Matching Practices of Teachers to Schools – France

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Relevant country background

The French education system is divided into public schools and private schools. Private schools make up 16% of teachers.[2] Anyone who wishes to become a teacher has to pass a competitive examination. Those who succeed are allocated a teaching position for a probation period of one year, at the end of which they get tenure or not. Once they get tenure, teachers in public schools are civil servants, which is not the case of teachers working in private schools. This explains why public and private school teachers face different rules for their mobility – between regions and between schools. In private schools, teachers apply directly to schools – as would be the case in usual labor markets. For public school teachers, mobility between regions or schools is managed centrally by the government or its regional administrations. This profile focuses on the centralized allocation procedure used in France for most secondary public schools.[3] Secondary school covers age 12 to 18.

Every year some teachers retire, new teachers get tenure and some permanent teachers wish to change schools. As a result, the central government faces a pool of vacant seats it needs to fill, and a pool of teachers wishing to be allocated some of these seats. Public teachers' mobility between regions and between schools is organized yearly by the state with the aim to ensure that all vacant seats in schools are filled and that no teacher remains unallocated.

Teachers' assignment procedure takes place in two successive phases: (1) teachers can first ask for a transfer to another region, called 'Académies' in French – see map of these regions below. (2) Second, teachers assigned a new region through the first phase, and teachers wishing to change schools within their regions apply for a new school within the region.

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[2] http://cache.media.education.gouv.fr/file/2013/19/9/DEPP_grands_chiffres_2013_267199.pdf
[3] Every year, a small number of teachers are allocated to schools through a 'specific mobility procedure'. This allocation process is restricted to positions that require specific abilities (preparatory classes or some technical tracks are concerned). In 2012, 1 105 teachers were allocated to a school through this channel.

In 2012, the total pool of teachers in public schools was made of 8,133 newly tenured teachers and 355,752 teachers who got their tenure in previous years. For newly tenured teachers, participation to the mobility process is compulsory to receive their first assignment. Teachers who already have a position participate only if they wish to change schools. Among them 17,869 asked to change regions in 2012 and 47,187 asked to change schools within their regions.[4] Regarding the supply side of mobility, the number of teachers who will finally move cannot be predicted before the algorithm has run. The number of vacant seats depends on the number of teachers who retire or leave but also on the number of teachers who are reassigned a seat through the algorithm – and hence release their own seat for another teacher within the process. In 2012, all newly tenured teachers were assigned a school and 41.7% of the previously tenured teachers who asked for a change of regions had their request satisfied. The others had to stay in their regions.

Figure 1: School districts (académies) in Metropolitan France

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[4] http://cache.media.education.gouv.fr/file/Personnels_enseignants/56/5/guide_mutations_2013_enseignants_2nd

Summary box

What is allocated?	Teaching positions in public schools.
Who are the participants?	All newly tenured teachers who have never been assigned a position. Participation is optional for any other tenured teacher wishing to change schools or regions.
Stated objectives of matching policy	Ensure that all vacant seats in schools are filled and that no teachers remain unallocated, ensure transparency and equality in teachers' demands treatment.
Who's in charge?	The central administration for the inter-regional phase. Regions for the intra-regional phase.
In place since	1999 for the bi-phase procedure.
Timing	Phase 1 – inter-regional mobility: November to March. Phase 2 – intra-regional mobility: March to July.
Information available to applicants prior to enrolment period	Teachers know all the elements that make up their priority scores, previous years thresholds of teachers' scores required to enter each region[5], department or school in each discipline[6]. Limited information provided on schools: address, belongs to 'Priority Education', vacant position or not.
Restrictions on preference expression	Inter-region mobility: no restrictions. Intra-region mobility: at most 20 schools (or cities, department…) ranked.
Matching procedure	The assignment uses a variant of the school-proposing deferred acceptance algorithm, followed by cycles.
Priorities and quotas	There are no quotas. A point system, based on legal criteria and individual characteristics, is used to rank teachers.
Tie-breaking	Inter-region mobility: date of birth (rarely used given the numerous criteria entering priorities over teachers) Intra-region mobility: teachers have the possibility to rank large geographic areas. Tie-breaking might be used to select a school within this area.

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[5] http://www.ac-versailles.fr/public/upload/docs/application/pdf/2013-11/mvt_inter_2013-2014_barres_entree_enseign_general_et_techno_2013-11-14_12-09-9_995.pdf
[6] http://www.ac-versailles.fr/public/upload/docs/application/pdf/2014-02/mouvement_intra_2014_2nd-degre_barres_entree_2013_enseignement_general.pdf

Description of current practices

Before 1999, teachers' assignment to schools was managed centrally by running an algorithm once, which assigned teachers directly to schools. This highly centralized process was argued to be at odds with the regional nature of most demands: the majority of teachers asking for a transfer ranked schools within their current regions. For them, the assignment could be managed directly by local authorities.[7] To give more autonomy to regions in their teachers' assignments and reduce the workload at the level of the central administration, a two-step process has introduced. This is the system in place today.

Since 1999, teachers' assignment procedure takes place in two successive phases. Teachers first ask for a transfer to another region. This is managed centrally by the government which runs the first algorithm that determines teachers' regional assignment. In a second step, teachers newly assigned to a region and teachers wishing to change schools within their regions submit a list of ordered schools. Since 1999, this stage is managed directly by administrations within the regions. They are in charge of running the second algorithm that determines the final assignment of teachers to schools. Differences in the procedures between regions are limited and mostly related to differences in the criteria they use to define teachers' priorities.

Participation to the assignment mechanism is compulsory for all newly tenured teachers who have never been assigned a position. Participation is optional for any other tenured teacher wishing to change schools or regions. Students who have just passed the exam to become teachers are also assigned to a school for their probation year on the basis of a similar algorithm. This description does not cover this initial assignment.

Phase 1: Teachers' assignment to regions

The first phase consists in assigning teachers to regions (called the 'inter-region' assignment).[8] Ittakes place between November and March for the following school year. Teachers submit **a ranked list of regions** where they wish to be transferred. There are no restrictions on the number of regions teachers can rank (up to 31 regions).

The central administration defines **priorities over teachers** using a point system. It takes into account three legal priorities: spousal reunification, disability, and having a position in a disadvantaged or violent school. Several individual characteristics also enter the computed score: total seniority in teaching, seniority in the current school, previous demands of mobility (repetition of first wishes), time away from the spouse and/or children… The criteria considered to compute teachers' score are numerous but, in the end, most criteria are used by only a small number of teachers. For instance, only the teachers who are married and live in a region different from their spouse are eligible for the spousal reunification criteria. As a result, seniority is the main criterion (even though it is not the one that gives the most points).

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[7] The irrelevance of the previous assignment system is mentioned in the following report written by French senators in 1999 (beginning of chapter II): http://www.senat.fr/rap/r98-3281/r98-3281.html

[8] http://www.education.gouv.fr/pid62/mutation-des-personnels-enseignants-du-second-degre-siam-phase-interacademique.html

An example is provided in the table below for a teacher with the following characteristics: 10 years of seniority in teaching, 3 years of seniority in the current school, asks a transfer to a region where his/her spousal is living, has been separated from the spouse for 2 years, and has 2 children.

Criteria	Points corresponding to the criteria	Total
10 years of seniority in teaching	7 points per *echelon*[9]	7 points * 4 *echelons* = 28 points
3 years of seniority in a school	10 points per year of seniority	10 points * 3 years = 30 points
Spousal reunification	150.2 points for the region where the spousal is living + any bordering regions	150.2 points
	100 points per children	100 points * 2 children = 200 points
	Number of years of separation: – 190 points for 1 year – 325 points for 2 years – 475 points for 3 years – 600 points for 4 years and more	325 points
	Total number of points	**733.2 points**

Teachers' preferences over regions and their computed scores are introduced into a centralized computer system that runs an **algorithm whose structure is close to the school proposing Deferred Acceptance**. The algorithm differs from the usual DA mechanism in four respects. First, in each region, the ranking over teachers is field-specific (Maths, French…). Second, most teachers asking for a transfer are initially matched to a position so that only a limited number of positions are vacant when the algorithm begins to run. At the beginning of the algorithm, there are **two kinds of positions in regions**: (i) the 'Vacant Positions' correspond to teachers who have retired or teachers who have left the region; (ii) the 'Potentially Vacant Positions' (PVP) correspond to teachers asking for a transfer and initially matched to a school. If they obtain a new position as part of the algorithm, their current position becomes a 'Vacant Position', but as long as they are not assigned a new position, their current position remains a 'Potentially Vacant Position'. Third, couples requiring a transfer in the same region must submit the same list of ordered regions. The algorithm tries successively to match them to the same region. Fourth, after the DA algorithm has run, cycles are implemented that aim at increasing the rank of regions teachers are assigned to.

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[9] Points are not given by year of seniority but by 'échelon', which is an alternative and more aggregated measure of seniority. On average a teacher obtains one more echelon every 2.5 – 3 years. A teacher having 10 years of seniority in teaching is likely to be in the 4th echelon.

The matching problem requires the following **initial information**: (1) the initial set of matched schools and teachers among all applicants to a transfer. This gives the number of Potentially Vacant Positions in a region; (2) The initial number of vacant positions in a region; (3) Teachers' preferences over schools, and (4) Schools' preferences over teachers.

Based on this information, the central administration runs an algorithm that is **a modified version of the Deferred Acceptance**, where regions propose. The main difference is that before the algorithm begins to run, each region has a counter of its number of vacant positions. During the first step, each region with at least one vacant position offers the seat(s) to its best ranked teacher(s). So in this phase, not necessarily all regions are offering positions, only those with at least one vacant position. The following steps of the algorithm are similar to the usual DA: teachers who have been made an offer select the region they prefer, and reject all other regions. Once a teacher has accepted a region, he/she is temporarily matched to that region. Each region adjusts its counter of vacant positions at the end of a step: (i) they have one or more additional vacant positions if one or more of their PVPs have accepted a teaching job in another region, (ii) they have one less vacant position if the teachers they offered a seat have accepted the position. This step is repeated until there are no more regions with vacant positions and teachers that have not rejected this region.

This DA algorithm results in a matching of teachers to regions that will be modified by the second stage of the algorithm. The latter consists of **cycles aimed at improving the rank of regions assigned to teachers**. These cycles correspond to stable improvement cycles as defined by Erdil and Ergin (2008).

Finally, the algorithm tries to **match couples to the same region**. To do so, couples have to submit the same lists of ordered regions. The central administration runs the DA+cycles algorithm a first time. If a spouse gets a region that is ranked lower than the other spouse, all regions in their common ranking are dropped from the list up to the lowest region obtained by one of the spouses. A second DA+cycles runs to see if both spouses obtain the same region. The intuition behind this procedure is that, if after DA has run, one gets the region they ranked 4th and the other gets the region they ranked 2nd, the spouse that obtains the region ranked 4th will never obtain a region he ranks better, in particular he will never obtain the 2nd region. For both spouses, all regions ranked above rank 4 are dropped from the list to give them an opportunity to be matched together. An example is provided below.

> ### *Example: matching couples to the same region.*
>
> *Couple preferences over regions – same ranking is required:*
>
> –   *Spouse 1 (s1): r1 > r2 > r3 > r4 > r5 > r6*
>
> –   *Spouse 2 (s2): r1 > r2 > r3 > r4 > r5 > r6*
>
> *Result of the first DA+cycles: s1=μ(r2) and s2=μ(r4)*
>
> *All regions in their ranking above r4 are dropped, which gives the following ranking for both spouses: r4 > r5 > r6*
>
> *DA is run a second time. If they both obtain a different region, the same process is repeated until they get matched to the same region, or stay both unmatched.*

At the end of the region assignment, all newly tenured teachers are assigned to a region but this is not the case for tenured teachers. Some of them, whose score was low, will not transfer and stay in their current regions for the next school year. For further details on the assignment procedure, see Combe, Tercieux and Terrier (2014).

Phase 2: Teachers' assignment to positions

Once teachers are assigned to a region, the **second phase** allocates teachers to schools (called the 'intra-region' assignment). This second stage is managed by regional administrations and takes place between March and July (depending on the region). There are limited differences across regions; most differences come from different weights given to criteria used to compute teachers' scores. Teachers must submit a list of ranked schools (or cities, departments or regions) where they wish to be affected. The ranked list is of maximum size 20. This is a specific feature of this second phase assignment: every element in teachers' ranking can be a school (called a 'precise element') or a larger geographic area such as a city, a group of cities, a department or the entire region (called a 'large element'). Large elements enable teachers to rank more schools than otherwise permitted by the size restriction of 20 (the submission school 1 > city 2 > city 3 means that that the teacher prefers school 1 to schools in city 2, and that she also prefers all the schools in city 2 to the schools in city 3).

The algorithm used for this second stage is the same as the one used for the inter-region assignment, with two modifications. First, every large element (a city for instance) ranked by a teacher is decomposed into as many precise elements as there are schools in the large element. Hence, a teacher who ranks a city would appear in the priority ordering of every school within that city. The teacher is assumed to be indifferent between all schools. Second, teachers planning to include large elements in their ranking are advised to rank a school (precise element) before the large elements. For teachers who do so, the algorithm will not affect them randomly within the city but it will try to affect them to the school that is geographically the closest to the school ranked higher.

> **Example:** *a teacher ranks school 1 > City 1 > school 2. Within City 1, there are 3 schools: c1 (ranked first by the teacher), c3 (that is 100 meters far from c1) and c4 (that is 1km far from c1). During the first step of DA, assume that c3 and c4 propose their seats to the teacher. In this case, the teacher will not accept randomly between both, but he will accept the school that is geographically the closest to school 1: he will choose c3.*

As for the inter-regional allocation, the algorithm allows the matching of couples to the same schools, or city, department. Cycles are also implemented to improve the ranking of schools obtained by teachers.

Performance

In 2012, all newly tenured teachers were assigned a region. Among previously tenured teachers who asked to change region, 41.7% were assigned a new region.[10] In terms of ranking obtained, 56.5% of newly tenured teachers obtain the region they ranked first.

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[10] http://cache.media.education.gouv.fr/file/Personnels_enseignants/56/5/guide_mutations_2013_enseignants_2nd_degre_232565.pdf

No information is provided by the central administration on the number of vacant seats that remain unassigned. However, we know that such situations exist since every year contractual (i.e. non tenured) teachers are hired.

In 2012, the percentage of teachers who changed regions was a little bit less than 3 % of all French teachers.

Young teachers are much more likely to ask for a transfer. Around 30% of teachers who are less than 25 years old have changed region in 2012, while this ratio is only 1 % for teachers who are more than 45 years old.

Recent policy changes

Regarding the intra-region assignment of teachers, some regions have also added one more phase after the cycles described above. This third step consists of permutations between assigned teachers aimed at improving the geographical distance between the school they are assigned to and the school they ranked first in their submitted lists. The main difference between these cycles and the stable improvement cycles described above is that they do not necessarily respect stability anymore. As far as we know, teachers affected by this new procedure are rare. Few regions implement this step that could lead to an unstable matching, meaning that some teachers could in theory press charges for not being assigned to a school in which they have a higher priority.

Perceived issues

One issue is that new teachers are disadvantaged by the current procedure compared to experienced teachers. Schools or regions priorities over teachers mainly depend on their total seniority in teaching and their seniority in the current school. Hence, teachers with few years of experience are often assigned to disadvantaged regions and less popular schools.

Similarly, as highlighted by the Ministry of Education, there are important inequalities between regions: in 2012 in the académie of Créteil (a disadvantaged area gathering many 'Priority Education' schools), there were 32 applications to leave for 1 application to enter.[11] Conversely, in the académie of Rennes, there were 15 applications of permanent teachers for entry (1st wish) for 1 application to exit. This is one of the reasons of the shortage of experienced teachers in some regions and schools. This shortage is compensated by the recruitment of non permanent teachers.

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[11] Here are two 'Note d'information' published every year by the statistical department of the Ministry of Education (DEPP) regarding teachers' mobility between regions:
http://cache.media.education.gouv.fr/file/2013/99/4/DEPP_NI_2013_18_mobilite_geographique_enseignants_second_degre_public_267994.pdf
http://cache.media.education.gouv.fr/file/2013/82/4/DEPP_NI_2013_21_attractivite_academies_enseignants_second_degre_public_2012_272824.pdf

Figure 2: Ratio of the number of applications for entry (first wish) to the number of applications for exit expressed by tenured teachers (except newly tenured) in 2012.[12]
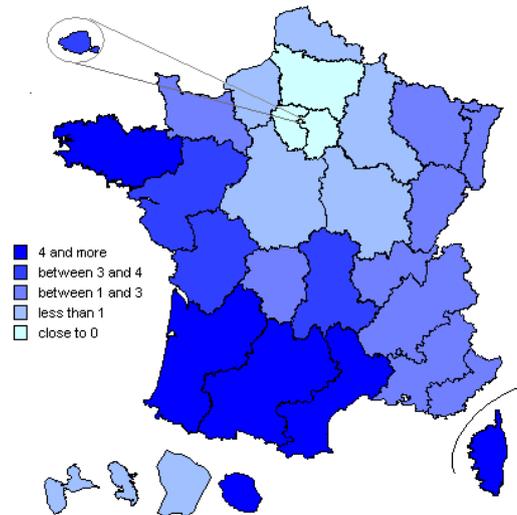
Existing data

There are no publicly available data on teachers' assignment to schools or regions, but Gurgand and Terrier have data on ranked list of regions and schools submitted by teachers when they wish to be transferred.

Other resources and references

Other Combe, Julien, Olivier Tercieux, and Camille Terrier (2014), "An analysis of the assignment procedure for teachers in France", in preparation.

Erdil, Aytek, and Haluk Ergin (2008), "What's the Matter with Tie-Breaking? Improving Efficiency in School Choice." *American Economic Review*, 98(3): 669-89.resources and references

Legal texts

Legal text can be found (in French) on the website administered by the Ministry of Education. All links below have been viewed on April 7th 2014.

http://www.education.gouv.fr/pid25535/bulletin_officiel.html?cid_bo=74688

The following 'Note de Service' is published every year by the central government and provides extensive information on the functioning and rules of the inter-regional and intra-regional mobility:

http://www.education.gouv.fr/pid25535/bulletin_officiel.html?cid_bo=74709

Definition of criteria used to define priorities over teachers for the inter-regional mobility: http://cache.media.education.gouv.fr/file/41/27/3/Criteres_de_classement_279273.pdf

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[12] Source: Catherine Moisan (2013), Geographic mobility of the teachers of public secondary schools in France, 6th workshop Matching in Practice.

MiP Country Profiles downloadable from matching-in-practice.eu

MiP Country Profile 1. Cantillon, Estelle (2011), Matching practices for elementary schools – Belgium (French-speaking region).

MiP Country Profile 2. Kübler, Dorothea (2011), University admission practices – Germany.

MiP Country Profile 3. Irving, Rob (2011), Matching practices for entry-labor markets – Scotland.

MiP Country Profile 4. Kiselgof, Sofya (2011), Matching practices for universities – Ukraine.

MiP Country Profile 5. Biró, Péter (2011), University admission practices – Hungary.

MiP Country Profile 6. Biró, Péter (2012), Matching practices for secondary schools – Hungary.

MiP Country Profile 7. Chen, Li (2012), University admission practices – UK.

MiP Country Profile 8. Chen, Li (2012), University admission practices – Ireland.

MiP Country Profile 9 Cantillon, Estelle and Koen Declercq (2012), University admission practices – Belgium.

MiP Country Profile 10. Chen, Li (2012), Matching practices for elementary schools – Ireland.

MiP Country Profile 11. Chen, Li (2012), Matching practices for secondary schools – Ireland.

MiP Country Profile 12. Manlove, David (2012), Matching practices for primary and secondary schools – Scotland.

MiP Country Profile 13. Merlino, Luca Paolo and Antonio Nicoló (2012), Matching practices for elementary schools – Italy.

MiP Country Profile 14. Merlino, Luca Paolo and Antonio Nicoló (2012), Matching practices for secondary schools – Italy.

MiP Country Profile 15. Merlino, Luca Paolo and Antonio Nicoló (2012), University admissions practices – Italy.

MiP Country Profile 16 Hiller, Victor and Olivier Tercieux (2013), Matching practices in secondary schools – France.

MiP Country Profile 17 Calsamiglia, Caterina (2014), Matching Practices for elementary and secondary Schools – Spain.

MiP Country Profile 18 Lauri, Triin, Kaire Põder, and André Veski (2014), Matching practices for elementary schools – Estonia.

MiP Country Profile 19. Salonen, Mikko A.A. (2014), Matching practices for secondary schools – Finland.

MiP Country Profile 20 Terrier, Camille (2014), Matching practices for secondary public school teachers – France.

MiP Country Profile 21 Basteck, Christian, Katharina Huesmann, and Heinrich Nax (2015), Matching practices for secondary schools – Germany

MiP Country Profile 22 Cantillon, Estelle (2015), Matching practices for secondary schools – Belgium (French-speaking region).