illegible] les hommes font des progrès plus rapides. En Fra[illegible], à part Mme Chaudé de Silans qui est une exception, il n'y a pas de tradition féminine. Souvent les femmes quittent le jeu lorsque se pose le problème de trouver un emploi.

E. E. : *Quelles solutions concrètes peut [illegible] trouver pour améliorer cette situation ?*

Carine Coudray : Dans mon club de Livry-Gargan, il y a 15 filles de mon âge sur 100 (Aurélia Gatine fait également partie de ce club. NDLR). Elles devraient continuer à jouer mais peut-être pas à un aussi haut niveau que les garçons. Peu de femmes veulent devenir professionnelles.

Nicole Tagnon : Il n'y a pas forcément nécessité de changer cet état de choses. Il faut davantage améliorer les conditions pour les femmes qui jouent déjà. Lorsque l'on crée des compétitions « Poussine », « Benjamine », etc., cela appauvrit notre image et cantonne les filles dans leur domaine. Il faut donc des compétitions normales et s'il n'existe qu'une joueuse pour dix hommes, il n'y a pas de raison pour qu'elle ne soit pas la plus forte des dix !

Julia Lebel-Arias : La présence obligatoire d'une joueuse dans chaque équipe de Nationale 1 est une très bonne chose. Cela force les clubs à avoir une femme. C'est magnifique de ce côté. Cependant les médias ne s'occupent pas assez d'elles, dans Europe-Echecs il faudrait de meilleurs reportages sur les féminines. Ne pas nous considérer comme une « chose minime ». Aux olympiades, les hommes gagnent deux fois plus que nous. En Espagne, ils ont tous les mêmes salaires. C'est normal, à notre niveau nous jouons également contre de fortes équipes, c'est le même travail.

Isabelle Bonvalot : J'ai lu récemment une rubrique d'Echecs qui s'intitulait : « Chers lecteurs ». Je trouve déjà cela un peu choquant même s'il peut s'agir d'un masculin général. Il faudrait ajouter en parenthèses « chères lectrices » !

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Figure 20: Europe Echecs Interviews - April 1991 (continued)

DOSSIER

Les femmes face au jeu d'échecs

...RÉACTIONS A CHAUD...

Krzysztov Pytel : La situation est bizarre. En France, sur 20 000 licenciés, il y a 3 000 femmes.

Pourtant dans les opens, on en voit fort peu. Sauf à Aubervilliers où elles sont 50 sur 800. Ce ne sont pas les mêmes proportions ! En réalité, il n'y a pas plus de 100 joueuses qui participent aux tournois. Il faut faire deux choses :

– Faire progresser l'élite (30 joueuses) par une pratique accrue (60/70 parties par an avec une opposition équilibrée).

– Créer un circuit de 6 à 8 tournois par an en parties d'une heure KO. Le fait que la présence d'une femme soit obligatoire en Nationale 1 et 2 (dès l'année prochaine) est déjà essentiel : elles pourront rapporter un point précieux, il faudra donc s'occuper d'elles.

Nicole TAGNON (Photo C. WINKLER)

E. E. : *Que peut-être le mot de la fin ?*

Aurélia Gatine : Je suis optimiste.

Carine Coudray : Moi aussi.

Nicole Tagnon : Il faut déjà éviter de dresser les femmes entre elles. Les regards noirs, le jeu contre la partenaire qui joue devant nous alors qu'elle possède un classement plus faible, le manque de modestie (quelle femme peut réellement se vanter, en France, d'être professionnelle ?) doivent disparaître. Il ne faut pas qu'avant de jouer nous soyons stressées !

Julia Lebel-Arias : Nous avons le droit d'améliorer notre niveau.

Krzysztov Pytel : Créer beaucoup d'événements féminins. Nous sommes en retard par rapport aux autres pays comme le montrent les derniers résultats. Il faut viser la sixième place mondiale.

Propos recueillis par B. SAN MARCO

Femmes et jeu d'Echecs : le divorce ?

Paris, vingtième siècle. Survivante d'un monde machiste et sauvage, la seule joueuse d'un cercle d'Echecs sort vaincue d'un long combat avec une faune cruelle et barbare. Dernière épreuve, celle-ci lui adresse en début de saison le règlement intérieur, le calendrier des compétitions et... un code de la route (?) très spécial : les légendes décrivent des situations ambiguës plus en rapport avec un peep-show qu'avec la signalisation routière ! Effarée, notre promeneuse découvre, sous le flot de regards amusés et de propos égrillards, les nouvelles significations d'un arrêt obligatoire ou d'un rétrécissement de voie !

Le ton est donné. La femme joueuse d'Echecs est un animal de foire. Bizarre, mystérieuse dérisoire... On lui fait comprendre où est sa place et on l'apprécie davantage pour ses charmes que pour l'intelligence de ses coups. On lui reproche d'appartenir à une minorité, de consacrer son temps aux douceurs du foyer, de préférer les cours de danse aux nuits folles passées à pousser du bois sur un échiquier en s'aidant d'une pendule schizophrène !

La femme n'existe qu'en tant que pièce d'Echecs, sa valeur défie les lois de l'équilibre et son âme n'intéresse personne. Pourtant, c'est bien d'elle dont aurait besoin ce monde replié sur lui-même. Un monde au bord d'un gouffre qu'il creuse avec la puérilité d'un être fixé sur soixante-quatre cases.

A l'époque médiévale, en Occident, ce monde était encore équilibré et il était banal de rendre visite à une dame dans ses appartements pour jouer une partie d'Echecs. Bien sûr, celui ou celle qui gagnait était libre ensuite d'imposer un jeu plus excitant ! Dans un monde où les hommes étaient férus de chasse et de pouvoir, la femme avait donc trouvé un terrain d'entente où son talent était indéniable.

Aujourd'hui, de ce jeu de salon il ne nous appartient plus de voir des femmes y briller. Elles ont abandonné la pratique des Echecs... en y étant subtilement invitées ! Elles se sont muées en statuettes d'ébène ou d'ivoire. La femme est devenue la « dame ». Cette pièce appelée parfois « reine », étant placée à côté du roi. D'ailleurs, moins les femmes jouaient aux Echecs et plus cette pièce, la dame, prenait de la puissance sur l'échiquier ! Pourquoi un tel bouleversement ?

Historiquement, les Echecs, jeu d'intérieur par excellence et donc parfait pour les femmes de l'époque qui sortaient peu, se seraient dirigés vers les cafés et les tavernes où l'on engageait des mises. La femme resta alors chez elle et se matérialisa sur l'échiquier. Les jeux d'argent la répugnaient et la fréquentation des cafés était essentiellement masculine. Tout comme nos cercles d'Echecs actuels ! Certes, le jeu prit une nouvelle ampleur. Il se mit à la portée de tous, tout en restant le loisir préféré des cours. Mais de ses lettres de noblesse, il en avait perdu une à tout jamais : la lettre F.

Lorsque, dans l'univers échiquéen, femme et dame se confondent, il n'est pas illogique de paniquer. Un tel transfert, Freud s'en serait frotté les mains ! La dame est une pièce redoutable et par conséquent attrayante. Voyez les débutants qui la manipulent, à tort et à travers dès le début de la partie, la ballotant aux quatre coins de l'échiquier... jusqu'à se la faire prendre ! Un des plus beaux coups aux Echecs n'est-il pas le « sacrifice de dame » ? En revanche, savez-vous que cette même pièce subit parfois des qualificatifs nettement moins élogieux ? « Bobonne », « mouquère », « pétasse », « poufiasse », tels sont ses petits noms dans le jargon branché, dont n'hésitent même pas à se servir les maîtres les plus respectables. Edifiant, non ?

« *Les femmes sont stupides comparées aux hommes : elles ne savent pas jouer aux Echecs* », ainsi parla Bobby Fischer, grand-maître américain, champion du monde à Reykjavik en 1972 en battant le Soviétique Boris Spassky. Si l'équilibre psychique de Fischer peut être mis en doute, force est de reconnaître qu'une telle mysoginie se retrouve dans l'esprit de bien des joueurs. Heureusement, on sait que l'abus de toute spécificité conduit à de telles errances, lesquelles cachent souvent une vie sentimentale désertique !

Pourtant il existe des joueuses qui bousculent cette volonté délibérée d'écarter les femmes du jeu best-seller de l'intelligence. Elles sont actuellement nombreuses et on cite en particulier les trois sœurs hongroises Polgar. La plus jeune a 14 ans et se prénomme Judith (les autres sont Zsuzsa et Zsofia et bien que plus âgées sont un peu moins fortes !) et n'a qu'une ambition dans la vie : battre Kasparov ! Elle refuse de participer aux tournois féminins et attend patiemment son heure. Environ à la centième place, tous sexes confondus, meilleure joueuse mondiale, elle possède les moyens de tenir son pari !

14 EUROPE ECHECS N° 388

Europe Echecs: *Réactions à chaud* – First reactions

Nicole Tagnon (Women International Master):

- “Par tradition, les femmes sont moins poussées à faire des choses intellectuelles. Elles doivent se diriger vers d’autres domaines comme la danse par exemple. C’est un reflet de la société : l’homme doit être fort, il doit gagner de l’argent ; la femme doit chercher à plaire. Les ambitions sont donc restreintes dès le départ et l’on est bridée à l’avance parce que nous ne sommes qu’une femme. Il m’arrive souvent d’obtenir d’excellentes position contre des joueurs sensés être plus forts et me relâcher complètement en me satisfaisant de ce simple résultat.”

- **Traditionally, women are less inclined to do intellectual things. They have to move into other fields such as dance for example. It is a reflection of society: the man must be strong, he must earn money; the woman must seek to appeal. The ambitions are therefore restricted from the start, and we are restricted in advance because we are only a woman. I often get excellent positions against players who are supposed to be stronger and relax completely by being satisfied with this simple result.**

Julia Lebel Arias (Women International Master):

- “Il manque des tournois fermés féminins, il n’existe que le national. Il en faudrait pour élever le niveau, préparer chaque partie, s’entraîner. Bien sûr, il est pas interdit de jouer contre les hommes, d’autant que les fortes joueuses sont de plus en plus nombreuses.”

- There is a lack of round-robin women’s tournaments, there is only the National championship. It would be necessary to raise the level, to prepare each game, to train. Of course, it is not forbidden to play against men, all the more so as strong women players are more and more numerous.

Isabelle Bonvalot:

- “A l’époque des châteaux forts, c’est un jeu pratiqué autant par les deux sexes. Elles ont brutalement disparu et n’ont jamais été réintroduites dans le jeu.”

- At the time of the castles, it is a game practiced as much by both sexes. They suddenly disappeared and were never reintroduced into the game.

Krzysztof Pytel (International Master):

- "Il faut trouver le moyen pour créer une situation où les femmes seraient plus fortes et plus "visibles" durant les opens. Très jeunes, les filles sont aussi moins nombreuses et fortes que les garçons. Mais vers 14-18 ens les choses s'inversent les hommes font des progrès plus rapides. En France, à part Madame Chaudé de Silans qui est une exception, il n'y a pas de tradition féminine. Souvent les femmes quittent le jeu lorsque se pose le problème de trouver un emploi."

- **We have to find a way to create a situation where women are stronger and more "visible"** during opens. At a very young age, girls are also less numerous and strong than boys. But around 14-18, when things are reversed, men make faster progress. **In France, apart from Madame Chaudé de Silans who is an exception, there is no female tradition. Women often quit playing when the problem of finding a job arises.**

Europe Echecs: ***"Quelles solutions concrètes peut-on trouver pour améliorer cette situation ?" – What concrete solutions can be found to improve this situation?***

Carine Coudray:

- "Dans mon club de Livry-Gargan, il y a 15 filles de mon âge sur 100 [...]. Elles devraient continuer à jouer mais peut-être pas à un aussi niveau que les garçons. Peu de femmes veulent devenir professionnelles."

- In my club in Livry-Gargan, there are 15 girls of my age out of 100. They should continue to play but maybe not at the same level as the boys. **Few women want to become professionals.**

Nicole Tagnon (Women International Master):

- "Il n'y a pas forcément nécessité de changer cet état de choses. il faut davantage améliorer les conditions pour les femmes qui jouent déjà. Lorsque l'on crée des compétitions “poussines”, “benjamines”, etc... cela appauvrit notre image et cantonne les filles dans leur domaine. il faut donc des compétitions normales et s’il n’existe qu’une joueuse pour dix hommes, il n’y a pas de raison pour qu’elle ne soit pas la plus forte des dix !”

- There is not necessarily a need to change this state of affairs. There is a greater need to improve conditions for women who are already playing. **When we create U-10, U-12, etc... competitions, it impoverishes our image and confines girls to their field. So we need normal competitions and if there is only one female player for every ten men, there is no reason why she should not be the strongest of the ten!**

Julia Lebel Arias (Women International Master):

- “La présence obligatoire d’une joueuse dans chaque équipe de national 1 est une très bonne chose. Cela force les clubs à avoir une femme. C’est magnifique de ce côté. Cependant les médias ne s’occupent pas assez d’elles, dans Europe Echecs il faudrait de meilleurs reportages sur les féminines. Ne pas nous considérer comme une “chose minime”. Aux olympiades, les hommes gagnent 2 fois plus que nous. En Espagne, ils ont tous les même salaire. C’est normal, à notre niveau nous jouons également contre de fortes équipes, c’est le même travail.”

- **The mandatory presence of one player on each Division 1 team is a very good thing. It forces the clubs to have a woman. It’s wonderful on this side. However the media does not take care of them enough,** in Europe Echecs there should be better reports about women. Don’t consider us as a “small thing”. In the Olympics, men earn twice as much as we do. In Spain, they all have the same salary. It’s normal, at our level we also play against strong teams, it’s the same job.

Isabelle Bonvalot:

- “J’ai lu récemment une rubrique d’Echecs qui s’intitulait “Chers lecteurs”. Je trouve déjà cela un peu choquant même s’il peut s’agir d’un masculin général. Il faudrait ajouter en parenthèses “Chères lectrices” !”

- I recently read a chess column entitled ”Dear Readers”. I already find it a bit shocking even though it may be a general masculine one. It should be added in brackets “Dear Female Readers”!

Krzysztof Pytel (International Master):

- "La situation est bizarre. En France, sur 20 000 licenciés, il y a 3 000 femmes. Pourtant dans les opens, on en voit fort peu. Sauf à Aubervilliers où elles sont 50 sur 800. Ce ne sont pas les mêmes proportions ! En réalité, il n'y a pas plus de 100 joueuses qui participent aux tournois. Il faut faire deux choses :

  1. Faire progresser l'élite (30 joueuses) par une pratique accrue (60/70 parties par an avec une position équilibrée).
  2. Créer un circuit de 6 à 8 tournois par an en parties d'une heure KO. Le fait que la présence d'une femme soit obligatoire en Nationale 1 et 2 (dès l'année prochaine) est déjà essentiel : elles pourront rapporter un point précieux. Il faudra donc s'occuper d'elles."

- The situation is bizarre. In France, out of 20,000 registered players, there are 3,000 women.

  Yet in the opens, we see very few of them. Except in Aubervilliers where they are 50 out of 800, not the same proportions! In reality, there are no more than 100 players participating in tournaments. We need to do two things:

  1. To make the elite (30 players) progress by an increased practice (60/70 games per year with a balanced position).
  2. Create a circuit of 6 to 8 tournaments per year in one-hour KO games. **The fact that the presence of a woman is mandatory in Division 1 and 2 (from next year) is already essential: they will be able to bring back a precious point. They will have to be taken care of.**

Europe Echecs: ***"Que peut-être le mot de la fin ?" – What can be the final word?***

Aurélia Gatine:

- "Je suis optimiste."

- I am optimistic.

Carine Coudray:

- "Moi aussi."
- So am I.

Nicole Tagnon (Women International Master):

- "Il faut déjà éviter de dresser les femmes entre elles. Les regards noirs, le jeu contre la partenaire qui jout devant nous alors qu'elle possède un classement plus faible, le manque de modestie (quelle femme peut réellement se vanter en France d etre professionnelle ?) doivent disparaître. Il ne faut pas qu'avant de jouer nous soyons stressées !"
- It is already necessary to avoid pitting women against each other. The black eyes, the game against the female partner in front of us when she has a lower ranking, the lack of modesty (which woman can really brag in France to be a professional?) must disappear. We must not be stressed before playing!

Julia Lebel Arias (Women International Master):

- "Nous avons le droit d'améliorer notre niveau."
- We have the right to improve our level.

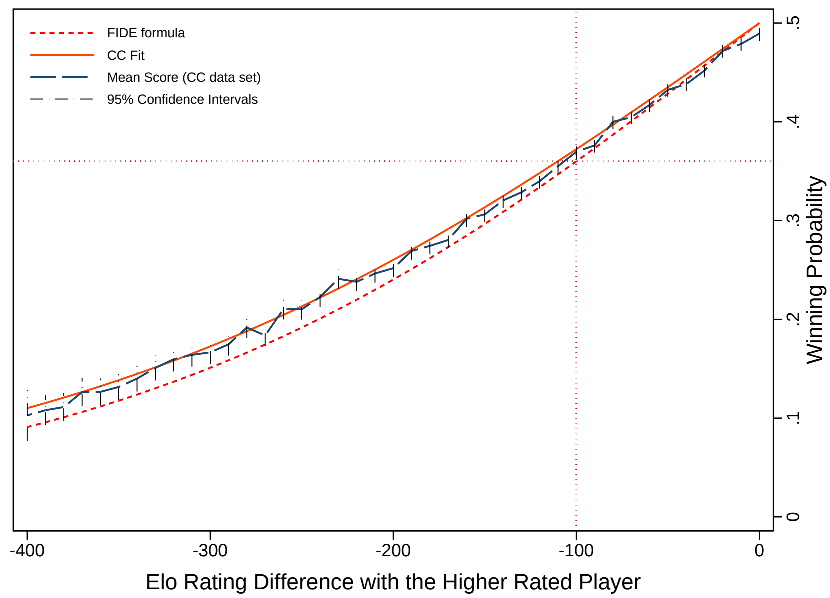
Krzysztof Pytel (International Master):

- "Créer beaucoup d'événements féminins. Nous sommes en retard par rapport aux autres pays comme le montre les derniers résultats. Il faut viser la 6e place mondiale."
- Create many women's events. We are lagging behind other countries as the latest results show. We have to aim for 6th place in the world.

J Online Appendix: Expected Winning Scores and Cumulative Distribution Functions (CDF)

The "winning-expectation" formula (1) with $\alpha = 400$, as proposed by FIDE, predicts for each difference in Elo ratings between players i and j the chance that the lower ranked player wins, see the “FIDE formula” line in Figure 21. Using data on 297,249 Club Championship games between 1986 and 2015,[107] we compute the actual mean scores, or probabilities of winning, see “Mean Score” line. We also compute the best estimated fit of these winning probabilities using Equation (1) that delivers an $\hat{\alpha} = 441$ instead of $\alpha = 400$, see “CC Fit” line.

Figure 21: Expected Score (Probability to Win)



Notes: For each Elo difference the expected probability with which the lower ranked player wins. “FIDE formula” represents the FIDE expected winning score using Equation (1) with $\alpha = 400$. If the lower rated player has 100 points less, his probability of winning is 0.36 (see doted lines). “Mean Score” shows the actual mean score of the lower rated player, along with confidence intervals, using data of 297,249 Club Championship (CC) games between 1986 and 2015. “CC Fit” uses the same data to estimate Equation (1) which delivers $\hat{\alpha} = 441$.

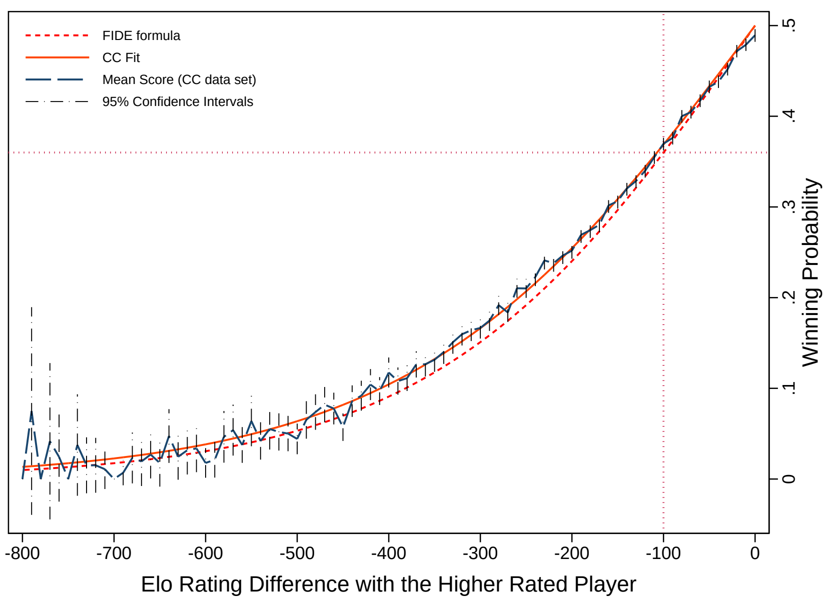
Figure 21 confirms the predictive power of the Elo rating, though the levels do not perfectly align with those postulated by FIDE. The increase in confidence intervals as the difference in Elo ratings exceeds 200 points is due to the fact that about three-quarters of our data are on games with differences less than 200. Specifically, for differences in Elo ratings of 200 and more, we find a slightly lower advantage than predicted.

To produce Figure 21, we start with a sample of 340,036 games (see last row of Table 2). We drop all games for which there is an individual forfeit or an unrated player. Moreover, to streamline the graph, we exclude the 11,621 games with a difference in Elo

[107]For details on this data set see Section 2.5.

ratings between players of 400 points or more (where the probability of winning for the higher ranked player is greater than 92%). We end up with a sample of 297,249 games, which represent more than 96% of all games played in the CC. Figure 22 is based on the 308,704 Club Championship games played between 1986 and 2015. The figure reports the actual mean scores, see "Mean Score" line, as well as the best estimated fit of the winning probabilities using Equation (1) that delivers an $\hat{\alpha} = 429$ instead of $\alpha = 400$, see "CC Fit" in Figure 22.

Figure 22: Expected Winning Scores

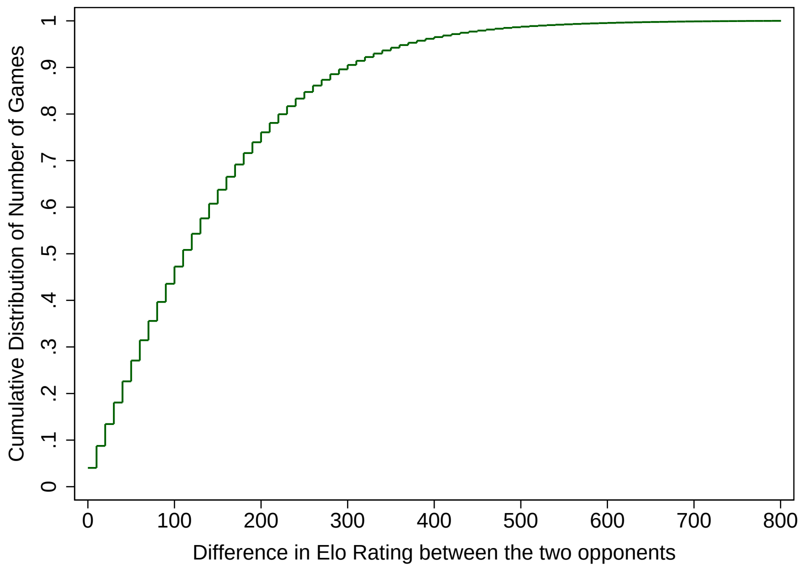


Notes: For each Elo difference the expected probability with which the lower ranked player wins. "FIDE formula" represents the FIDE expected winning score using Equation (1) with $\alpha = 400$. If the lower rated player has 100 points less, his probability of winning is 0.36 (see doted lines). "Mean Score" shows the actual mean score of the lower rated player, along with confidence intervals, using data of 308,704 Club Championship (CC) games between 1986 and 2015. "CC Fit" uses the same data to estimate Equation (1) which delivers $\hat{\alpha} = 429$.

For a cumulative distribution function of differences in Elo ratings between the two players in the 297,249 games see Figure 23. As a robustness check, we reproduce Figures 21 and 23 with an external data set of 3,269,850 FIDE games (De Sousa and Hollard, 2015), see Figures 24 and 25, respectively.

Figure 23: CDF of the Number of Games by Elo Rating Difference

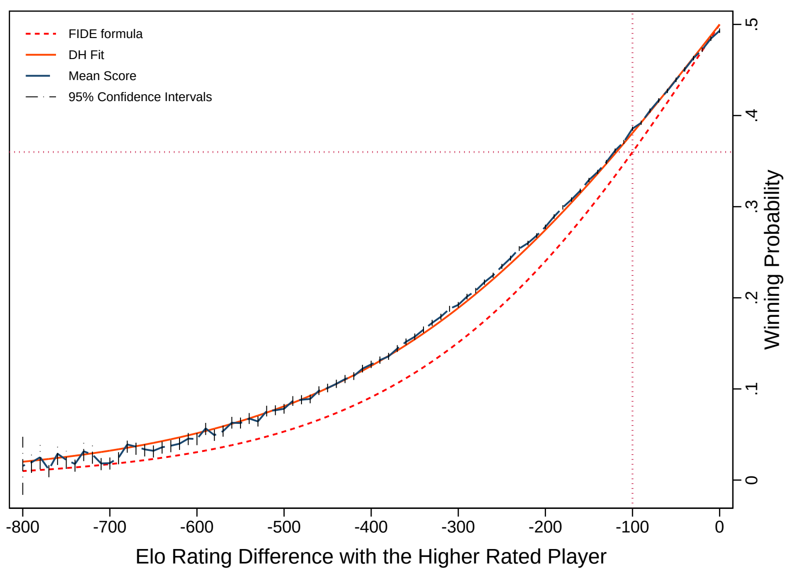
Data from the Championship Club data



Notes: Cumulative distribution function based on 308,704 club championship games between 1986 and 2015. To streamline the graph, we exclude the few games (166) with a difference in Elo ratings between players of 800 points or more.

Figure 24: Expected Winning Score

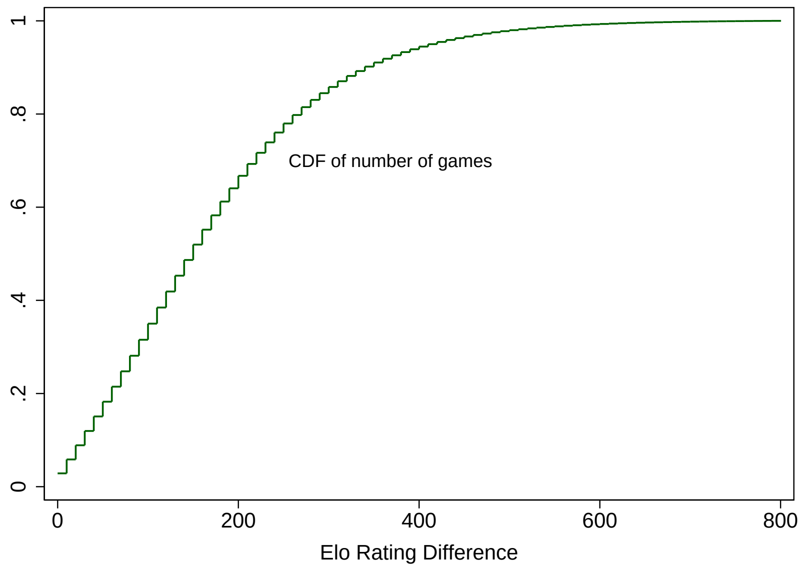
Data from De Sousa and Hollard (2015)



Notes: For each Elo difference the expected probability with which the lower ranked player wins. If the lower rated player has 100 points less, his probability of winning is 0.36 (see doted lines). "Mean Score" shows the actual mean score of the lower rated player, along with confidence intervals, using data from De Sousa and Hollard (2015). "DH fit" is based on $\alpha = 474$ in Equation (1), while the "FIDE formula" uses $\alpha = 400$.

Figure 25: CDF of Number of FIDE Games by Elo Rating Difference

Data from De Sousa and Hollard (2015)



Notes: Cumulative distribution function based on 3,269,850 FIDE games used in De Sousa and Hollard (2015) from 2008 to 2013. To streamline the graph, we exclude the few games with a difference in Elo ratings between players of 800 points or more.

K Online Appendix: FIDE

K.1 History of FIDE Rating and Titles

Established in 1924, FIDE (Federation Internationale des Echecs), the international governing body of chess, connects national chess federations, defines the rules of chess, awards titles and governs chess competitions. Since the first international chess tournament in London, 1851, all FIDE approved events are tournaments, where chess players enter either as individuals or as teams such in the French national Club Championship.

FIDE officially adopted Elo ratings in 1970. The Elo system has been used by the U.S. chess federation (USCF) since 1960 for rating its entire membership. The outline and working principles of this rating system have been presented in a number of papers by its creator Arpad Elo in *Chess Life*, the USCF magazine (e.g., in June 1961 and August 1967).[108]

FIDE computes and publishes FIDE Elo rating lists at regular intervals (on a monthly basis since July 2012). To receive a FIDE rating, players need to play against other rated players.[109]

FIDE has a history of providing chess titles with female specific criteria. Among the first titles FIDE awarded in 1950, via a resolution, are 27 Grandmasters (GM), 94 International Masters (IM), and 17 International Woman Masters (WIM). With quite some abuse of the formal criteria, a GM title requires a minimum Elo rating of 2500, an IM title of 2400, and a WIM title of 2200.[110] FIDE introduced more titles in the late 70's and early 80's, with Elo requirement in parenthesis, namely a Woman GM (2300) in 1976, FIDE Master (2300) in 1978, and a Woman FIDE Master (2100) in 1980, when hence all official titles had female

[108] Arpad Elo was the chairman of the USCF rating system committee and published "The USCF Rating System - A Scientific Achievement" in *Chess Life*, June 1961, pp. 160-161, and "The Proposed USCF Rating System Its Development, Theory, and Applications" in *Chess Life*, August 1967, pp. 242-247. See also his monograph (Elo, 1978).

[109] Today, a player must play against a minimum of 5 FIDE rated players in a FIDE event, secure at least one draw, and end up with a rating at least as high as the 1000 with which she started. The requirements for a FIDE rating used to be much more stringent and with higher Elo floors. To receive a French national rating, a person must play 8 official games against rated players, FIDE or not.

[110] A GM title requires fulfilling 3 GM "norms" and having (at some point) an Elo rating of at least 2500. A GM norm can be achieved at official FIDE events that need to fulfill strict criteria; for instance, the event must be played over at least 9 rounds (games) with at least 120 minutes of thinking time per game and include at least 3 GM players from at least 2 countries different from that of the title applicant. Furthermore, to gain a GM norm, the player must achieve a tournament performance rating of at least 2600 points. The exact current rules are posted on the FIDE website.

counterparts with requirements that are 200 Elo points lower.[111]

The history of FIDE ratings showcases perhaps even more than their title requirements how FIDE tries to include female players. The first unofficial list in June 1967 had 94 players with no women. An unofficial list two years later included 375 players with one woman. The first official FIDE list from July 1971 of 592 players contained 3 women. A year later, in July 1972, the list included 1,125 players with 128 women. However, the threshold to be listed was lower for women, who only needed an Elo rating of 1805 points or higher, compared to 2205 for men. Enforcing the same high threshold in Elo ratings for all players would have only resulted in 26 ranked women.[112]

More extremely, FIDE even twice adjusted the ratings of female players to keep them on the list of ranked players. In July 1985, the floor for women's ratings was elevated to 1905. All women who used to be ranked in the previous year and ended up with an Elo rating in $[1805, 1905]$ were given a rating of 1905, guaranteeing that they kept being rated. In January 1987, when the floor for female ratings was increased to 2005, all women (but one) who were previously ranked and were computed to have a rating of 1905 or higher received an additional 100 points.[113] The only female player excepted from the rule was Zsuzsa Polgár (Judit's elder sister) who was the first woman to be in the top 200 of all players, and had an Elo rating of 2495. Increasing her Elo rating by 100 would have pushed her into the top 100 players. A few years later, in January 1993, the rating floor for men was lowered to that of women of 2005.[114] In 2002, the rating floor was lowered to 1800 for both men and women. Then, the requirements for both women and men were lowered by 200 points at a time to reach 1600 in 2004, 1400 in 2005, 1200 in 2009, and finally 1000 points in 2012.

K.2 Rules for Determining the Rating Change of a Rated Player

The rating change for a rated player is subject to some specific rules following the FIDE Rating Regulations (see Article 8.5 of the FIDE Handbook). All references in this section

[111] Two additional titles were introduced in 2002: Candidate Master (2200 Elo) and Woman Candidate Master (2000 Elo).

[112] Ratings of women above 1805 and below 2205 were computed for the first time in July 1972 using results from 1969-1972.

[113] Note that in both cases adjustments were only applied to female players who were rated in the previous list. Hence a new female player with a rating in $[1805, 1904]$ in 1985 and one with a rating of 1905 or higher in 1987 did not receive any point adjustments.

[114] For reasons we ignore, few male players have ratings below 2205 before 1993 (see Table 9).

concern the FIDE Handbook.

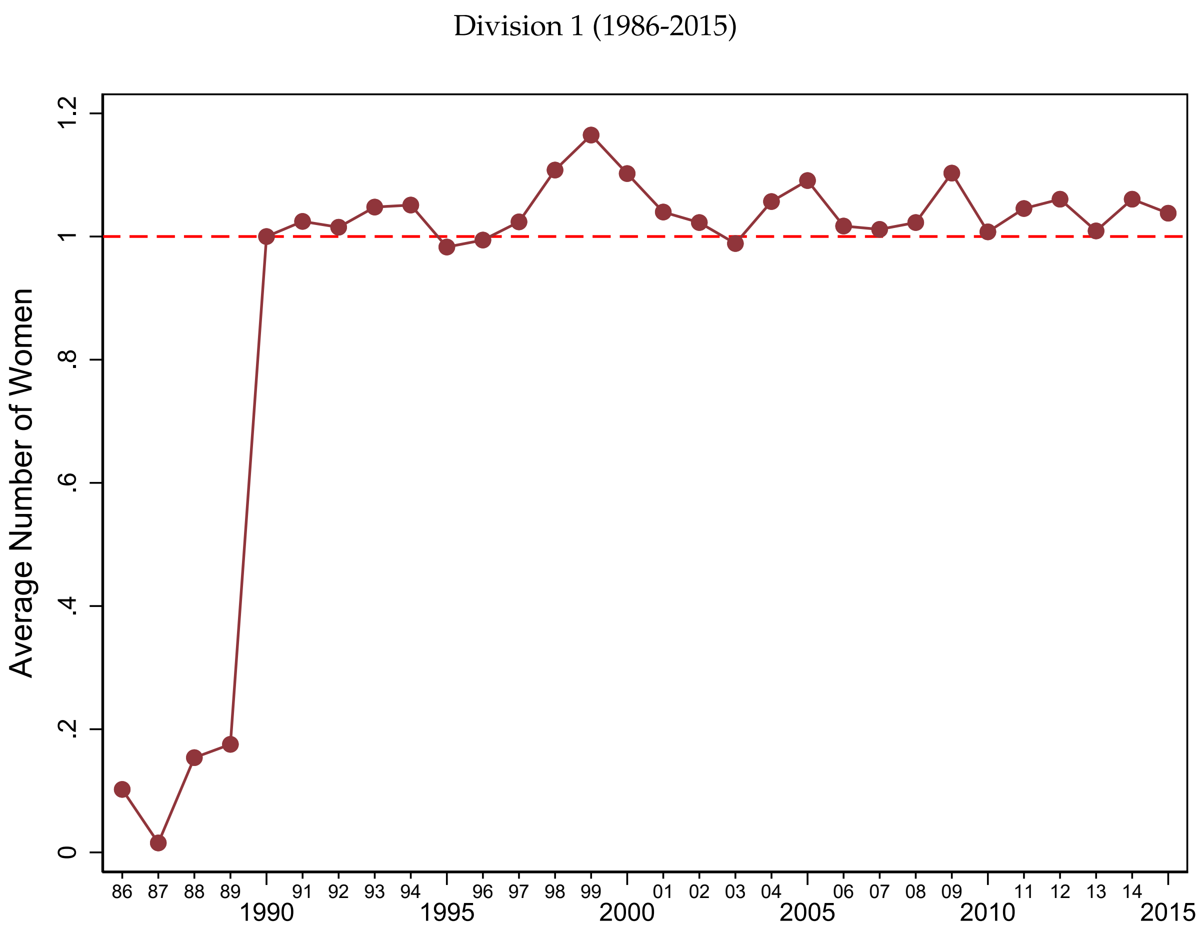
1. The rating change depends on K (see Section 2.1). K is specific to each player and changes over a player's lifetime but never increases (see Article 8.56). For players with the same K, the points a player loses are transferred 1:1 to the winning player. The values of K has changed over time.

   - As of July 1, 2014, the FIDE rules are that $K = 40$ for any player who is new to the rating list, under 18, has played at most 29 games against FIDE rated players and has a rating lower than 2300. Otherwise $K = 20$ as long as a player's rating remains under 2400, and $K = 10$ as soon as a player reaches 2400.
   - Before July 1, 2014, FIDE used the following ranges. $K = 30$ for a player new to the rating list until the completion of events with a total of 30 games. $K = 15$, for players with a rating always under 2400. $K = 10$, for players with any published rating of at least 2400 and at least 30 games played in previous events. Thereafter it remains permanently at 10.

2. A difference in rating of more than 400 points shall be counted for rating purposes as though it were a difference of 400 points (see Article 8.54).

L Online Appendix: Extensive Margin

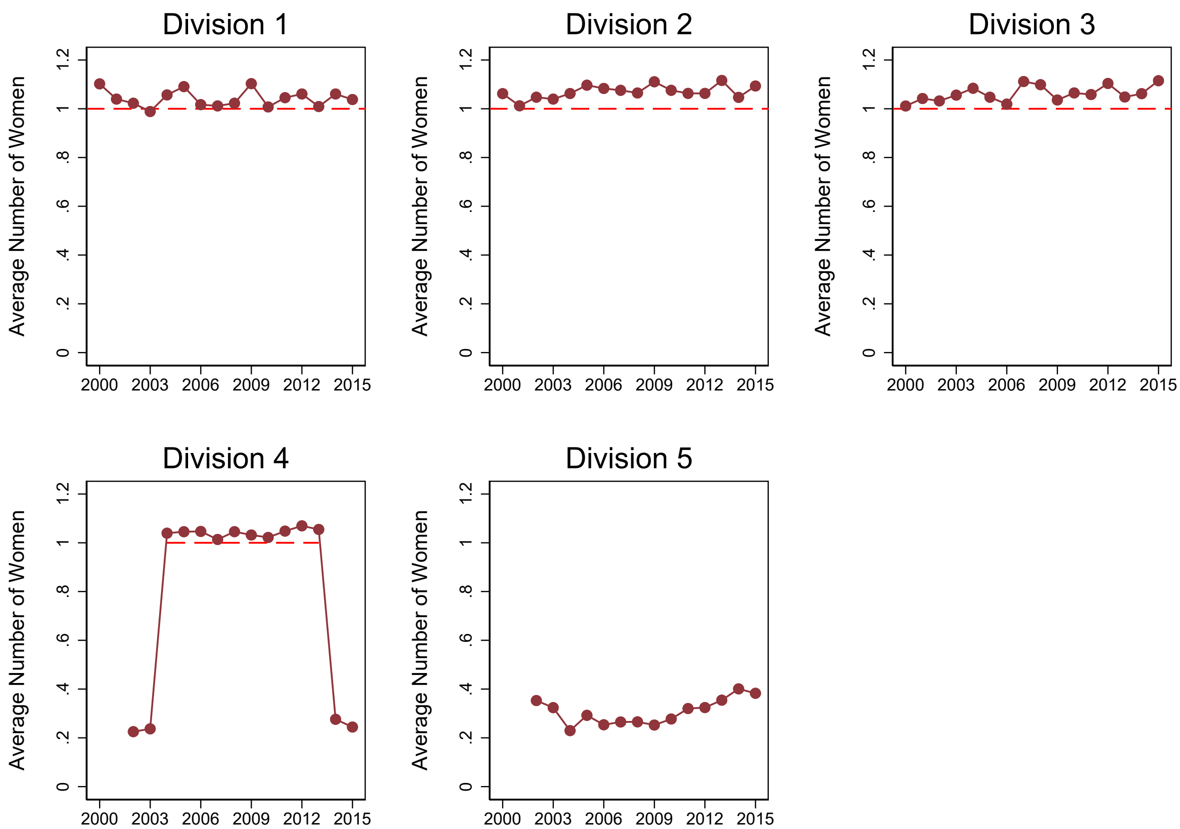
Figure 26: Average Number of Women per Match-Team



Notes: For each year, the average number of women in each match-team. Data from 4,619 match-teams totaling 185 women between 1986 and 2015. The quota was introduced in 1990 (vertical line) requiring one woman per match-team (horizontal line at 1).

Figure 27: Average Number of Women per Match-Team

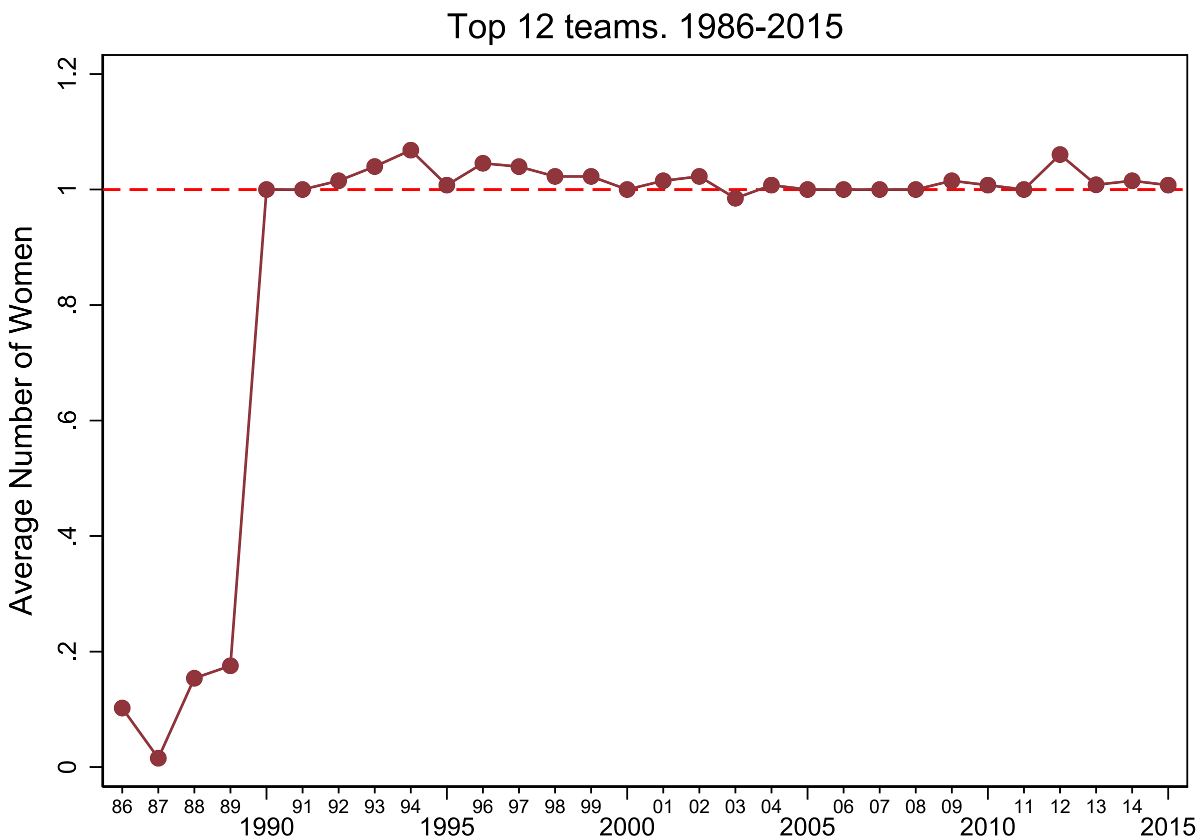
All Divisions (2000 - 2015)



Notes: For each division and year, the average number of women in each match-team. The horizontal dashed line indicates the minimum number of women per match-team when a quota is required (see Appendix Table 4).The period is 2000-2015 in divisions 1, 2 and 3 and 2002-2015 in divisions 4 and 5.

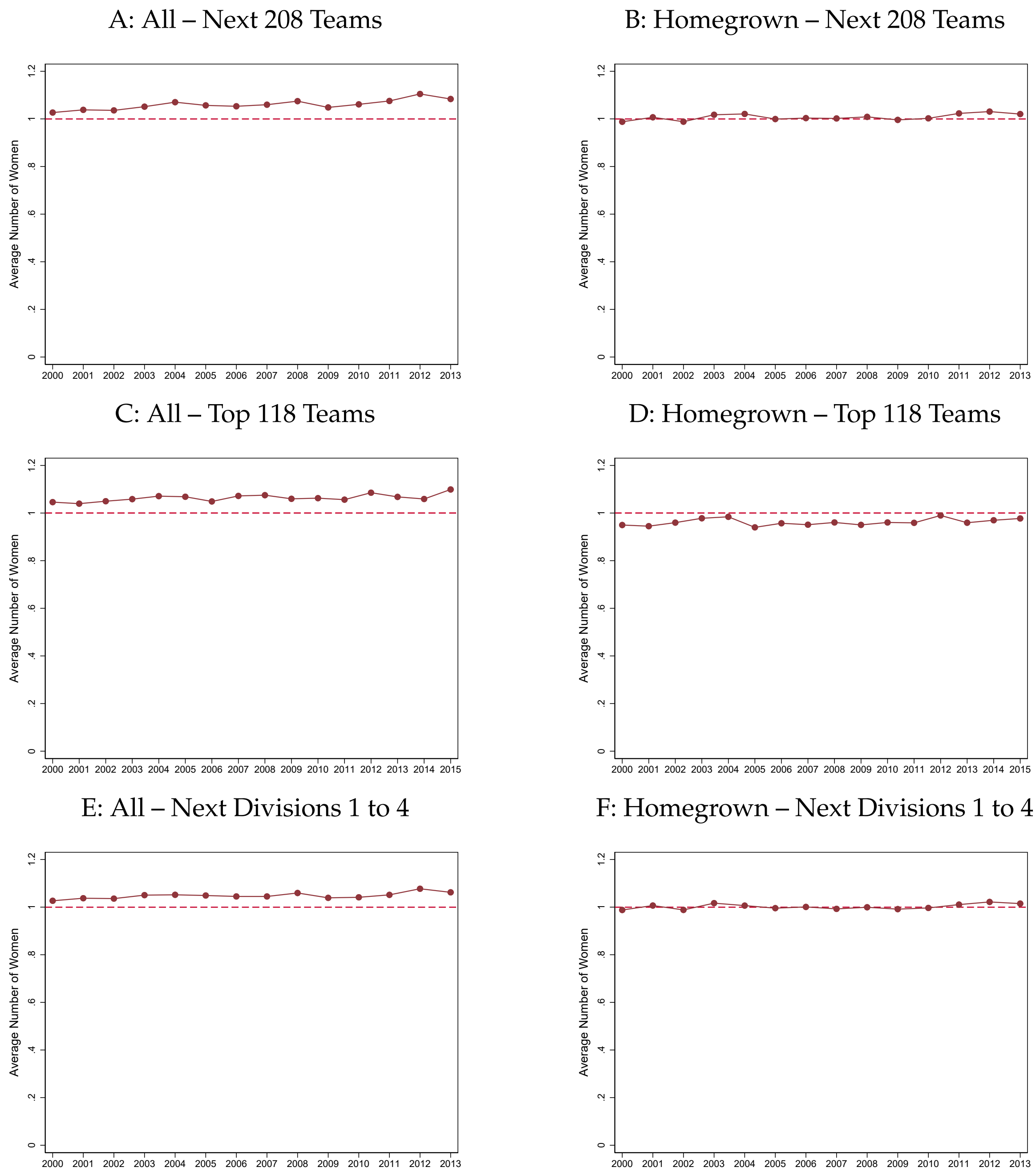
Below we reproduce the Figure 1A by focusing on the eligible women, instead of considering all of the women who played in division 1. This means that we separate the French female players, who are eligible, from the foreign ones, who are not. Figure 28 shows a striking result: the average number of eligible female players in top 12 is mostly equal to one from 1990 to 2005, which is the mandatory number. One is approximately the average number observed in all divisions where the quota was implemented (see Online Figure 27).

Figure 28: Average Number of Eligible Women per Match-Team



Notes: The horizontal dashed line indicates the minimum number of eligible required women per match-team. Eligible women are French female players per FIDE code or citizenship depending the period (see text for details). There are 141 eligible women between 1986 and 2015, and 3,900 match-team compositions of which 3,483 with at least one eligible woman.

Figure 29: Extensive Margins: Beyond Top 12

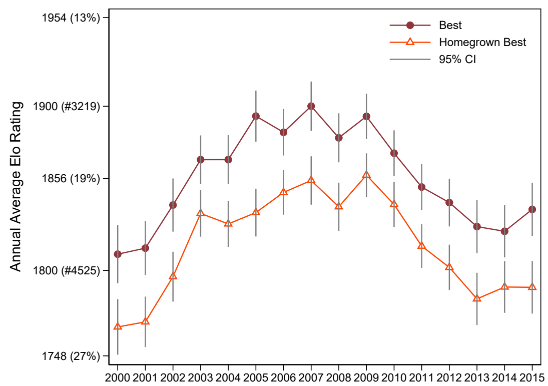


Notes: For each year, average number of best (homegrown) women in each match-team (MT). The quota requires one woman per MT (horizontal line at 1). (A): 27,023 MT with at least one woman, totaling 1,928 women. (B): 26,467 MT with at least one homegrown woman, totaling 1,817 women. (C): 19,355 MT with at least one woman, totaling 1,164 women. (D): 18,163 MT with at least one homegrown woman, totaling 1,074 women. (E): 30,868 MT with at least one woman, totaling 2,260 women. (F): 30,307 MT at least one homegrown woman, totaling 2,149 women.

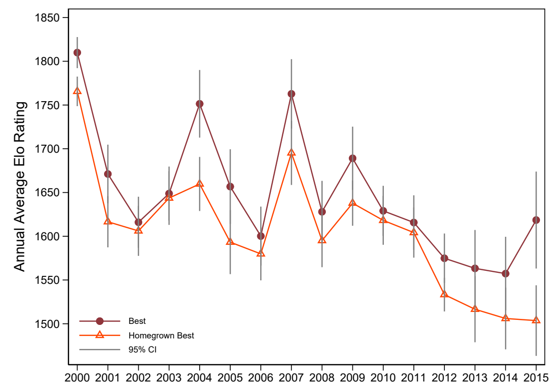
M Online Appendix: Performance Gains of Women

Figure 30: Performance Gains of Women in the *Top 118 Teams*

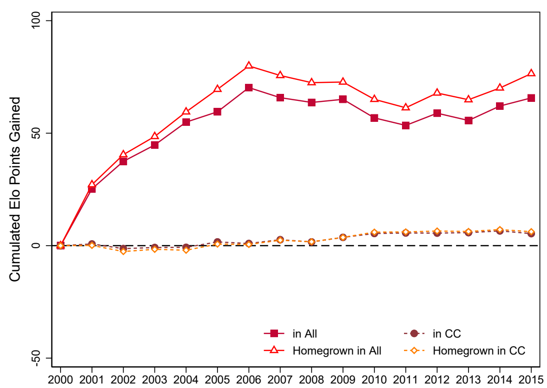
A: Best Women



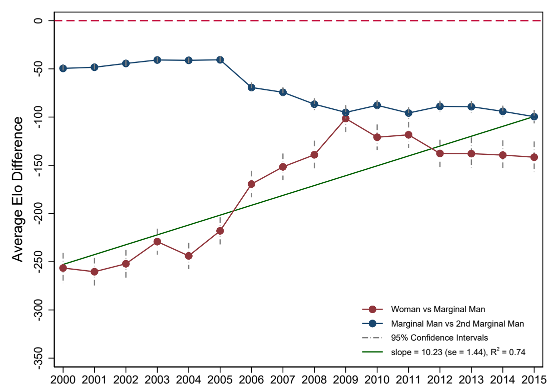
B: Best Women - First Year



C: Points Gained in and outside of CC

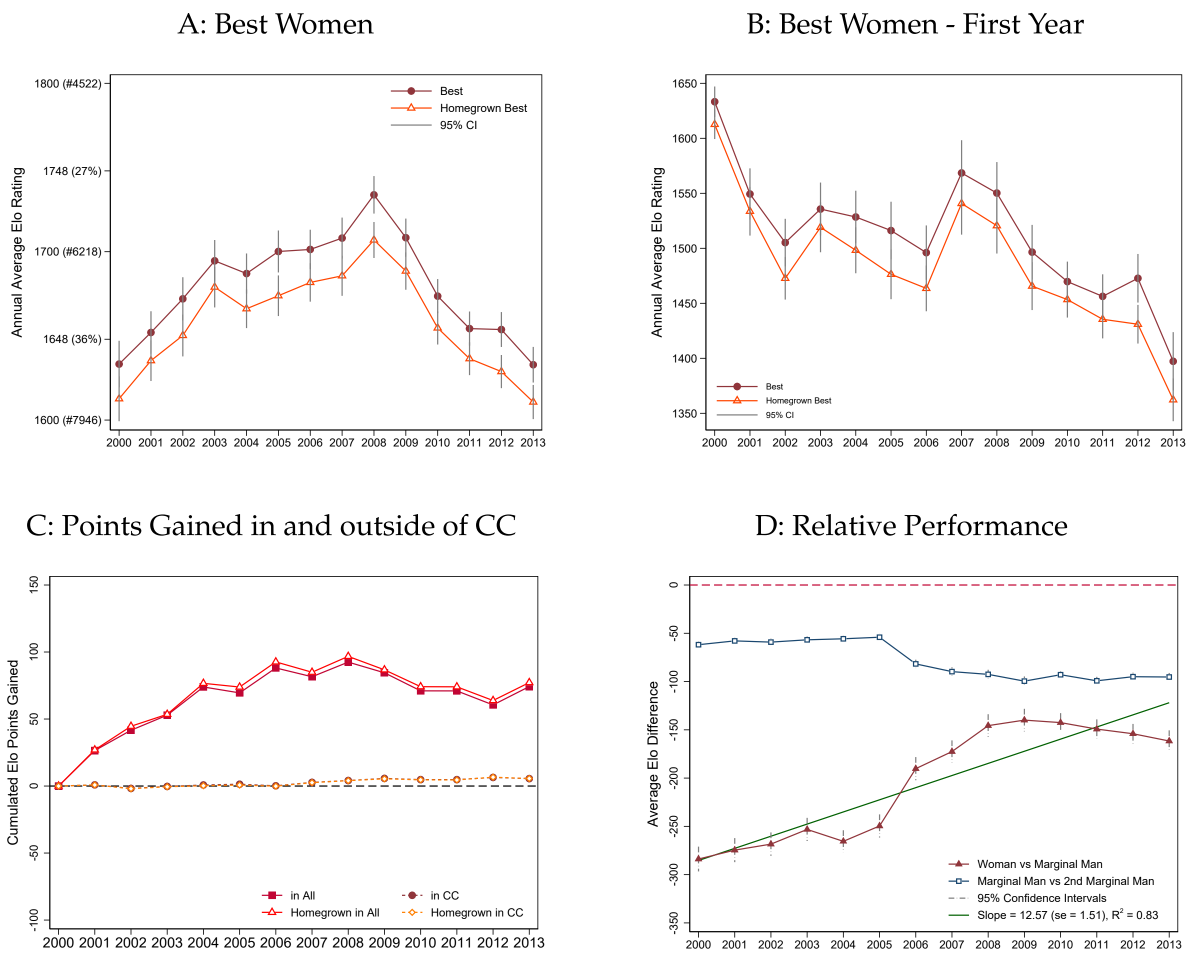


D: Relative Performance



Notes: For each year from 2000 to 2015: (A) The average Elo rating of the best female player in the team "Best" and when we restrict attention to those who are homegrown "Homegrown Best", data from 1090 (1029) Best (Homegrown Best) women in the Top 118*. (B) The average Elo rating of the best female player in the team when we restrict data to the first year the woman plays in the* Top 118*. (C) "(Homegrown) in All" are the cumulated Elo points the best (homegrown) women win during their CC tenure in the* Next 208*. "(Homegrown) in CC" are the cumulated Elo points women win during their tenure in CC games in the* Top 118*. (D) For 17,356 match-teams, the average difference in conditional Elo ratings between the best woman and the marginal man (the 7^{th} best man) as well as between that man and the 6^{th} best man in the match-team with 95% confidence intervals. Slope from an OLS regression on a yearly trend.*

Figure 31: Performance Gains of Women in the *Next Divisions 1 to 4 Teams*

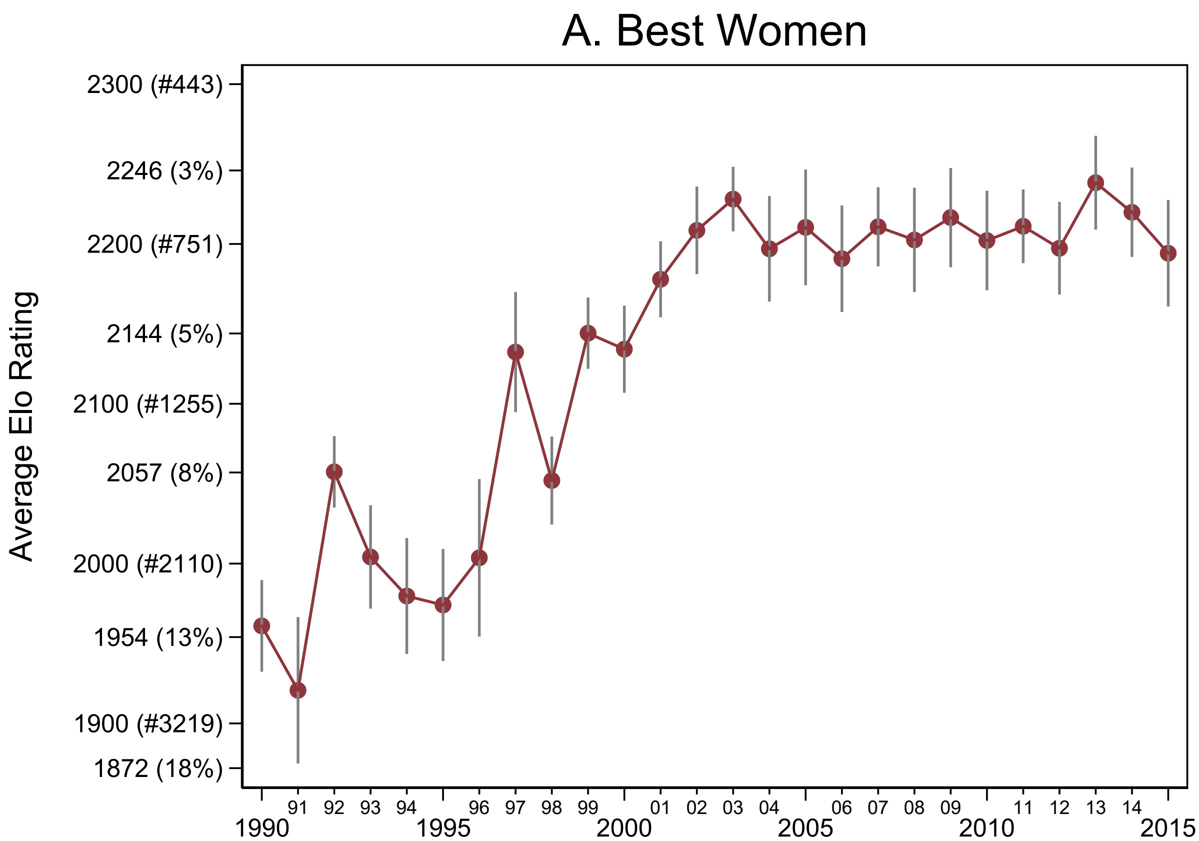


Notes: For each year from 2000 to 2013: (A) The average Elo rating of the best female player in the team "Best" and when we restrict attention to those who are homegrown "Homegrown Best", data from 2157 (2071) Best (Homegrown Best) women. (B) The average Elo rating of the best female player in the team when we restrict data to the first year the woman plays in the Next Divisions 1 to 4 Teams*. (C) "(Homegrown) in All" are the cumulated Elo points the best (homegrown) women win during their CC tenure in the* Next 208*. "(Homegrown) in CC" are the cumulated Elo points women win during their tenure in CC games in the* Next Divisions 1 to 4 Teams*. (D) For 28,250 match-teams, the average difference in conditional Elo ratings between the best woman and the marginal man (the 7^{th} best man) as well as between that man and the 6^{th} best man in the match-team with 95% confidence intervals. Slope from an OLS regression on a yearly trend.*

N Online Appendix: Intensive Margin

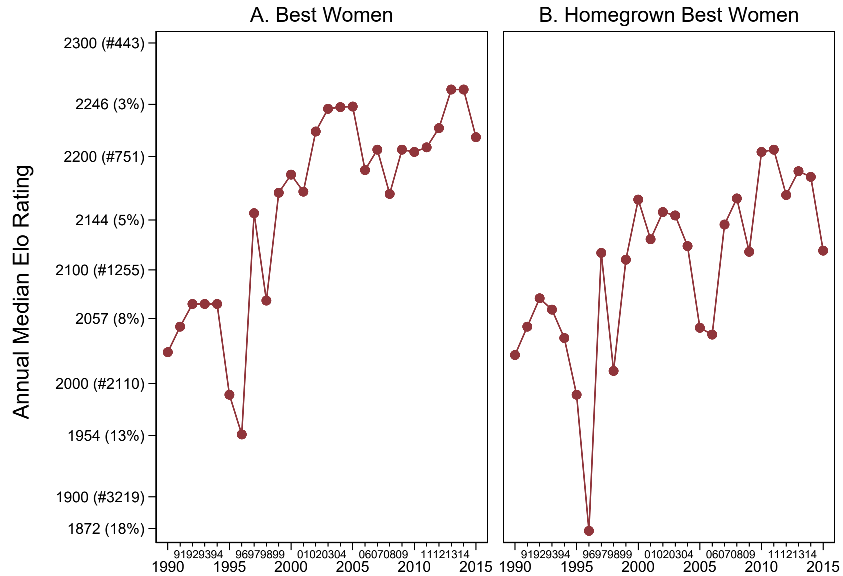
N.1 Top 12

Figure 32: Women in the *Top 12*: Performance of Eligible Women



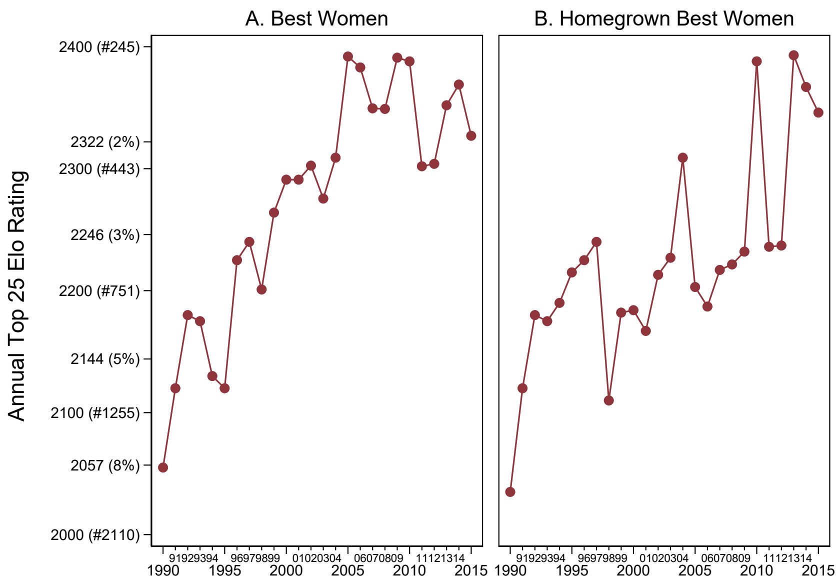
Notes: Average Elo rating of 136 "Best" eligible female players in the team in the Top 12 between 1990 and 2015.

Figure 33: Intensive Margin of Women Chess in Top 12 - Median Elo



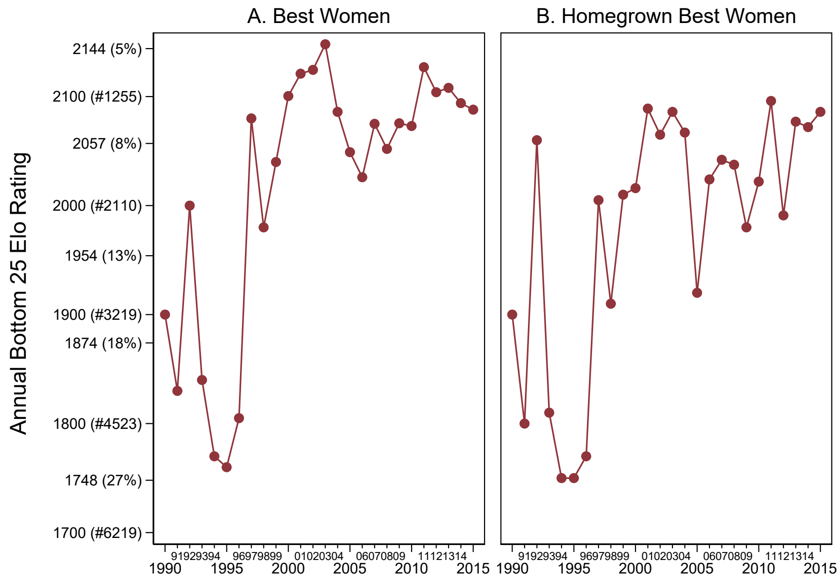
Notes: Median Elo rating of best women in Top 12 teams. Panel A: 144 women. Panel B: 111 homegrown women.

Figure 34: Intensive Margin of Women Chess in Top 12 - Top 25% Elo



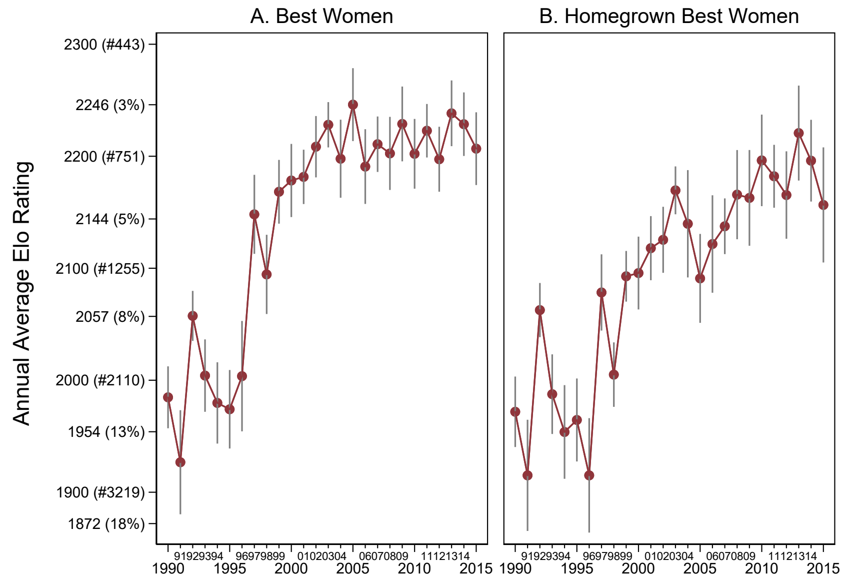
Notes: Top 25th percentile rating of the best women players. Panel A: 144 women. Panel B: 111 homegrown women.

Figure 35: Intensive Margin of Women Chess in Top 12 - Bottom 25% Elo



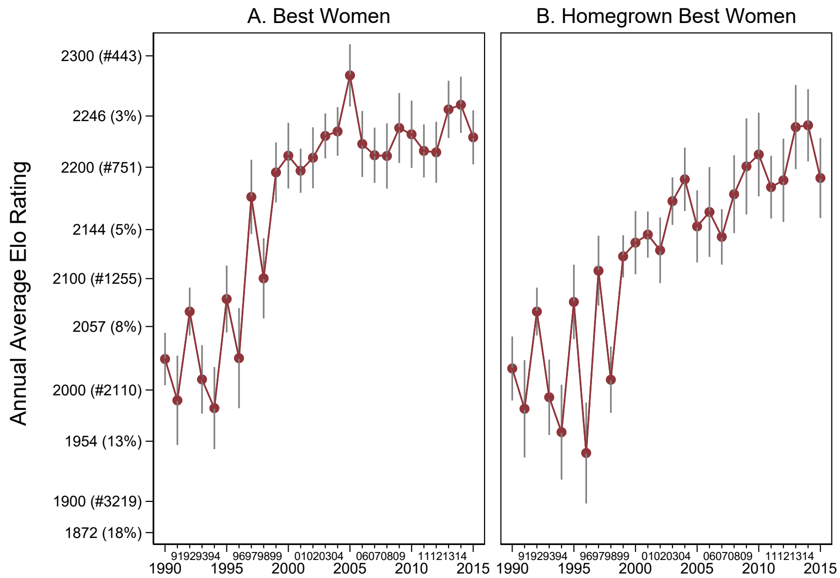
Notes: Bottom 25th percentile rating of the best women players. Panel A: 144 women. Panel B: 111 homegrown women.

Figure 36: Intensive Margin of Women Chess in Top 12 - Variation 1 on Stayers



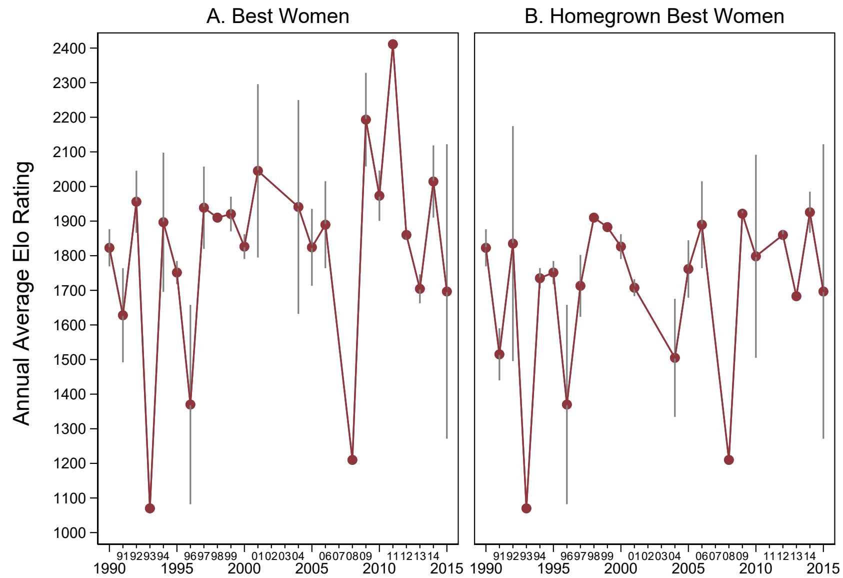
Notes: Among the best women players, we remove those who remain in the top 12 for only one season and are new comers. They mainly represent foreign women players who only register for one year or beginners (who only play once in the top 12). Thus, we keep (1) the women who stay for more than one season between 1990 and 2015 and (2) those who stay for one year but who are not beginners. Panel A: 135 best women. Panel B: 108 homegrown best women.

Figure 37: Intensive Margin of Women Chess in Top 12 - Variation 2 on Stayers



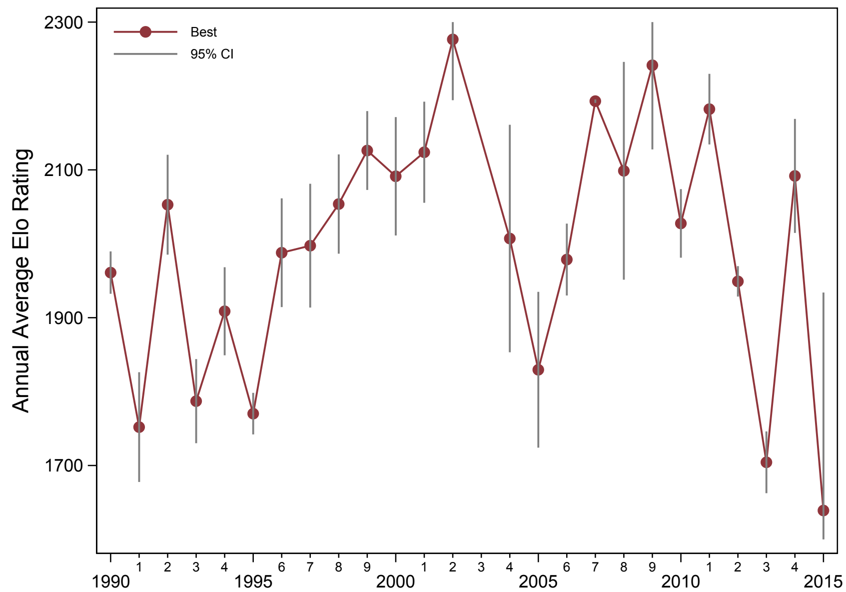
Notes: Among the best women players, we remove those who remain in the top 12 for only one season between 1990 and 2015. Panel A: 73 best women. Panel B: 56 homegrown best women.

Figure 38: Intensive Margin of Women Chess in Top 12 - Only One Year



Notes: Among the best women players, we only keep those who remain in the top 12 for only one season between 1990 and 2015. Panel A: 71 best women. Panel B: 55 homegrown best women.

Figure 39: All Women (First Year)

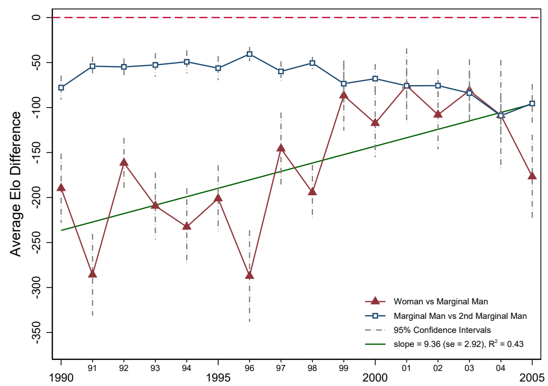


Notes: Consider all female players in the Top 12, and for each woman consider the first year in which she played in the Top 12.

O Online Appendix: How Good is a Homegrown Best Woman in a Top 12 Team?

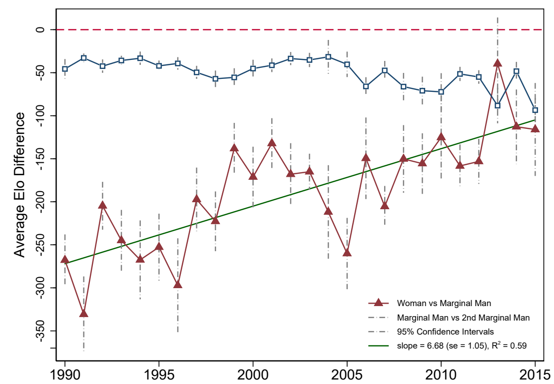
Figure 40: How Good is the Homegrown Best Woman in a Top 12 Team?

A: 1990-2005



Notes: We consider 1,543 team-compositions in Top 12 clubs from 1990 to 2005, a period where matches were played over 9 boards. The best female player is compared to her 8th male teammate, i.e. the 'marginal male'. The dashed horizontal line at zero would mean that any gap between two players would be closed. We condition the Elo rating on player's age (in logs) and a rich set of fixed effects: player's federation, club's division, club's city, and season. Each dot represents an annual average with vertical 95% confidence interval. The slope comes from the OLS regression of the woman's average Elo difference on a yearly trend. The robust standard error is in parentheses. We also report the comparison between the 8th and the 7th best male teammates.

B: 1990-2015



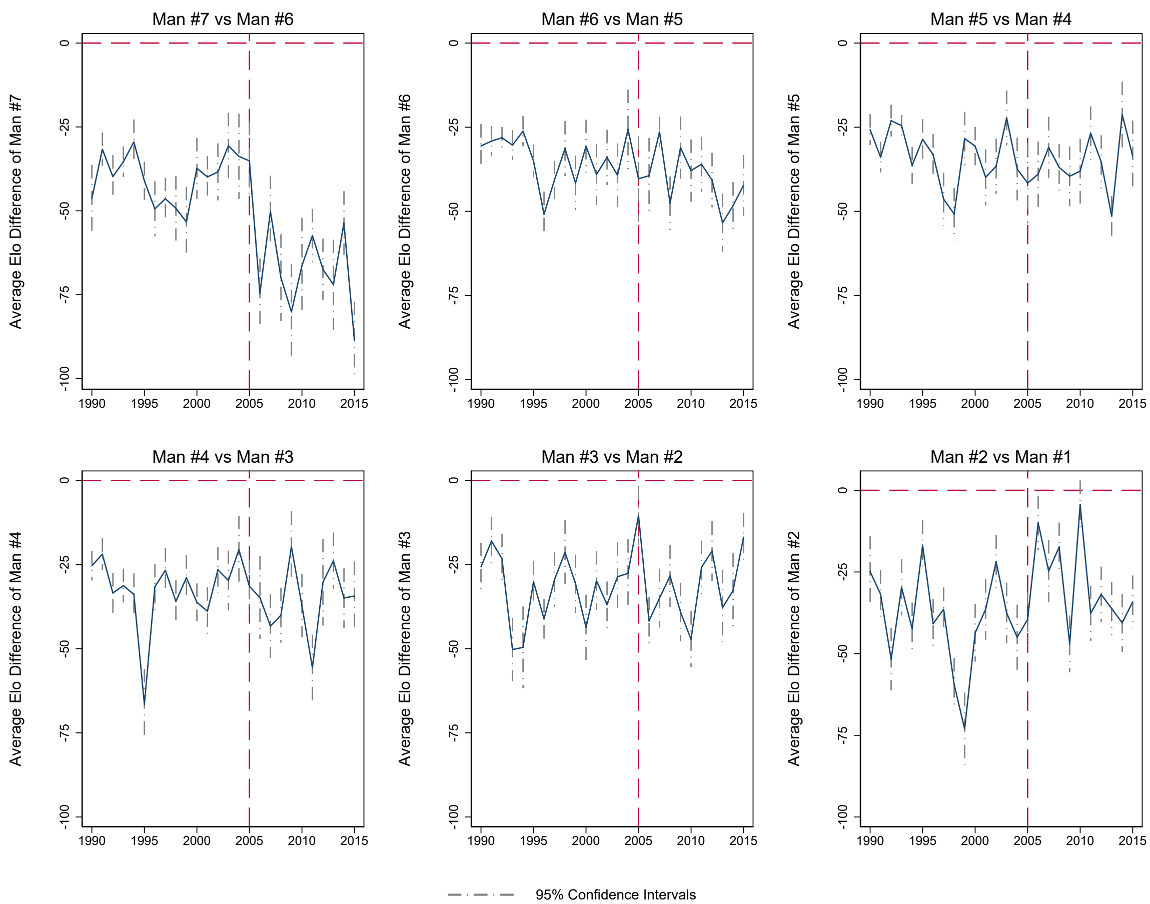
Notes: We consider 2,359 team compositions in Top 12 clubs from 1990 to 2015, a period where matches were played over 9 boards before 2006 and 8 boards afterwards. The homegrown best female player is compared to her 7th male teammate, i.e. the 'marginal male'. The dashed horizontal line would mean that the gap between any two players would be closed. We condition the Elo rating on player's age (in logs) and a rich set of fixed effects: player's federation, club's division, club's city, and season. Each dot represents an annual average with vertical 95% confidence interval. The slope comes from the OLS regression of the woman's average Elo difference on a yearly trend. The robust standard error is in parentheses. We also report the comparison between the 7th and the 6th best male teammates.

P Online Appendix: How Good are Male Teammates Players?

P.1 Top 12

Figure 41: How Good are Male Teammates Players in Top 12 teams?

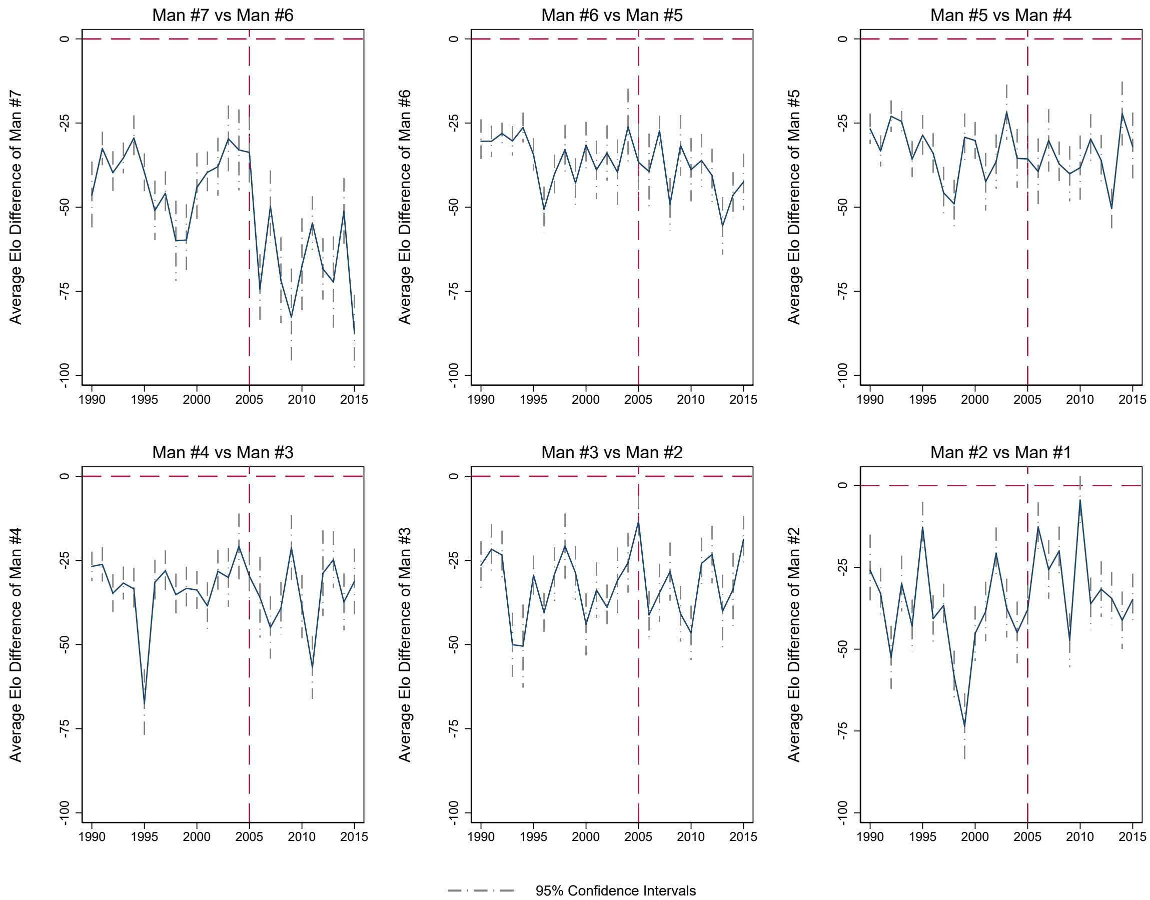
Difference in Elo Ratings - Sample of Best Women



Notes: We focus on Top 12 teams from 1990 to 2015 in order to compare male teammates.We condition the Elo rating used to compute the winning probability on player's age (in logs) and a rich set of fixed effects: player's federation, club's division, club's city, league and season. Each tiny dot represents an annual average with vertical 95% confidence interval.

Figure 42: How Good are Male Teammates Players in Top 12 teams?

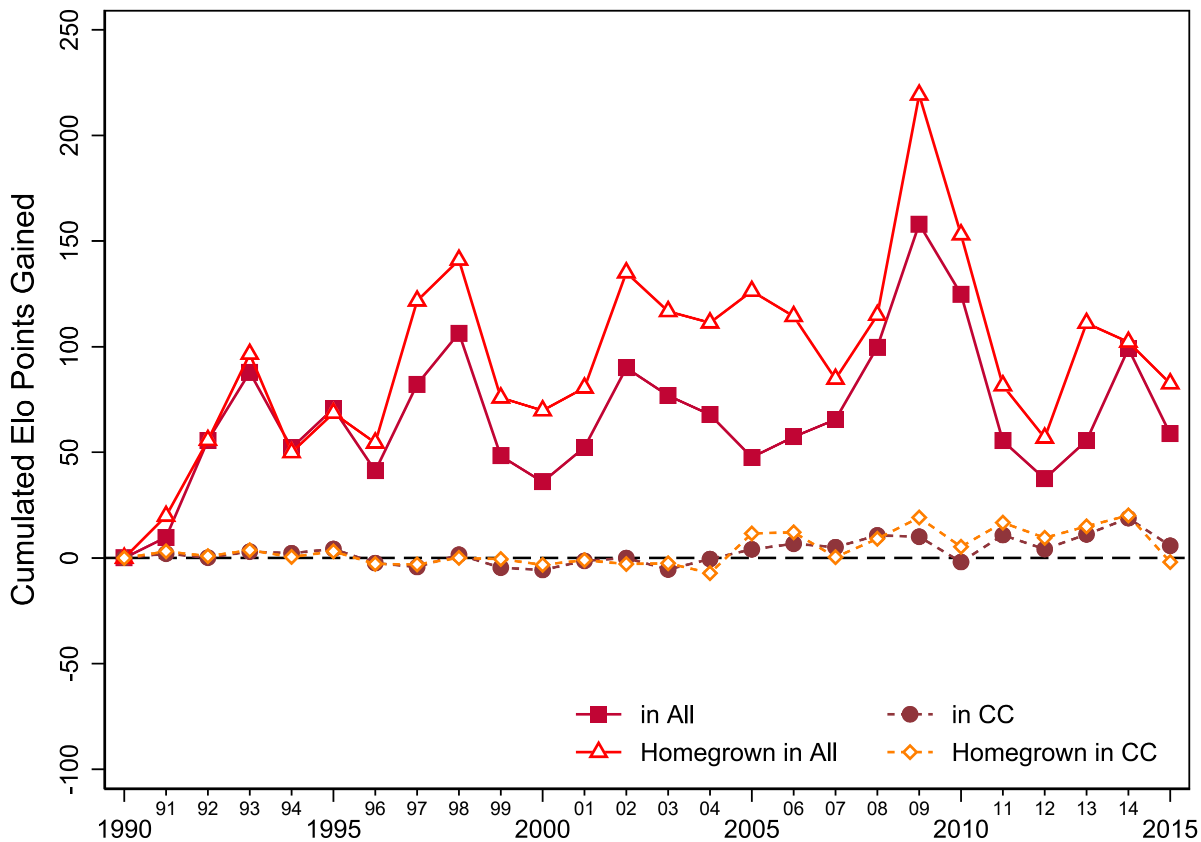
Difference in Elo Ratings - Sample of Best Eligible Women



Notes: We focus on Top 12 teams from 1990 to 2015 in order to compare male teammates.We condition the Elo rating used to compute the winning probability on player's age (in logs) and a rich set of fixed effects: player's federation, club's division, club's city, league and season. Each tiny dot represents an annual average with vertical 95% confidence interval.

Q Online Appendix: Gains Driven by Club Championship games

Figure 43: Points Gained In and Outside Club Championship

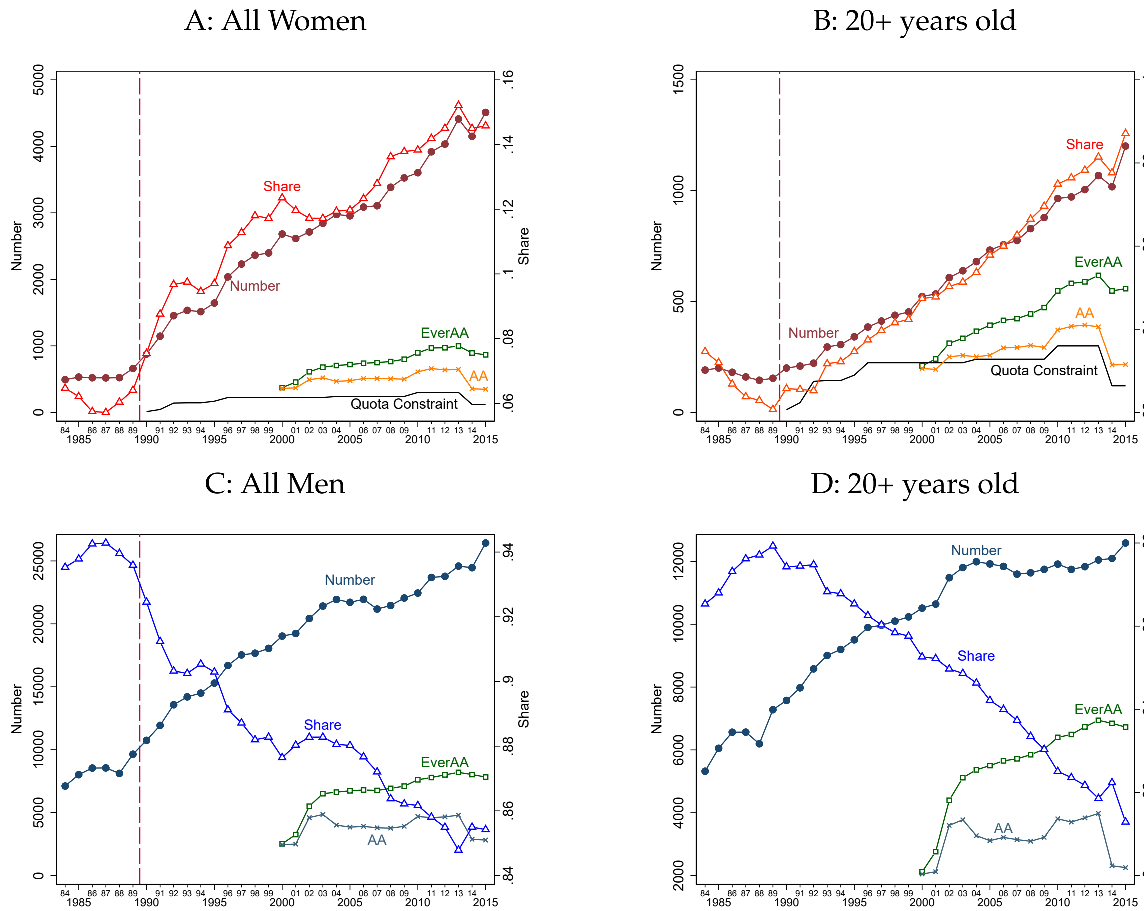


Notes: "(Homegrown) in CC" means cumulated points gained by (homegrown) best women in club championships. "(Homegrown) in All" means cumulated points gained by (homegrown) best women in all competitions. Here, the difference with Panel A in Figure 1D is that we also include the Elo points woman gained in Club Championship games outside the *Top 12*.

Figure 43 differs from Figure 1D only by plotting different "in CC" lines. Specifically, we compute the Elo points won not only in the *Top 12* but also in *any* Club Championship game in any of the seasons t up to season $t + k - 1$, as long as the woman is the best player in her match-team in all 5 divisions. One reason for this robustness test is that in some years, such as 1992, division 1 consists of more than 12 teams (see Appendix Table 3). However, Figure 43 shows that the result does not change when we include the Elo points woman gained in Club Championship games outside of the *Top 12*.

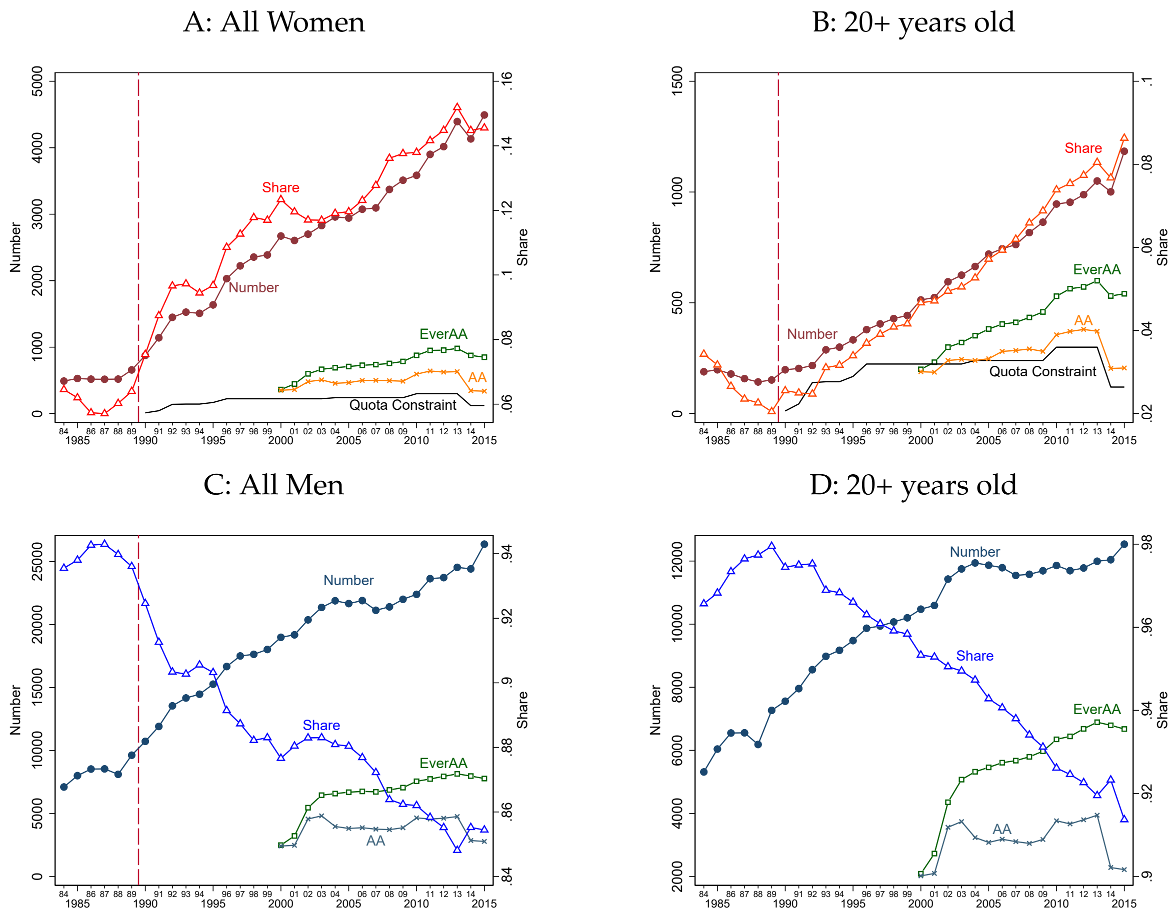
R Online Appendix: Female and Male Chess Players

Figure 44: Number and Share of French Players in France



Notes: For each year the number and share of female and male players who among all active players registered at the French Chess Federation between 1984 and 2015 (panel a and c, respectively). We restrict attention to players who are at least 20 years old in panel b and d. “Quota Constraints” represents the theoretical minimum number of female players required to fulfill the quota in all national divisions. AA shows the number of women and men who played a CC game with a quota requirement in that year (“AA”). The vertical line divides years before and after the introduction of the quota (1990).

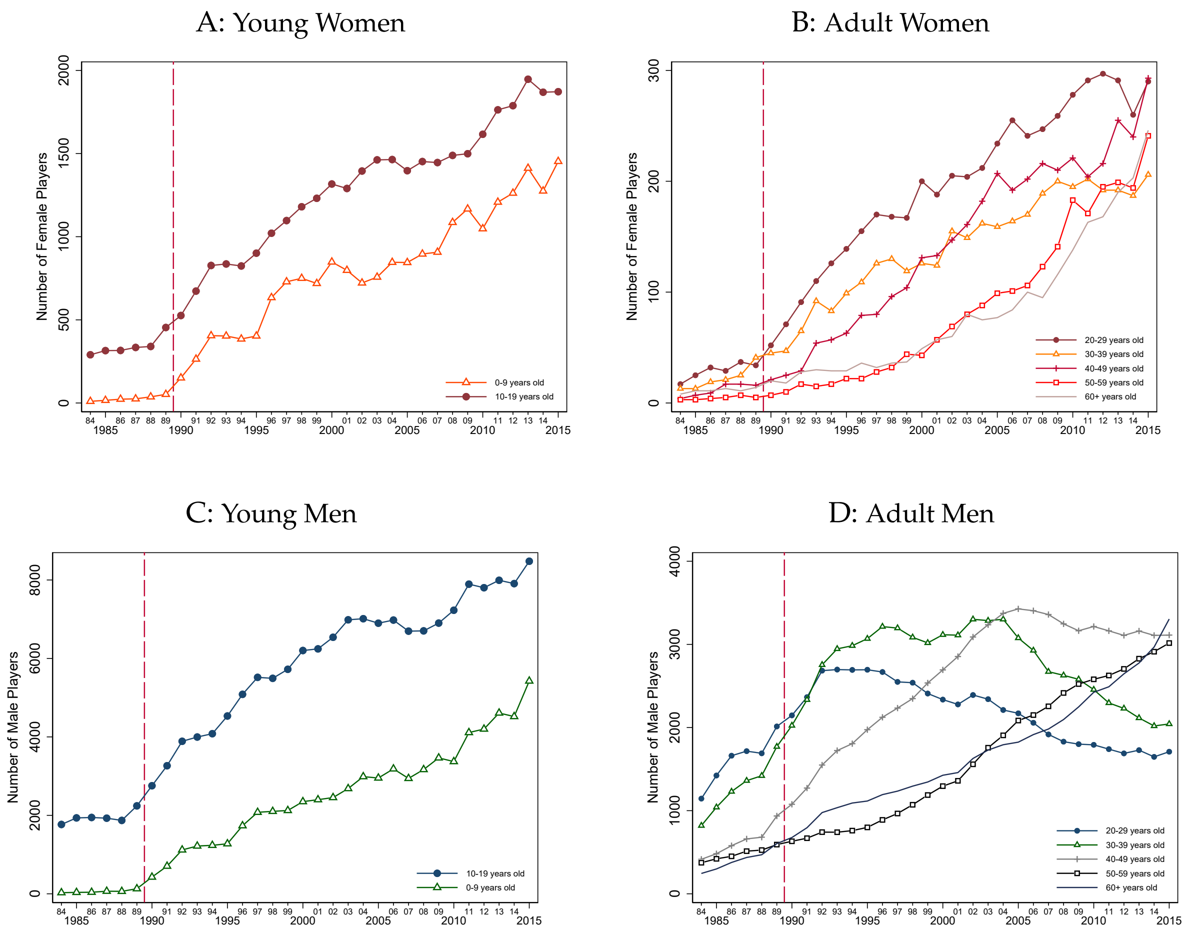
Figure 45: Number and Share of Homegrown Players in France



Notes: For each year the number and share of female and male players who among all active players registered at the French Chess Federation between 1984 and 2015 (panel a and c, respectively). We restrict attention to players who are at least 20 years old in panel b and d. "Quota Constraints" represents the theoretical minimum number of female players required to fulfill the quota in all national divisions. AA shows the number of women and men who played a CC game with a quota requirement in that year ("AA"). The vertical line divides years before and after the introduction of the quota (1990).

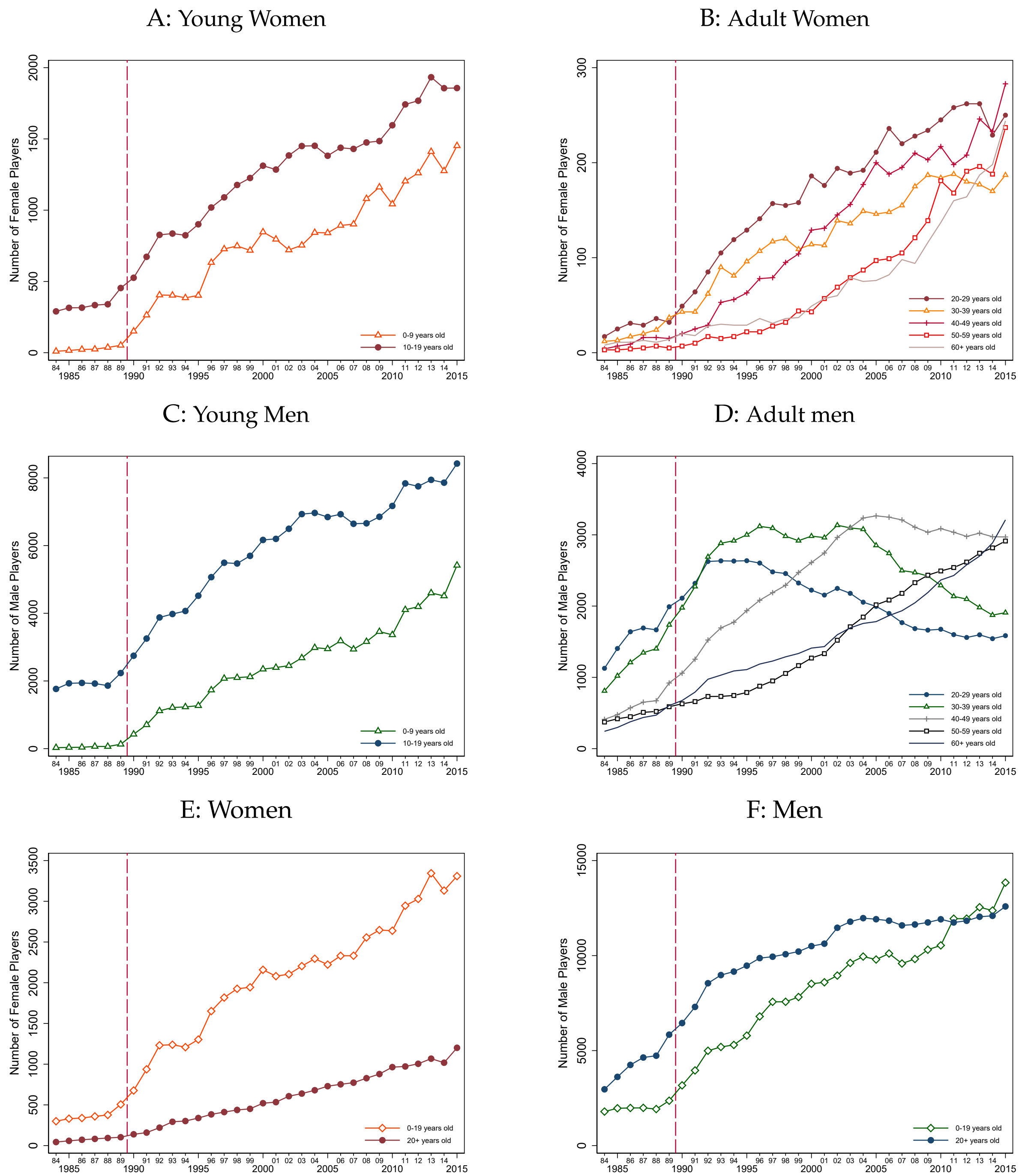
Panel A of Figure 46 shows the number of players up to 9 years old, as well as those from 10 to 19, and Panel B shows the number of players in different groups (20-29, 30-39, 40-49, 50-59 and 60+ years old) over time. The rise in the *share* of female players from 1990 to 2015 is lowest in the two youngest decades, followed by the oldest, and highest among other adult decades. Specifically, the outcomes of OLS regressions on the fraction of female players on a yearly trend for each decade are: 0-9 (-0.28, robust s.e. of 0.06, $p < 0.01$ and $R^2 = 0.49$); 10-19 (0.13, robust s.e. of 0.02, $p < 0.01$ and $R^2 = 0.74$); 20-29 (0.48, robust s.e. of 0.02, $p < 0.01$ and $R^2 = 0.97$); 30-39 (0.25, robust s.e. of 0.01, $p < 0.01$ and $R^2 = 0.95$); 40-49 (0.21, robust s.e. of 0.01, $p < 0.01$ and $R^2 = 0.96$); 50-59 (0.21, robust s.e. of 0.01, $p < 0.01$ and $R^2 = 0.97$); 60+ (0.13, robust s.e. of 0.02, $p < 0.01$ and $R^2 = 0.75$). Panels C and D show the same for men.

Figure 46: French Chess Players by Gender: Adult vs Youth



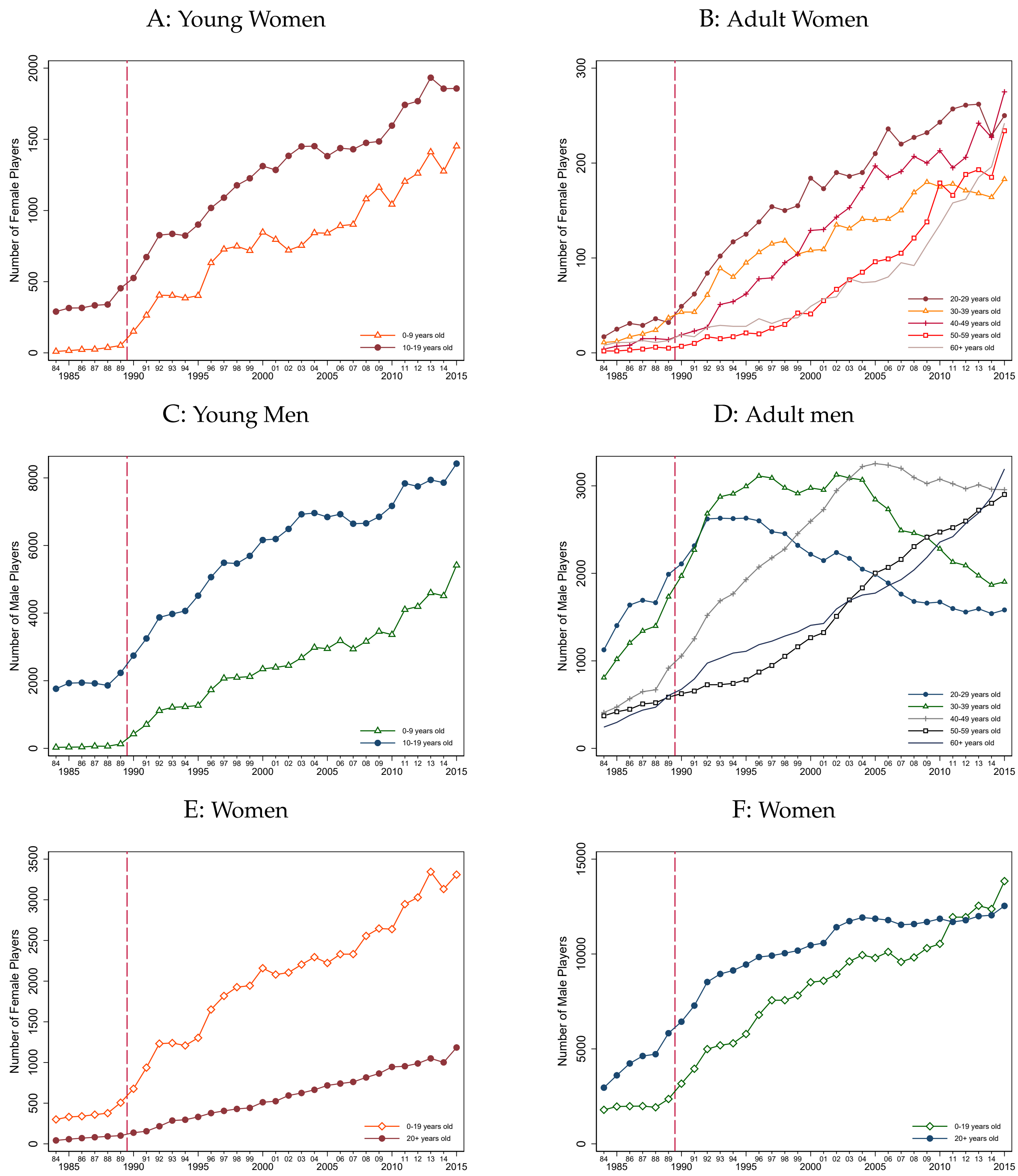
Notes: Active male and female players registered at the French Chess Federation between 1984 and 2015. See the Online Appendix with only French (Figure 47) or French and homegrown players (Figure 48) players.

Figure 47: Number of French Women and Men in France (1984 – 2015)



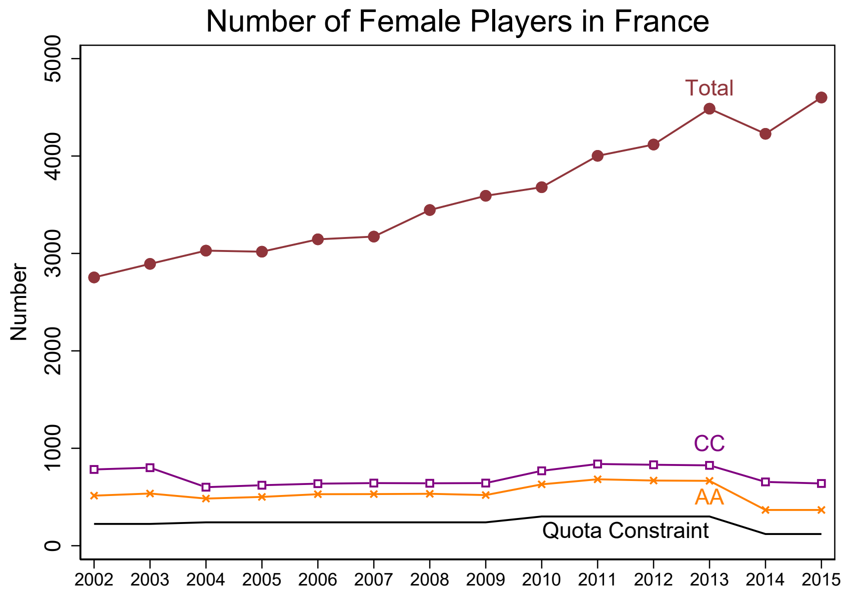
Notes: French Men and Women registered at the French Chess Federation between 1984 and 2015.

Figure 48: Number of Homegrown Women and Men in France (1984 – 2015)



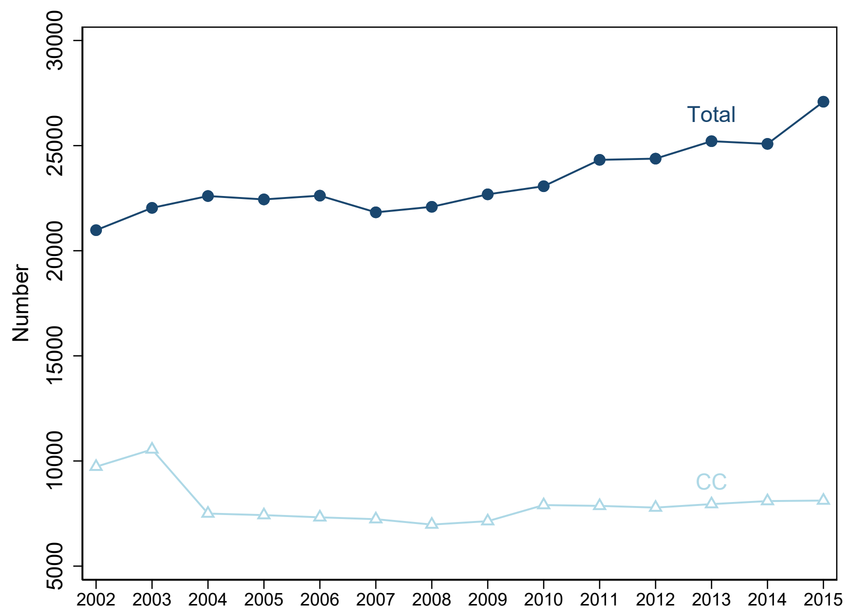
Notes: Homegrown Men and Women registered at the French Chess Federation between 1984 and 2015.

Figure 49: Number of Female Players in France (2002 – 2015)



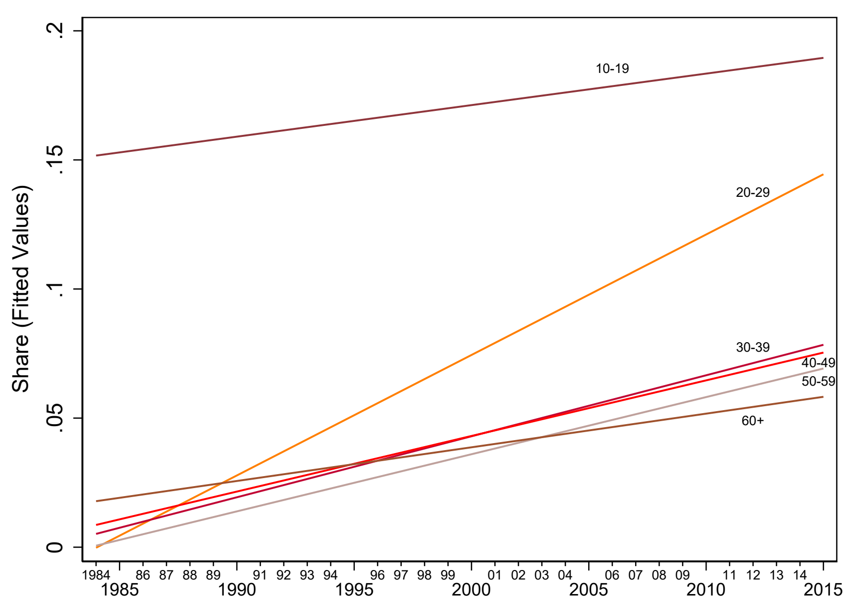
Notes: The figure depicts the number of female players (1) registered at the French Chess Federation between 2002 and 2015 ("Total"), (2) playing in the club championship with or without the quota ("'CC'), (3) playing in the club championship under the quota ("AA"). We consider only active players who have paid their due to the federation. The "Quota Constraints" represent the minimum number of female players required to fulfill all quota requirements (1 female per team).

Figure 50: Number of Male Players in France (2002 – 2015)



Notes: The figure depicts the number of male players (1) registered at the French Chess Federation between 2002 and 2015 ("Total"), or (2) playing in the club championship ("CC"). We consider only active players who have paid their due to the federation.

Figure 51: Share of Homegrown Female Players in France by Age Groups (1984 – 2015)



Notes: Share of female players, from 10 to 60+ years old, registered at the French Chess Federation between 1984 and 2015. We consider only active players who have paid their due to the federation.

S Online Appendix: Division 4

We exploit two policy changes in division 4 to study the role of the quota. First, in 2004, CC divisions were restructured with most of the clubs in division 3 being put in division 4. Second, the quota was ended in division 4 in 2013. This section provides descriptive statistics and additional evidence regarding the role of the quota for division 4.

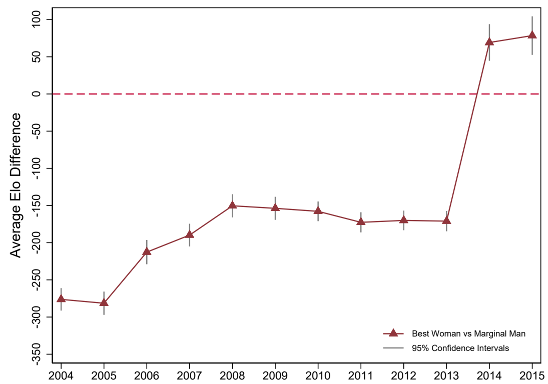
- Average number of women per match-team: Figure 52.
- The relative Elo ratings of women and marginal men: Figure 53.
- Number of (best) women, worst men and teams, partly involved in Table 1: Table A2.
- Descriptive statistics on the players involved in Table 1: Table A3.
- Tournaments registered per year at the French Chess Organization: Table A4.
- Full estimates of Panels A and B of Table 1: Tables A5 and A6.
- Robustness using only the best women per match-team: Tables A7.
- Robustness using clusters by club instead of clusters by player: Table A8.
- Marginal effects of probit regressions instead of linear probability models of columns 1-3 and 6 of Table 1 (see Tables A9 and A10). Probit regressions include year but not club fixed effects. In that case, the lower number of observations per club than per year would create an incidental parameter problem. Note, however, that none of the findings differ if we also add club fixed effects.

Figure 52: Average Number of Women per Match-Team in Division 4

Notes: For each year from 2004 to 2015, the average number of best women per match-team. 23,212 match-teams for a total of 1,702 unique women and 9677 unique men.

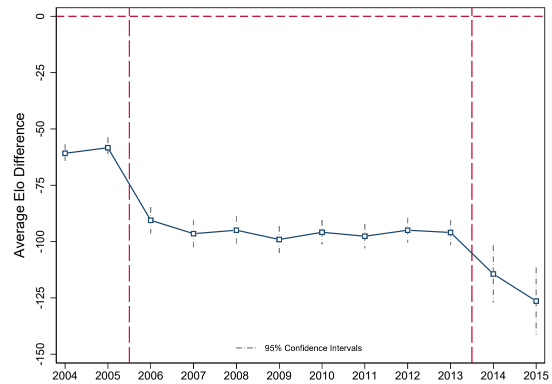
Figure 53: Relative Elo Ratings in Division 4

A: Best Woman vs Marginal Man



Notes: For each year from 2004 to 2014 and 13,628 match-teams, the average difference in conditional Elo ratings between the best woman and the marginal man in the match-team with 95% confidence intervals.

B: Marginal Man vs 2nd Marginal man



Notes: For each year from 2004 to 2014 and 13,628 match-teams, the average difference in conditional Elo ratings between the marginal man and the 7^{th} best man in the match-team with 95% confidence intervals.

Table A2: Number of Women, Men and Teams in Division 4

	Number of			
Year	Best Women	Women	Worst Men	Teams
2004	290	311	603	160
2005	295	314	592	159
2006	302	321	600	160
2007	300	309	569	158
2008	295	315	599	157
2009	282	297	598	157
2010	352	368	684	180
2011	375	392	691	177
2012	376	405	690	179
2013	336	356	681	177
2014	118	131	789	178
2015	113	132	805	179

Notes: Best Women are the best female players in their match-teams. Worst Men are the worst male players in their match-teams.

Table A3: Descriptive Statistics on Next Year Participation

		Mean (1)	S.D. (2)	Min. (3)	Max. (4)
Women	Number of Observations	3,388			
	Elo Rating$_{it}$	15.34	2.61	10.09	23.64
	Unrated$_{it}$	0.20	0.39	0.00	1.00
	# CC Games$_{it}$	4.89	3.03	1.00	11.00
	Age$_{it}$	28.58	16.54	6.00	92.00
Worst Men	Number of Observations	6,306			
	Elo Rating$_{it}$	17.33	1.95	10.09	21.834
	Unrated$_{it}$	0.06	0.23	0.00	1.00
	# CC Games$_{it}$	4.92	2.75	1.00	11.00
	Age$_{it}$	36.90	17.39	4.00	96.00
Total	Number of Observations	9,694			
	Elo Rating$_{it}$	16.64	2.40	10.09	23.64
	Unrated$_{it}$	0.11	0.31	0.00	1.00
	# CC Games$_{it}$	4.91	2.85	1.00	11.00
	Age$_{it}$	34.00	17.55	4.00	96.00

Notes: Column 1: Mean; Column 2: Standard deviation; Column 3: Minimum; Column 4: Maximum. 1,649 unique women are compared with 4,144 unique 'worst' men, defined as the last ranked men in their match-teams. Period: 2004-2013, where men and women may play more than one season. The Elo rating has been divided by 100 for the sake of exposition in the regression tables. *Unrated* is the share of games played by player i under the unrated status during a season t. *# CC Games* means number of Club Championship games.

Table A4: Tournaments Registered at the French Chess Organization

Year	Number of Tournaments Classic	Rapid	Blitz	Total
2002	197	4	0	201
2003	240	2	0	242
2004	283	9	1	293
2005	322	3	3	328
2006	393	9	1	403
2007	399	14	0	413
2008	500	9	0	509
2009	580	11	0	591
2010	416	117	1	534
2011	278	270	2	550
2012	1004	1184	8	2196
2013	1132	1365	7	2504
2014	1170	1577	4	2751
2015	1131	1672	3	2806
2016	1184	1752	6	2942
2017	989	1528	32	2549
2018	919	1488	75	2482

Notes: All French tournaments collected from the website of the French Chess Organization between 2002 and 2018. However, the information is not comprehensive until 2012. Of the 22,294 individual tournaments, most of which are FIDE registered, 49.96% are classic, 49.40% rapid and 0.64% blitz tournaments. The types of tournaments depend on the time available for moves. In a classic game, players typically have 90 minutes for the first 40 moves, followed by 30 minutes for the rest of the game, with an additional 30 seconds per move starting from the first move. In a rapid game, players each have more than 10 but less than 60 minutes. In a blitz game, players each have 10 minutes or less to play the game.

Table A5: Panel A of Table 1

Participation Next Year

	In Club Championship		In Tournaments			
	Div. 1 to 4	All	Playing	# Games	# Tournaments	All
	(1)	(2)	(3)	(4)	(5)	(6)
Woman × 2013	-0.308***	-0.153***	-0.013	-1.230	-0.161	-0.001
	(0.03)	(0.03)	(0.03)	(1.12)	(0.15)	(0.03)
Man × 2005	-0.085***	-0.060*	0.047	0.410	0.008	0.046
	(0.03)	(0.03)	(0.03)	(0.89)	(0.11)	(0.03)
Woman	0.137***	-0.047***	-0.118***	-2.575***	-0.378***	-0.111***
	(0.01)	(0.01)	(0.02)	(0.52)	(0.07)	(0.02)
Elo Rating$_{it}$	-0.066***	0.116***	0.070***	3.629***	0.492***	0.059**
	(0.02)	(0.02)	(0.03)	(0.77)	(0.10)	(0.03)
Elo Rating Squared$_{it}$	0.003***	-0.003***	-0.003***	-0.123***	-0.017***	-0.002***
	(0.00)	(0.00)	(0.00)	(0.02)	(0.00)	(0.00)
Unrated$_{it}$	-0.085***	-0.178***	-0.234***	-6.174***	-0.801***	-0.240***
	(0.02)	(0.02)	(0.02)	(0.44)	(0.06)	(0.02)
# CC Games$_{it}$	0.046***	0.049***	0.023***	0.653***	0.083***	0.024***
	(0.00)	(0.00)	(0.00)	(0.07)	(0.01)	(0.00)
Age$_{it}$	-0.001***	-0.000	-0.002***	-0.119***	-0.015***	-0.002***
	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)
Observations	9,694	9,694	9,694	9,694	9,694	9,694
R^2	0.267	0.249	0.180	0.196	0.192	0.185
Fixed Effects:						
Season	Yes	Yes	Yes	Yes	Yes	Yes
Club	Yes	Yes	Yes	Yes	Yes	Yes
Woman×2013 = Man×2005:						
F-test	22.654	4.170	1.716	1.279	0.768	1.056
p-value	0.000	0.041	0.190	0.258	0.381	0.304
Woman×2013 + Woman = Man×2005:						
F-test	3.878	10.771	17.031	9.224	8.796	13.235
p-value	0.049	0.001	0.000	0.002	0.003	0.000

Notes: Panel A of Table 1. 1,694 women are compared with 4,144 "worst" men, defined as the last ranked men in their match-teams. Period: 2004-2013. The dependent variable changes across specifications, so the regression is a linear probability model in columns 1-3 and 6 and an ordinary least squares regression in columns 4 and 5: Probability of playing next year in the top four divisions of the club championship (CC) (col. 1); Probability of playing next year in all divisions of CC (col. 2); Probability of playing next year in classic individual tournaments (CT) (col. 3); Number of games played next year in CT (col. 4); Number of CT next year (col 5); Probability of playing next year in classic or rapid tournaments (col. 6). Standard errors are in parentheses and clustered at the player level with *, **, and *** denoting significance at the 1, 5, and 10 percent levels, respectively. *# CC Games* means number of club Championship games.

Table A6: Panel B of Table 1

Continuous Participation During 5 Years in Tournaments

	Classic			All
	Playing (3)	# Games (4)	# Tournaments (5)	Playing (6)
Woman × 2013	-0.060**	-7.791**	-1.164**	-0.077***
	(0.02)	(3.91)	(0.53)	(0.03)
Man × 2005	0.030	2.746	0.255	0.011
	(0.02)	(3.51)	(0.44)	(0.02)
Woman	-0.041***	-7.191***	-1.047***	-0.047***
	(0.01)	(2.16)	(0.28)	(0.01)
Elo Rating$_{it}$	0.023	4.398	0.619	0.010
	(0.02)	(3.20)	(0.41)	(0.02)
Elo Rating Squared$_{it}$	-0.001*	-0.176*	-0.025*	-0.001
	(0.00)	(0.10)	(0.01)	(0.00)
Unrated$_{it}$	-0.083***	-13.489***	-1.780***	-0.108***
	(0.01)	(1.63)	(0.22)	(0.01)
Number of CC Games$_{it}$	0.014***	2.291***	0.306***	0.017***
	(0.00)	(0.29)	(0.04)	(0.00)
Age$_{it}$	0.001***	-0.015	0.002	0.001***
	(0.00)	(0.07)	(0.01)	(0.00)
Observations	9,694	9,694	9,694	9,694
R^2	0.126	0.127	0.128	0.144
Fixed Effects:				
Season	Yes	Yes	Yes	Yes
Club	Yes	Yes	Yes	Yes
Woman×2013 = Man×2005:				
F-test	7.709	3.759	3.918	6.356
p-value	0.006	0.053	0.048	0.012
Woman×2013 + Woman = Man×2005:				
F-test	17.934	11.718	13.023	16.835
p-value	0.000	0.001	0.000	0.000

Notes: Panel B of Table 1 with the same column numbers. 1,694 women are compared with 4,144 "worst" men, defined as the last ranked men in their match-teams from 2004 to 2013. The dependent variable changes across the specifications so the linear regression is an ordinary least squares regression in columns 4 and 5 and a linear probability model in columns 3 and 6: Probability of playing continuously during 5 years in classic tournaments (CT) (col. 3); Number of games played continuously during 5 years in CT (col. 4); Number of CT played continuously during 5 years (col 5); Probability of playing continuously during 5 years in classic or rapid tournaments (col. 6). Standard errors are in parentheses and clustered at the player level with *, **, and *** denoting significance at the 1, 5, and 10 percent levels, respectively.

Table A7: Future Participation of Best Women and Worst Men

	in Club Championship		in Tournaments			
	Div. 1 to 4	All	Classic			All
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A	Participation Next Year					
Woman × 2013	-0.313***	-0.151***	-0.016	-1.487	-0.199	-0.003
	(0.03)	(0.03)	(0.03)	(1.13)	(0.16)	(0.03)
Man × 2005	-0.086**	-0.068**	0.040	0.451	0.006	0.043
	(0.03)	(0.03)	(0.03)	(0.91)	(0.11)	(0.03)
Woman	0.136***	-0.051***	-0.119***	-2.635***	-0.386***	-0.111***
	(0.01)	(0.01)	(0.02)	(0.53)	(0.07)	(0.02)
R^2	0.270	0.248	0.181	0.197	0.193	0.186
F-tests:						
W2013 = M2005 F-test	22.563	3.199	1.442	1.739	1.093	0.940
p-value	0.000	0.074	0.230	0.187	0.296	0.332
W2013 + W = M2005	4.206	9.511	15.941	10.605	9.972	12.532
p-value	0.040	0.002	0.000	0.001	0.002	0.000
Panel B			Continuous Participation During 5 Years			
Woman × 2013			-0.060**	-8.562**	-1.250**	-0.075***
			(0.02)	(3.90)	(0.53)	(0.03)
Man × 2005			0.028	2.283	0.196	0.008
			(0.02)	(3.59)	(0.45)	(0.02)
Woman			-0.042***	-7.348***	-1.071***	-0.048***
			(0.01)	(2.18)	(0.29)	(0.01)
R^2			0.128	0.128	0.129	0.146
F-tests:						
W2013 = M2005			7.018	3.915	4.007	5.411
p-value			0.008	0.048	0.045	0.020
W2013 + W = M2005			16.904	12.208	13.411	15.073
p-value			0.000	0.000	0.000	0.000

Notes: 9,509 Observations in each column. 1,581 best women are compared with 4,145 "worst" men, defined as the last ranked men in their match-teams from 2004 to 2013. See Table A2 for the number of best and marginal men per year in division 4. In all columns, we include individual controls (Elo Rating$_{it}$ and its square, Unrated$_{it}$, Number of CC Games$_{it}$ and Age$_{it}$) and club and season fixed effects. Standard errors are in parentheses and clustered at the player level with *, **, and *** denoting significance at the 1, 5, and 10 percent levels, respectively. The dependent variable changes across specifications, so the linear regression is an ordinary least squares regression in columns 4 and 5 and a linear probability model in columns 1-3 and 6 (see Appendix Tables A9 and A10 for robustness using probit regressions). ***Panel A***. Probability of playing next year in: the top four divisions of the club championship (CC) (col. 1); in all divisions of CC (col. 2); in classic individual tournaments (CT) (col. 3); in CT or rapid and blitz tournaments (col. 6). Number of games played next year in CT (col. 4) and Number of CT next year (col 5). ***Panel B***. Probability of playing continuously during 5 years in CT (col. 3); Number of games played in 5 years in CT (col. 4); Number of CT played in 5 years (col 5); Probability of playing continuously during 5 years in CT or rapid and blitz tournaments (col. 6).

Table A8: Future Participation of Women and Men - Clustering by Club

	in Club Championship		in Tournaments			
	Div. 1 to 4	All	Playing	# Games	# Tournaments	All
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A	Participation Next Year					
Woman × 2013	-0.308***	-0.153***	-0.013	-1.230	-0.161	-0.001
	(0.03)	(0.03)	(0.03)	(1.36)	(0.20)	(0.03)
Man × 2005	-0.085***	-0.060*	0.047	0.410	0.008	0.046
	(0.03)	(0.03)	(0.03)	(0.92)	(0.12)	(0.03)
Woman	0.137***	-0.047***	-0.118***	-2.575***	-0.378***	-0.111***
	(0.01)	(0.01)	(0.02)	(0.52)	(0.07)	(0.02)
R^2	0.267	0.249	0.180	0.196	0.192	0.185
F-tests:						
W2013 = M2005	26.331	4.569	1.569	0.936	0.510	1.000
p-value	0.000	0.033	0.211	0.334	0.476	0.318
W2013 + W = M2005	4.448	11.856	16.124	7.460	6.352	12.944
p-value	0.036	0.001	0.000	0.007	0.012	0.000
Panel B			Continuous Participation During 5 Years			
Woman × 2013			-0.060**	-7.791**	-1.164**	-0.077***
			(0.02)	(3.31)	(0.47)	(0.02)
Man × 2005			0.030	2.746	0.255	0.011
			(0.02)	(3.54)	(0.45)	(0.02)
Woman			-0.041***	-7.191***	-1.047***	-0.047***
			(0.01)	(2.30)	(0.30)	(0.01)
R^2			0.126	0.127	0.128	0.144
F-tests:						
W2013 = M2005			7.394	4.287	4.244	5.666
p-value			0.007	0.039	0.040	0.018
W2013 + W = M2005			16.728	12.654	13.303	14.677
p-value			0.000	0.000	0.000	0.000

Notes: 9,694 observations in each column. 1,694 women are compared with 4,144 "worst" men, defined as the last ranked men in their match-teams from 2004 to 2013 (see Table A2). In all columns, we include individual controls (Elo Rating$_{it}$ and its square, Unrated$_{it}$, Number of CC Games$_{it}$ and Age$_{it}$) and club and season fixed effects. Standard errors are in parentheses and clustered at the club level with *, **, and *** denoting significance at the 1, 5, and 10 percent levels, respectively. The dependent variable changes across specifications, so the regression is a linear probability model in columns 1-3 and 6 and an ordinary least squares regression in columns 4 and 5 (see Appendix Tables A9 and A10 for robustness using probit regressions). ***Panel A***. Probability of playing next year in: the top four divisions of the club championship (CC) (col. 1); in all divisions of CC (col. 2); in classic individual tournaments (CT) (col. 3); in CT or rapid and blitz tournaments (col. 6). Number of games played next year in CT (col. 4) and Number of CT next year (col 5). ***Panel B***. Probability of playing continuously during 5 years in CT (col. 3); Number of games played in 5 years in CT (col. 4); Number of CT played in 5 years (col 5); Probability of playing continuously during 5 years in CT or rapid and blitz tournaments (col. 6). 'W2013 = M2005' is the test Woman×2013 = Man×2005, and 'W2013 + W = M2005' is the test Woman×2013 + Woman = Man×2005.

Table A9: Panel A of Table 1 - Probit Regressions

Participation Next Year in	Club Championship		Tournaments	
	Div. 1 to 4	All	Classic	All
	(1)	(2)	(3)	(6)
Woman × 2013	-0.303***	-0.142***	-0.007	0.009
	(0.03)	(0.03)	(0.03)	(0.03)
Man × 2005	-0.092***	-0.050*	0.046	0.044
	(0.03)	(0.03)	(0.03)	(0.03)
Woman	0.149***	-0.046***	-0.107***	-0.101***
	(0.01)	(0.01)	(0.02)	(0.02)
Elo Rating$_{it}$	-0.053**	0.071***	0.079***	0.063**
	(0.02)	(0.02)	(0.03)	(0.03)
Elo Rating Squared$_{it}$	0.003***	-0.002**	-0.003***	-0.002**
	(0.00)	(0.00)	(0.00)	(0.00)
Unrated$_{it}$	-0.105***	-0.146***	-0.317***	-0.304***
	(0.02)	(0.01)	(0.02)	(0.02)
Number of CC Games$_{it}$	0.041***	0.047***	0.023***	0.023***
	(0.00)	(0.00)	(0.00)	(0.00)
Age$_{it}$	-0.001**	0.000	-0.003***	-0.002***
	(0.00)	(0.00)	(0.00)	(0.00)
Observations	9,694	9,694	9,694	9,694
Season Fixed Effects	Yes	Yes	Yes	Yes
Woman×2013 = Man×2005:				
χ^2-test	18.803	5.114	1.230	0.543
p-value	0.000	0.024	0.267	0.461
Woman×2013 + Woman = Man×2005:				
χ^2-test	1.859	13.605	12.896	9.228
p-value	0.173	0.000	0.000	0.002

Notes: Marginal effects of probit regressions. Same column numbers as in Panel A of Table 1. 1,694 women are compared with 4,144 "worst" men, defined as the last ranked men in their match-teams from 2004 to 2013. The dependent variable changes across the specifications. Probability of playing next year: in the top four divisions of the club championship (CC) (col. 1); in all divisions of CC (col. 2); in classic individual tournaments (CT) (col. 3), and in classic or rapid tournaments (col. 6). Standard errors are in parentheses and clustered at the club level with *, **, and *** denoting significance at the 1, 5, and 10 percent levels, respectively.

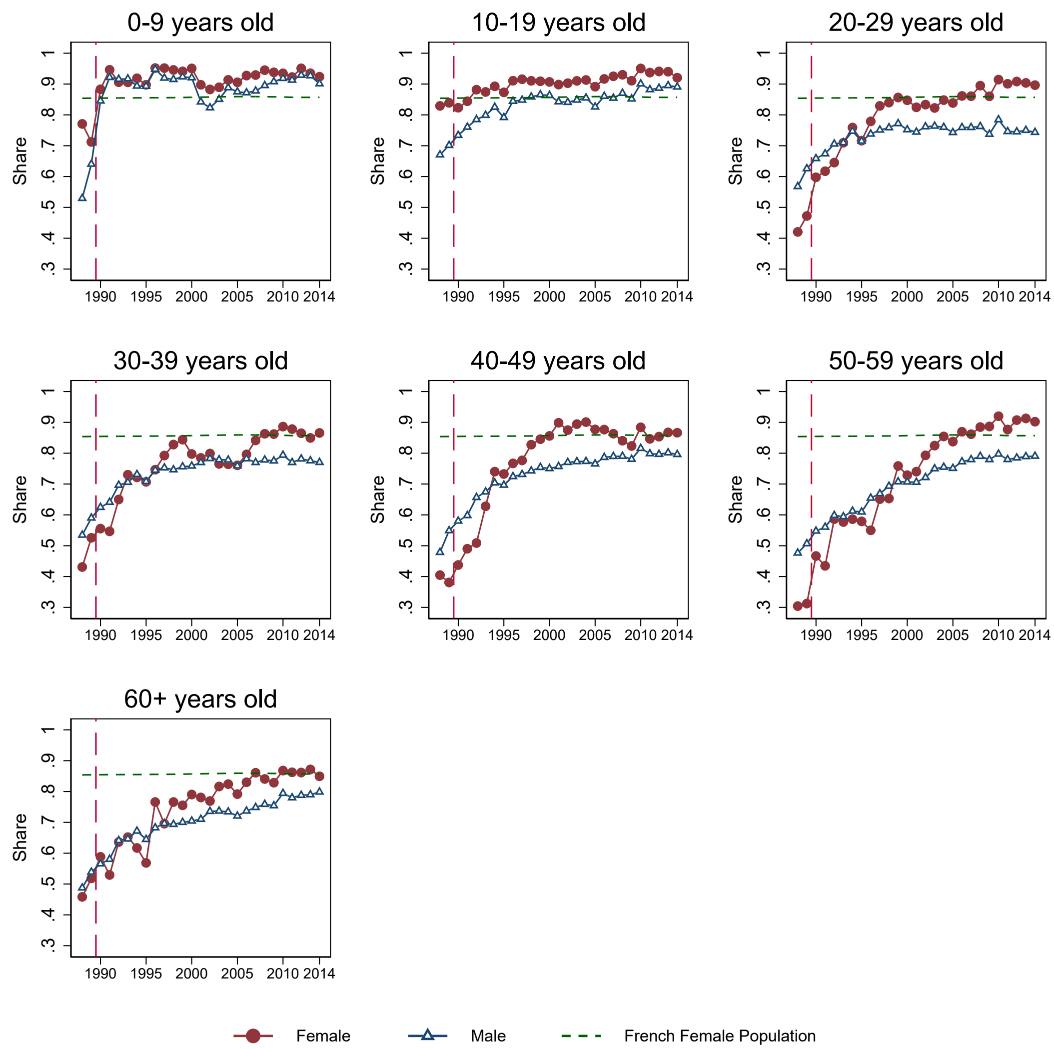
Table A10: Panel B of Table 1 - Probit Regressions

	Continuous Participation During 5 Years in:	
	Classic Tournaments	All Tournaments
	(3)	(6)
Woman × 2013	-0.049**	-0.064**
	(0.02)	(0.03)
Man × 2005	0.040	0.027
	(0.03)	(0.03)
Woman	-0.030**	-0.034**
	(0.01)	(0.02)
Elo Rating$_{it}$	0.042*	0.030
	(0.02)	(0.03)
Elo Rating Squared$_{it}$	-0.001**	-0.001
	(0.00)	(0.00)
Unrated$_{it}$	-0.150***	-0.189***
	(0.02)	(0.02)
Number of CC Games$_{it}$	0.013***	0.017***
	(0.00)	(0.00)
Age$_{it}$	0.001**	0.001**
	(0.00)	(0.00)
Observations	9,694	9,694
Season Fixed Effects	Yes	Yes
Woman×2013 = Man×2005:		
χ^2-test	6.016	5.211
p-value	0.014	0.022
Woman×2013 + Woman = Man×2005:		
χ^2-test	11.205	10.411
p-value	0.001	0.001

Notes: Marginal effects of probit regressions. Same column numbers as in Panel A of Table 1. Season Fixed Effects. The dependent variable changes across the specifications. Probability of playing continuously during 5 years in classic tournaments (col. 3) or in classic or rapid tournaments (col. 6). Standard errors are in parentheses and clustered at the player level with *, **, and *** denoting significance at the 1, 5, and 10 percent levels, respectively. # *CC Games* means number of club Championship games.

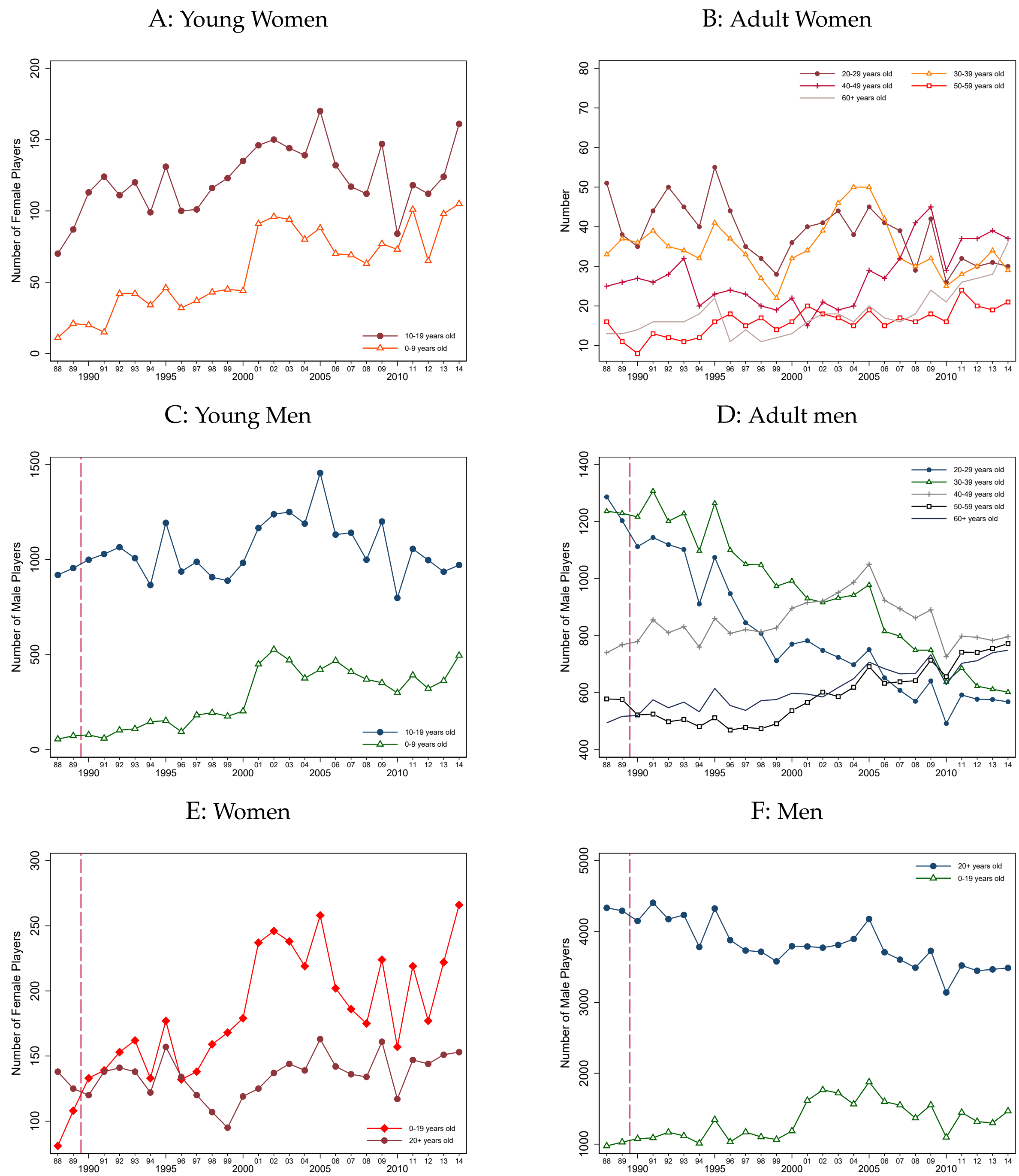
T Online Appendix: France versus Belgium

Figure 54: Relative Share of French Players, by Gender



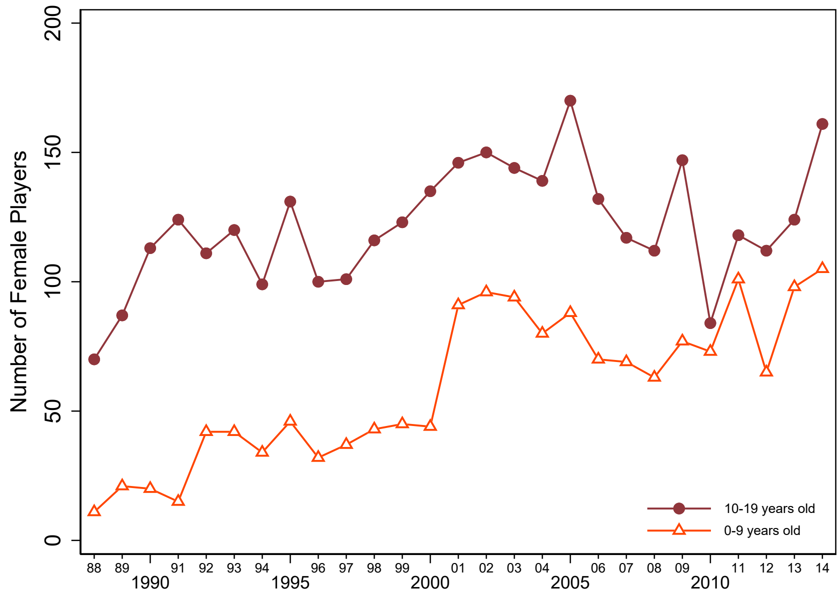
Notes: Share of French female and male players, from 0 to 60+ years old relative to female and male Belgium players. We only consider active players in both countries, i.e., who have paid their due to the federation.

Figure 55: Number of Women and Men in Belgium (1988 – 2014)



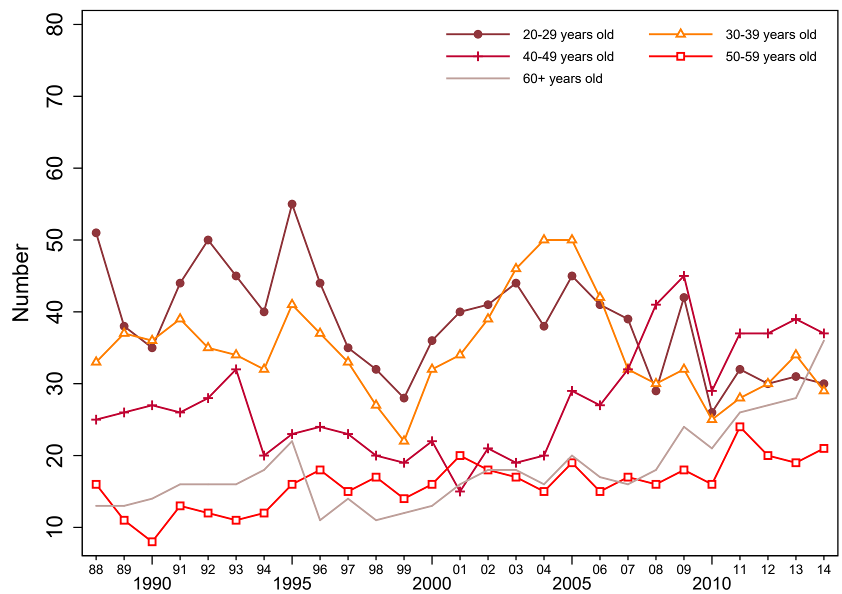
Notes: Women and Men registered at the Belgian Chess Federation between 1988 and 2014.

Figure 56: Number of Young Female Players in Belgium (1988 – 2014)



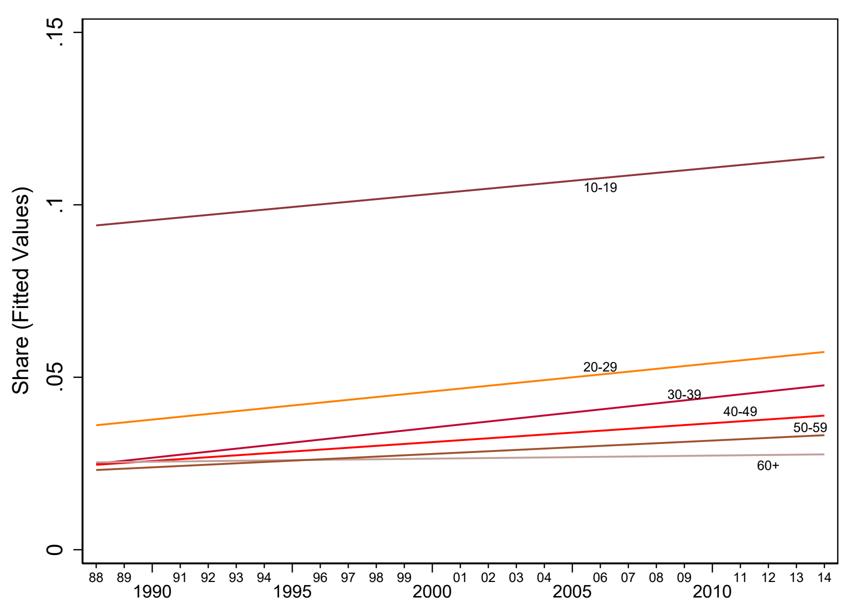
Notes: The figure depicts the number of young female players, up to 20 years old, registered at the Belgium Chess Federation between 1988 and 2014. We consider only active players who have paid their due to the federation.

Figure 57: Number of Female Players in Belgium by Age Groups (1988 – 2014)



Notes: The figure depicts the number of female players, from 21 to 61+ years old, registered at the Belgium Chess Federation between 1988 and 2014. We consider only active players who have paid their due to the federation.

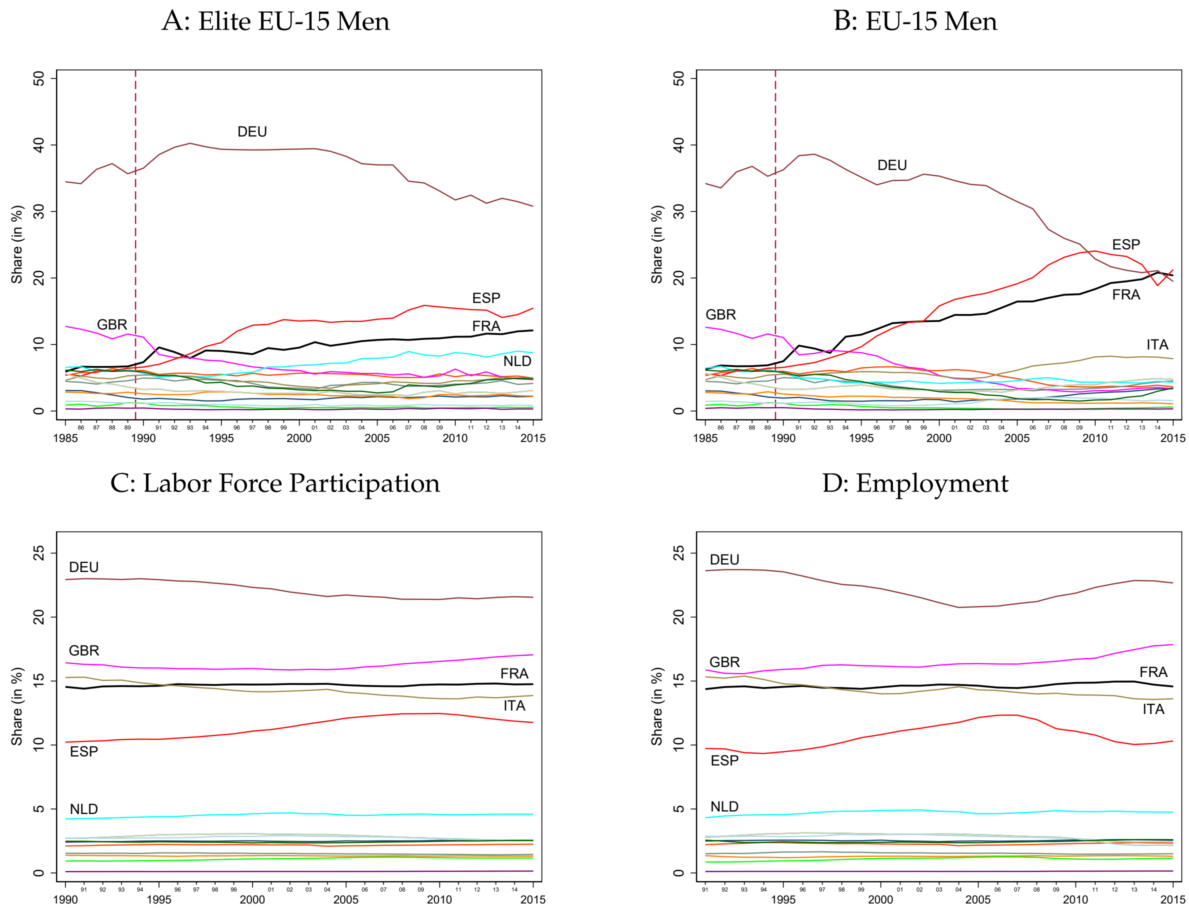
Figure 58: Share of Female Players in Belgium by Age Groups (1988 – 2014)



Notes: The figure depicts the share of female players, from 11 to 61+ years old, registered at the Belgium Chess Federation between 1988 and 2014. We consider only active players who have paid their due to the federation.

U Online Appendix: EU-15 FIDE Men and Employment Data

Figure 59: Men in the EU-15



Notes: In Panels A and B, we consider active FIDE players, that is players who paid their dues for the year and who played at least one FIDE-rated game in that year. Elite players in panels A are male players with Elo ≥ 2205*. In Panels C and D, we use International Labour Organization data on EU-15 wide labor force participation and employment.*