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The fiscal impact of immigration in France: a generational accounting approach

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THE FISCAL IMPACT OF IMMIGRATION IN FRANCE: A GENERATIONAL ACCOUNTING APPROACH

Xavier Chojnicki

NON-TECHNICAL SUMMARY

The objective of this article is to study the fiscal impact of immigration in France and the consequences of a change in immigration policy, both in terms of the immigration flow and in terms of the composition of this flow (age and skills), using both a static and a dynamic framework. This approach consists in comparing the costs of immigration in terms of public budget functioning (social expenses, education, health and pensions) with their total contribution (labor and capital taxes, VAT, social contributions, etc.).

The main conclusion of this study is that the evaluation of the impact of immigration on welfare systems is strongly dependent on the methodology employed. Indeed, the simple observation of the net tax profile shows a smaller contribution of immigrant populations. The application of these profiles to the population distribution by age and origin allows us to deduce the instantaneous positive effect of immigration on the public budget for the year 2005. Thus, even though, on average, immigrants seem to pay fewer taxes and receive more transfers than natives, the difference in the age distribution of the immigrant population compared to the native population leads to a higher net average contribution to the public budget of an immigrant compared to a native. The global net contribution of immigration to the public budget would thus be positive and on the order of 4 billion euros for the year 2005.

However, this purely statistical approach does not let us know precisely the magnitude and sign of the net contribution of immigrants to the welfare system. One of the crucial problems of the preceding estimates is in measuring the immediate fiscal impact of immigration, which naturally varies with age distribution. Thus, a change in the characteristics of this population (for example, connected with aging) would therefore reduce the significance of the result. Finally, the static nature of this type of study does not enable us to account for the future benefits and contributions of immigrants (such as retirements) or the net contributions of the descendants of immigrants (such as education costs). For all these reasons, it appears necessary to evaluate the dynamic impact of immigration for the public budget.

By applying the methodology of Generational Accounting (GA), we showed that fiscal policy is unsustainable over the long term because of demographic aging. In a case where fiscal policy remains unchanged (such as the rights to retirement benefits that will have to be honored), the net inter-temporal debt, based simultaneously on the actual debt and future revenues and obligations of the public administrations, would be on the order of 200% of the PIB in 2005. Because the present value of the net payments of present and future generations of immigrants as well as natives is not able to cover the total public consumption and the current national debt, adjustments to the fiscal policy are clearly necessary. Thus, a proportional increase in the tax rate by 14.2% for the generations alive in 2005 as well as for future generations would make the budget viable over the long term. In this context, the global impact of immigration on public finances is slightly positive in the long term due to the perpetual arrival of individuals of active working age and considering the net contribution of the descendants of these immigrants. Indeed, assuming an end to immigration as of 2005 (which implies eliminating the taxes and transfers that immigrants would have paid and received as well as the taxes paid and transfers received by all descendants of these immigrants) slightly increases the adjustments necessary to re-establish long term fiscal sustainability compared to our benchmark scenario (based on 100,000 net entries per year). However, the impact of immigration remains very slight compared to the global effort that would have to be undertaken to reduce the fiscal imbalances. Indeed, a substantial increase of immigration flows, that consists in reproducing the high rates of immigration observed at the end of the 1950s, would only slightly reduce the effort necessary for the reduction of budget imbalances (implying an increase of 13.4% in the total taxes compared to 14.2% in the benchmark) when the demographic consequences of such a migratory policy are far from being negligible.

In contrast, a change in the composition of the immigrant flows, for example, by the implementation of a selective immigration policy, may be more effective than a simple change in the magnitude of these flows. Indeed, taxes paid by immigrants are higher with a selective migratory policy since immigrants fit more easily on the labor market and occupy higher paying job when the social transfers structure is much more insensitive to the skill level except for contributory transfers such as pensions. However, such an immigration policy is hard to imagine when considering that most immigration in France occurs by family grouping. A complete reversal of migration policy does not seem possible even if some adjustments to increase the proportion of residence permits on the basis of work considerations merit discussion.

ABSTRACT

The objective of this study is to use both static and dynamic frameworks to compare the benefits that immigrants draw from the public system with their contributions through the taxes that they pay. The main conclusion of this article is that the impact of immigration on welfare systems is weak. Thus, if we compare, on a given date, immigrants' global contribution to the public administration budget with the volume of transfers they receive, immigrants appear to be relatively favored by the redistribution system. At the same time, even if immigrants seem to pay less taxes and receive more transfers than natives, the difference in distribution between the two populations, with a higher concentration of immigrants in the active age groups and a sparser concentration among the net beneficiaries of the social transfer system, leads to a slightly positive long-term impact of immigration on public finances. However, the impact of immigration remains very slight compared to the global effort that would have to be undertaken to reduce budgetary imbalances.

JEL Classification: E62, F22, H6

Key Words: Fiscal policy, International migration, National budget



IMPACT BUDGÉTAIRE DE L'IMMIGRATION EN FRANCE : UNE APPROCHE PAR LA COMPTABILITÉ GÉNÉRATIONNELLE

Xavier Chojnicki

RÉSUMÉ NON TECHNIQUE

L'objectif de ce travail est d'étudier l'impact budgétaire de l'immigration en France et les conséquences qu'aurait une modification de la politique migratoire affectant la taille ou la composition (âge et qualification) de l'immigration. Notre approche consiste à comparer, dans un cadre statique puis dynamique, les bénéfices que les immigrés retirent du fonctionnement du système public (dépenses sociales, éducation, santé, retraite) avec la contribution qu'ils y apportent par les différents prélèvements dont ils s'acquittent (impôt sur le revenu, TVA, cotisations sociales, etc.).

Si l'on compare à une date donnée (ici, l'année 2005) la contribution des immigrés au budget des administrations publiques au volume des transferts qu'ils reçoivent aux différents âges, les immigrés apparaissent relativement favorisés par le système de redistribution comparativement aux autochtones : ils semblent payer moins de taxes et recevoir plus de transferts que les natifs. Cependant la structure par âge de la population immigrée diffère de celle des natifs : les immigrés sont relativement plus nombreux dans les classes d'âge actives et moins nombreux aux âges bénéficiaires nets de transferts sociaux (jeunes et retraités). Au total, la contribution nette moyenne d'un immigré au budget de l'Etat est supérieure à celle d'un natif. En 2005, la contribution nette globale de l'immigration au budget des administrations publiques serait positive et de l'ordre de 4 milliards d'euros.

Toutefois, cette approche purement statique ne suffit pas à mesurer l'ampleur et le signe de la contribution nette des migrants au système de transferts sociaux. L'un des problèmes cruciaux des estimations précédentes est de mesurer l'impact fiscal budgétaire immédiat de l'immigration qui varie par nature avec la structure par âge. Ainsi, une modification des caractéristiques de cette population (son vieillissement par exemple) réduira cet impact en conséquence. Enfin, le caractère statique ne permet pas de tenir compte des prestations et contributions futures des immigrés (telles que les retraites) ni des contributions nettes des descendants des immigrés. Pour toutes ces raisons, il est indispensable d'étudier l'impact dynamique de l'immigration.

En appliquant la méthodologie de la comptabilité générationnelle, il apparaît que la politique budgétaire n'est pas soutenable à long terme du fait du vieillissement démographique. La dette publique intertemporelle, découlant de la dette actuelle mais aussi des recettes et engagements futurs des administrations publiques, serait de l'ordre de 200% du PIB de 2005. Pour rétablir l'équilibre intertemporel, des ajustements budgétaires, consistant par exemple ici en une hausse de 14,2% de l'ensemble des taxes, sont donc nécessaires. Dans ce cadre, l'impact global de l'immigration sur les finances publiques est légèrement positif dans le long terme du fait de l'apport perpétuel d'individus d'âge actif et de la prise en compte de la contribution nette des descendants des immigrés. Un scénario illustratif de fermeture des frontières à l'immigration à partir de 2005 (qui reviendrait à éliminer les taxes et transferts de tous les migrants potentiels après 2005, ainsi que de leurs descendants) conduirait à un léger accroissement des ajustements nécessaires au rétablissement de la viabilité budgétaire de long terme par rapport à la situation de référence basée sur un solde migratoire de 100 000 migrants par an. Cependant, dans tous les cas de figure, l'impact de l'immigration reste très faible en comparaison de l'effort global à entreprendre pour réduire les déséquilibres budgétaires. Pour s'en rendre compte, un accroissement substantiel des flux d'immigration, consistant à reproduire les taux d'immigration élevés observés à la fin des années cinquante, ne réduirait que faiblement l'augmentation nécessaire de l'ensemble des taxes (+13,4% contre +14,2% dans la situation de référence), alors que les conséquences du point de vue de la dynamique démographique seraient loin d'être négligeables.

Une modification de la composition des flux migratoires, par exemple par la mise en place d'une politique d'immigration sélective, est potentiellement plus efficace qu'un simple changement de la taille des flux. En effet, avec une politique sélective, les taxes payées par les migrants sont plus importantes dans la mesure où ceux-ci s'insèrent plus facilement sur le marché du travail et occupent des postes mieux rémunérés ; dans le même temps, la structure des transferts sociaux n'est guère sensible au niveau de qualification, si ce n'est pour les transferts à caractère contributif tels que les pensions de retraites. Cependant, une telle politique reste quelque peu irréaliste dans la mesure où la majorité des flux actuels d'immigration proviennent du regroupement familial. Une inversion totale de la politique migratoire n'est donc pas envisageable même si certains ajustements visant à accroître la part des autorisations de résidence sur la base de considérations liées au travail méritent d'être discutés.

RÉSUMÉ COURT

L'objectif de ce travail est de comparer les bénéfices que les immigrés retirent du fonctionnement du système social français avec la contribution qu'ils y apportent par les différents prélèvements dont ils s'acquittent. La principale conclusion est que l'impact, instantané ou dynamique, de l'immigration sur les finances publiques est faible. Les immigrés sont surreprésentés dans un certain nombre de branches de la protection sociale et leur contribution nette aux finances publiques aux différents âges apparaît au total inférieure à celle des autochtones. Cependant, la population immigrée étant relativement plus nombreuse que celle des natifs dans les classes d'âge actives et moins nombreuse aux âges bénéficiaires nets des transferts sociaux, l'impact global de l'immigration sur les finances publiques calculé sur une année (2005) apparaît légèrement positif. D'un point de vue dynamique, l'impact global de l'immigration est très légèrement positif dans le long terme du fait de l'apport perpétuel d'individus d'âge actif et de la prise en compte de la contribution nette des descendants des immigrés. Dans tous les cas de figure, cet impact reste très faible en comparaison de l'effort global à entreprendre pour réduire les déséquilibres budgétaires liés au vieillissement de la population française.

Classification JEL : E62, F22, H6

Mots-clefs : Politique budgétaire, Migrations internationales, Budget national

**THE FISCAL IMPACT OF IMMIGRATION IN FRANCE:
A GENERATIONAL ACCOUNTING APPROACH**

Xavier Chojnicki*

INTRODUCTION

Western Europe has long been a point of departure towards the new world, but it has now become a region of net immigration, notably due to its level of development and wealth. Nonetheless, if immigration was considered as a resource until the first oil shock, questions about the benefits of this phenomenon surfaced at the end of the post war economic boom, marked by the appearance of mass unemployment. Since then, the issue of migration has occupied an increasingly prominent place in political debates. After having long ignored this area of research economic research addressed this question in the early 1960s, recognizing the complexity of immigration decisions. The impact of immigration on the labor market of the destination country has given rise to a vast literature that seems to be divided; the local adjustments of workers and firms lead to an almost imperceptible impact on the scale of the country receiving the immigration flow, even if redistributive effects are clearly manifest. Thus, the consequences are microeconomic. Some natives find themselves in competition with an external work force and thus lose employment opportunities (or must face salary competition), while others benefit from reduced labor costs as a consequence of the arrival of new potential workers and new firms creation produced by a local rise in the consumer populations. Once aggregated, these effects compensate for each other almost exactly, leaving no visible effect of immigration on the macroeconomic landscape (Borjas, 1999).

These consequences of immigration likewise deserve to be considered at the level of national budgets equilibrium. The existence of generous welfare systems in Western countries, intended to mitigate certain imbalances in the labor market (e.g., unemployment, exclusion, insufficient income for access to housing or health care) or to direct family policy (e.g., family subsidies and maternity assistance) suggests the possibility of an unexpected and undesired impact of such a presence: the welfare systems may exert an attractive force on populations living in the poorest regions. Although this problem has received a theoretical attention in the last twenty years, it remains poorly delineated at the empirical level, particularly due to the lack of sufficient statistical data. Thus, very few studies have been conducted on the case of France, although it is classified among the five main European countries for immigration as well as among the most generous countries in terms of welfare systems.

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The objective of this article is to study the fiscal impact of immigration in France and the consequences of a change in immigration policy, both in terms of the immigration flow and in terms of the composition of this flow (age and skills), using both a static and a dynamic framework. What does an immigrant contribute over his life cycle? Does this contribution depend on his skill level and his age when he enters France? What would be the accounting balance of current immigration policy if it is extended in the coming years? What would be the impact of a change in immigration policy?

The impact of immigration on public finances is a controversial subject that has given rise to a vast literature, particularly in the United States. Several studies have used a methodology that is relatively similar to the one that we are developing here. For example, Lee and Miller's (2000) study, conducted in an inter-temporal framework, clearly underlined the importance of the educational level and the age of immigrants on their fiscal impact. Other recent works have re-examined the framework of generational accounting (GA) to study the impact of a change in immigration policy on the average fiscal burden borne by the different cohorts. Auerbach and Oreopoulos (2000) put forward a slight net gain due to immigration in the United States compared to the global effort that would have to be undertaken to reduce budgetary imbalances. In contrast, Bonin, Raffelhschen and Walliser (2000) for Germany, Collado, Iturbe-Ormaetxe and Valera (2003) for Spain, and Mayr (2005) for Austria arrived at a significant positive effect of immigration on the long-term public budget. Finally, whatever the study, a policy changing the composition of immigration flows seems potentially more effective than a change in the magnitude of these flows in reducing the fiscal burden left to future generations. To the best of our knowledge, only two studies, Chojnicki (2006) and Monso (2008), have attempted to evaluate the fiscal impact of immigration in France. The results presented here are a direct extension of these two studies.

In this paper, we use the GA technique, which first appeared in the early 1990s with Auerbach, Gokhale and Kotlikoff (1991). This technique enables us to evaluate, for the base year, the actual value of the net payments that current generations (that is, those of which one or more members are still alive today) will pay to the state from now until the end of their lives. Based on the state's long-term budget constraint, it then compares the net burden carried by those born in a base year (the only generation to be followed across its entire life span) with the net burden to be carried by the generations to come (those born after the base year). The distinction by origin enables us to project the long-term impact of immigration on inter-temporal budget equilibria and to test the effect of a change in immigration policy.

The main conclusion of this study is that the evaluation of the impact of immigration on welfare systems is strongly dependent on the methodology employed. Indeed, the simple observation of the net tax profile shows a smaller contribution of immigrant populations. The application of these profiles to the population distribution by age and origin allows us to deduce the instantaneous positive effect of immigration on the public budget for the year 2005. Thus, even if, on average, immigrants seem to pay fewer taxes and receive more transfers than natives, the difference in the age distribution of the immigrant population compared to the native population leads to a higher net average contribution to the public

budget of an immigrant compared to a native. By applying the GA methodology, the average life cycle contribution of immigrants present in France in 2005 appears to be somewhat negative and lower than that of natives. At the same time, the global impact of immigration on public finances is slightly positive in the long term due to the perpetual arrival of individuals of working age and the contributions of the descendants of these immigrants, but it remains very small compared to the global effort that would have to be undertaken to reduce budgetary imbalances.

The remainder of this article is organized as follows. Section 1 presents the methodology of GA with immigration. The construction of the generational accounts requires a large amount of data (population projections, age distribution of taxes and transfers, estimates and projections of the state budget) and relies on some assumptions, presented in Section 2. An evaluation of the instantaneous and long-term budgetary impacts of immigration in France is presented in Section 3. Section 4 presents the results of our migratory variants, and Section 5 evaluates the impact of a change in the skill distribution of future immigration flows.

1. GENERATIONAL ACCOUNTING METHODOLOGY WITH IMMIGRATION

The GA method relies on the notion of an inter-temporal budget constraint on public administrations that demands that all public expenditures must be financed by taxes, whether now or in the future. For the base year, this is written in the following form:

$$PVL_t + PVF_t = \sum_{s=t}^{\infty} \frac{G_s}{(1+i)^{s-t}} - W_t, \quad (1)$$

where PVL_t denotes the present value of the net contributions of all currently living generations from time t over the remainder of their lives, and PVF_t denotes the present value of the net contributions of future generations over their entire lives. The first term on the left-hand side represents the present value of the public consumption of goods and services, where G_s measures in year s the public consumption that is not age specific and i is the actualization rate. W_t is the net public wealth in year t and constitutes the only directly observable element. We will consider it here as being equal to the opposite of the national debt, leaving aside the government's wealth, in particular the physical assets.

The total of non-financed public expenditures, G_s , is assumed to evolve under the double influences of population growth and productivity growth, which is equivalent to making the expenditures evolve according to the productivity:

$$\frac{G_s}{p_s} = (1+\gamma)^{s-t} \frac{G_t}{p_t},$$

where γ is the rate of productivity growth and p_t is the total population size in the year t . The definition and interpretation of this term give rise to many controversies. Indeed, it consists of the total of all public income and expenses that are not age specific and are therefore not included in the individual statement of the different generations constructed by PVL_t and PVF_t . These expenditures are therefore treated as residuals and are attributed to public goods consumption (e.g., defense, infrastructure, research, the environment), but also, and primarily, as investment. The nature of these goods explains the great difficulty in distributing them in a reliable manner, as it is not clear that one age group in particular derives more benefit from them than any other does.

The present value of the net taxes on the generations living in year t over the rest of their lives, PVL_t , is the sum of their generational accounts. Assuming that individuals live a maximum of D years and distinguishing our two population categories (A = Autochthonous and I = Immigrants), the present value of the net contributions of living generations can be written in the following form:

$$PVL_t = \sum_{j=0}^D \left(n_{j,t}^A p_{j,t}^A + n_{j,t}^I p_{j,t}^I \right), \quad (2)$$

where $p_{j,t}^X$ represents the size of the population of type X ($X = A, I$), age j at time t and $n_{j,t}^X$ represents the generational account of an individual of type X , age j at time t .

The generational account of an individual of type X and of generation j is obtained by dividing the net total expense of the cohort, $N_{j,t}^X$, by its size in the base year, $p_{j,t}^X$, and can thus be written as follows:

$$n_{j,t}^X = \frac{N_{j,t}^X}{p_{j,t}^X} = \frac{1}{p_{j,t}^X} \sum_{k=j}^D \frac{\theta_{k,t+k-j}^X p_{k,t+k-j}^X}{(1+i)^{k-j}} \quad j=0, \dots, D, \quad (3)$$

where $\theta_{k,t+k-j}^X$ is the anticipated value of the average net contribution sent to the government in the year $t+k-j$ by an individual of type X and age k ¹.

The generational account of an immigrant, as constructed in Equation 3, is still difficult to interpret. Indeed, it incorporates the net taxes collected from future immigration flows (immigrants entering France after year t), although it is compared to the size of the immigrant population in the base year. Its construction is nonetheless necessary to examine the total impact of immigration, present and future, in the inter-temporal budget constraint (Equation 1). At the same time, a presentation of the generational accounts of immigrants will be

¹The methodology of GA is relatively simple, as it assumes the time invariance of the age distribution of taxes and transfers except for the rate of technical progress.

proposed with the future immigration flows removed (which is equivalent to letting the generations of immigrants “die” from the starting year) to evaluate the contribution of each generation of immigrants present in France for the starting year:

$$n_{j,t}^{l*} = \frac{N_{j,t}^{l*}}{p_{j,t}^l} = \frac{1}{p_{j,t}^l} \sum_{k=j}^D \frac{\theta_{k,t+k-j}^l p_{k,t+k-j}^{l*}}{(1+i)^{k-j}} \quad j=0, \dots, D \quad (4)$$

$$p_{k,t+k-j+1}^{l*} = p_{k,t+k-j}^{l*} \beta_{k,t+k-j}^{l*}$$

$$p_{k,t}^{l*} = p_{k,t}^l,$$

where $\beta_{k,t+k-j}^{l*}$ denotes the probability that an immigrant of generation k living in time period $t+k-j$ will still be alive in the next period.

It is difficult to compare these accounts with those of natives because, by definition, immigrants were not born in France and did not all arrive at the same age. For this reason, we calculate a synthetic indicator of the average contribution of an immigrant present in France in the year t and for the rest of his life, \bar{n}_t^{-l} , by taking back the net total cost of immigrants present in France in t , derived from Equation 4, to the average of the immigrant population in the base year:

$$\bar{n}_t^{-l} = \sum_{j=0}^D \frac{N_{j,t}^{l*}}{p_{j,t}^l}.$$

The accounts by generation indicate not only what the age groups alive today will have to pay but also the likely contributions that future generations will have to pay. Indeed, the present value of the net contributions of future generations, PVF_t , can be determined as the residual of the inter-temporal budget constraint (Equation 1). It is thus convenient to divide this cost among the future generations. The traditional method of GA balances the inter-temporal public budget constraint by a uniform adjustment on only the future generations, who will thus pay an equivalent cost per person, up to the factor of technological development.

However, this method can arrive at misleading results, especially when, as in our case, the generational accounts of different population groups, $n_{0,t}^X$, are of opposite signs. Its use will thus be equivalent to varying the generational accounts of immigrants in the direction opposite what would be necessary to reestablish long-term equilibrium. Moreover, because immigrants do not all arrive at the same age, it seems difficult to apply a suitable aggregation method. Finally, it seems hard to imagine carrying forward the adjustment only on future generations (that is, those born after our reference year). Thereafter, if the inter-temporal budget constraint is not balanced given the initial budgetary policy, the policy change

necessitated by this imbalance will concern the generations already born as well as future generations.

For these reasons, we will use an alternative method that allows us to divide the cost to be financed in the most equitable manner. This method is equivalent to first calculating the total of what future generations will pay and receive, given the initial fiscal policy. Applying the same methodology as in Equations 2 and 3, this gives us:

$$PVF_t^* = \sum_{s=t+1}^{\infty} \sum_{j=0}^{Mir[s-t-1;D]} \frac{\theta_{j,s}^A p_{j,s}^A + \theta_{j,s+j}^I p_{j,s}^I}{(1+i)^{s-t}}, \quad (5)$$

where PVF_t^* gives the actualized value of the net contributions of the future generations under the hypothesis that the original fiscal policy remains unchanged.

The comparison of this hypothetical total, PVF_t^* , with the total that would balance the inter-temporal budget constraint, PVF_t , allows us to deduce the global total of the imbalance to finance, analogous to an inter-temporal public debt ($IPL = PVF_t - PVF_t^*$). Then, we proportionally adjust the total taxes (or the total transfers, or both simultaneously) over all generations (living and future) until the budgetary constraint is balanced:

$$\begin{aligned} PVL_t^{adj} &= \sum_{j=0}^D \sum_{k=j}^D \sum_{X=A,I} \frac{[\theta_{T,k,t+k-j}^X (1+\eta_T) - \theta_{B,k,t+k-j}^X (1-\eta_B)] p_{k,t+k-j}^X}{(1+i)^{k-j}} \\ PVF_t^{adj} &= \sum_{s=t+1}^{\infty} \sum_{j=0}^{Mir[s-t-1;D]} \sum_{X=A,I} \frac{[\theta_{T,j,s}^X (1+\eta_T) - \theta_{B,j,s}^X (1-\eta_B)] p_{j,s}^X}{(1+i)^{s-t}}, \\ PVL_t^{adj} + PVF_t^{adj} &= \sum_{s=1}^{\infty} \frac{G_s}{(1+i)^{s-t}} + W_t \end{aligned}$$

where the set of taxes, θ_T^X , and the set of transfers, θ_B^X , are respectively adjusted by factors η_T and η_B in such a way as to make the fiscal policy sustainable in the long term. It is thus possible to rewrite, given the new fiscal policy, the generational accounts of different generations.

2. THE DATA USED

The collection of data is the preliminary stage to any longitudinal exercise.

2.1. Population projections

The official projections of INSEE do not distinguish between the natives and immigrant populations.² We have therefore constructed projections for the period 2005-2050 by returning to the basic assumptions of the last demographic projections available (Robert-Bobée, 2006). In a first round, we started from the age and sex distribution of the immigrant and natives populations obtained from the annual census of 2005. France was then absorbing almost five million immigrants, or about 8.1% of the total population. The age distribution of immigrants in France is clearly different from that of the native population (Figure 1). There are few young people because, by definition, immigrants were not born in France, and we observe a concentration of immigrants in the working age groups.

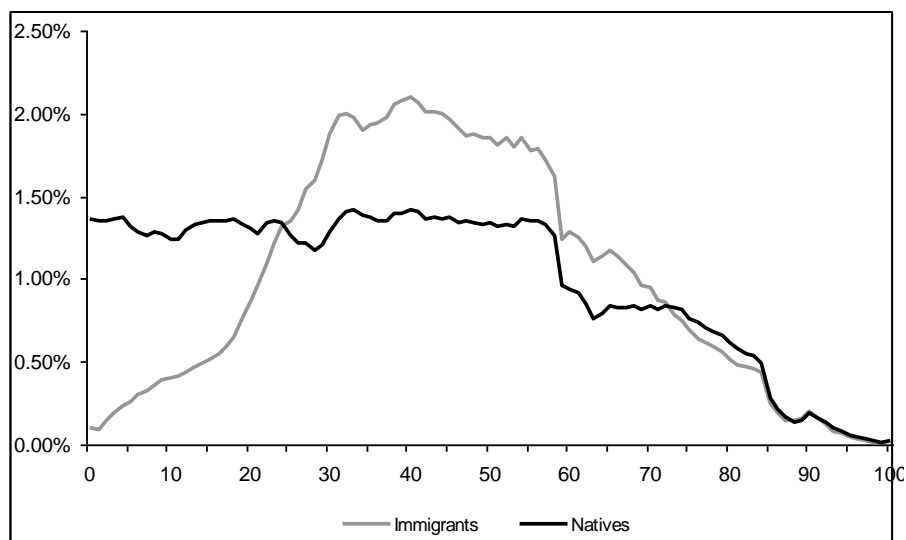
Knowing the initial structure of the population, we then apply the method of components. This consists of estimating the numbers by sex, age and place of birth for each year of the period of projection as a function of those of the previous year and of the three components of the population evolution: births, deaths and net migration. The hypotheses about these three components are drawn from the projections of INSEE. They suppose, first, an increase in life expectancy at birth, from 76.7 years for men and 83.8 years for women in 2005 to 83.8 years for men and 89 years for women in 2050. The differences in mortality according to origin were estimated based on the differences in mortality by socio-professional category (SPC). More precisely, we crossed the standard mortality indicators by SPC (Monteil and Robert-Bobée, 2005) with the distribution by SPC of native and immigrant populations observed in the population census of 2005. According to our estimates, the average probability of death of an immigrant woman between 30 and 75 years old is 4.9% higher than that of the total female population, and the average probability of death of an immigrant man is greater by 6.1% than the male average of the same age. These differences were held constant over the entire period of projection.

The assumptions regarding the fertility rate assume the stabilization of average fertility at 1.9 children per woman as of 2006 (the average level over the years 2000-2005), with a rise in the average age of maternity to 30 years in 2010 and then stabilization at this level. We integrated the differences in fertility between the two groups with the help of the recent estimates of Héran and Pison (2007). The authors implement a new method of estimation that allows them to take into account the adjustment of immigrants' fertility behavior to that of their destination country. This method proceeds by an indirect calculation, associating longitudinal (by age before immigration) and transversal (fertility at ages after arrival in France) indicators. It suggests a fertility level of 2.6 children per woman for immigrants, in contrast to 1.8 for

² Here, we return to the usual definition of an immigrant: any person born overseas who did not have French citizenship at birth.

autochthonous women. We suppose that these fertility differences between the two populations are constant over time.

**Figure 1: Age distribution of the French population in 2005
(in % of the concerned population)**



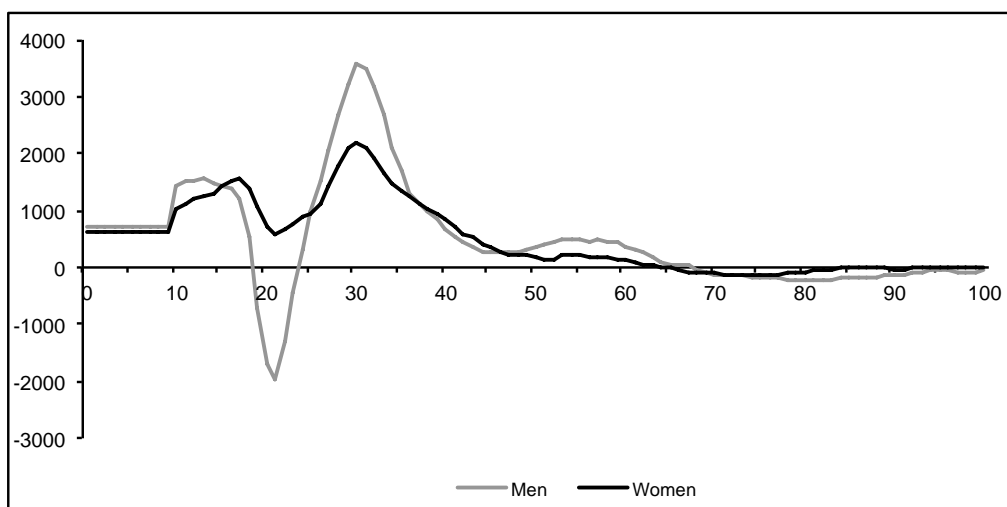
Source: Population census, Insee, author's calculation

The benchmark scenario maintains constant migration flow³ equal to 100,000 per year over the entire period of projection. This rate is equally divided among men and women, and the age distribution was constructed according to the average age distribution of the migration flows observed in 2004-2005 (Figure 2). The age distribution of the net flows thus takes on a particular profile: positive for up to approximately 20 years, then negative for men up to 25 years, implying a higher number of departures than entries into France. These flows then become positive again; the majority of the net entries occurs between the ages of 25 and 35 years and explains the particular form of the age pyramid of the immigrant population (Figure 1). The assumptions regarding the fertility rate assume the stabilization of average fertility at 1.9 children per woman as of 2006 (the average level over the years 2000-2005), with a rise in the average age of maternity to 30 years in 2010 and then stabilization at this level. We integrated the differences in fertility between the two groups with the help of the recent estimates of Héran and Pison (2007). The authors implement a new method of estimation that allows them to take into account the adjustment of immigrants' fertility behavior to that of their destination country. This method proceeds by an indirect calculation, associating longitudinal (by age before immigration) and transversal (fertility at ages after arrival in France) indicators. It suggests a fertility level of 2.6 children per woman for immigrants, in contrast to 1.8 for autochthonous women. We suppose that these fertility differences between the two populations are constant over time.

³ The immigration flow corresponds to the difference between the number of entrances and exits of the country.

These projections of population by origin are very close to the last official projections of the INSEE (Table 1). According to our estimates, the total population of France in 2050 would be on the order of 70.6 million inhabitants, very close to the 69.9 million derived from the projections of INSEE. The old age dependency ratio would be 46.3% (32.2% for the young age dependency ratio) in 2050. Finally, given our net flows of 100,000 immigrants per year, the proportion of immigrants in the total population would remain relatively stable and would be about 9.1% in 2050.

Figure 2: Distribution of net migration flows in 2005



Source: Robert-Bobée, 2006

Meanwhile, GA requires population projections to a very distant horizon. This is necessary to evaluate the net payments from the living generations until the end of their life as well as the value of the non-individualizable public expenditures indefinitely and the generational accounts of the total of future generations. These projections are thus extended to 2210, assuming that the mortality, fertility and migration rates are fixed as of 2050. Nonetheless, GA attributes little weight to the net payments of generations to a fairly distant horizon due to the effects of actualization.

We likewise tested two alternative immigration scenarios. The first considers a halt in immigration as of the base year and permits us to show clearly the fiscal impact of immigration (zero immigration scenario). The second studies the effects of an additional inflow that might be considered “realistic” in the context of an aging French population. The magnitude of the latter was therefore determined to correspond to the flows that characterized the second great wave of immigration in France in the twentieth century—on average, approximately 0.35% of the total French population over the period 1954-1961. This policy

translates mechanically into a net annual immigration flow growing uniformly over the course of the century. It thus increases from 100,000 in 2005 to 243,000 in 2050.⁴

Despite the favorable age distribution of the immigrant population, this is not sufficient to counterbalance the process of demographic aging. In the benchmark scenario, the old age dependency ratio increases, as noted above, from 26% in 1999 to 46.3% in 2050. The demographic impact of immigration, meanwhile, is relatively weak, as this can only delay the process of demographic aging. Indeed, in the zero immigration scenario, the old age dependence ratio reaches 50.1% in 2050. The stock of immigrants therefore represents 3.2% of the French population, and immigration disappears altogether around 2120. The end of immigration would reduce the total population by almost 10% compared to the benchmark scenario. In the high immigration scenario, the old age dependency ratio reaches 43.9% in 2050 for a population with a proportion of immigrants of 15.4% (Table 1). Thus, the impact of immigration on the size and structure of the French population is far from negligible.

Table 1: Population projections

	Total population	Working Population (16-64)	Immigrant share	Old age dependency ratio ¹	Youth age dependency ratio ²
<i>Robert-Bobée (2006)</i>					
Benchmark Scenario	69 960 726	39 440 453	-	46.5%	30.9%
<i>Author population projection with migration</i>					
Benchmark Scenario	70 595 307	39 551 164	9.1%	46.3%	32.2%
Zero migration scenario	63 588 655	35 008 455	3.2%	50.1%	31.5%
High migration scenario	77 842 998	44 597 806	15.4%	43.9%	30.7%

1) 65/16-64

2) under 15 / 16-59

Sources : Robert-Bobée (2006), Author's calculation

2.2. Taxes and transfers profiles by age and origin

We consider six main branches of social security expenditures, corresponding to the different risks defined by the social security accounting: (1) retirement, (2) health, (3) family, (4) unemployment, (5) housing, (6) poverty/exclusion. To these social security expenditures, we add the education expenses, which likewise correspond to a form of transfer to a well-defined age group. On the income side, we have retained six categories of taxes: labor income taxes, capital income taxes, consumption taxes, local taxes, Generalized social contribution (GSC)/National debt repayment contribution (NDRC) and social contributions.

For the majority of profiles, we made use of the 2006 Budget of Families study (BdF06). Our sample consisted of 19,752 individuals. To obtain sufficiently rich blocks of comparable sizes, we divided the individuals into five-year age slices and chose a simple dichotomy of birthplaces (native vs. immigrant). For each type of tax and transfer, the BdF06 study thus allows us to determine the distribution by age and origin of the various monetary flows

⁴ The additional flows (compared to the benchmark reference scenario) only concern immigrants between 25 and 64 years of age.

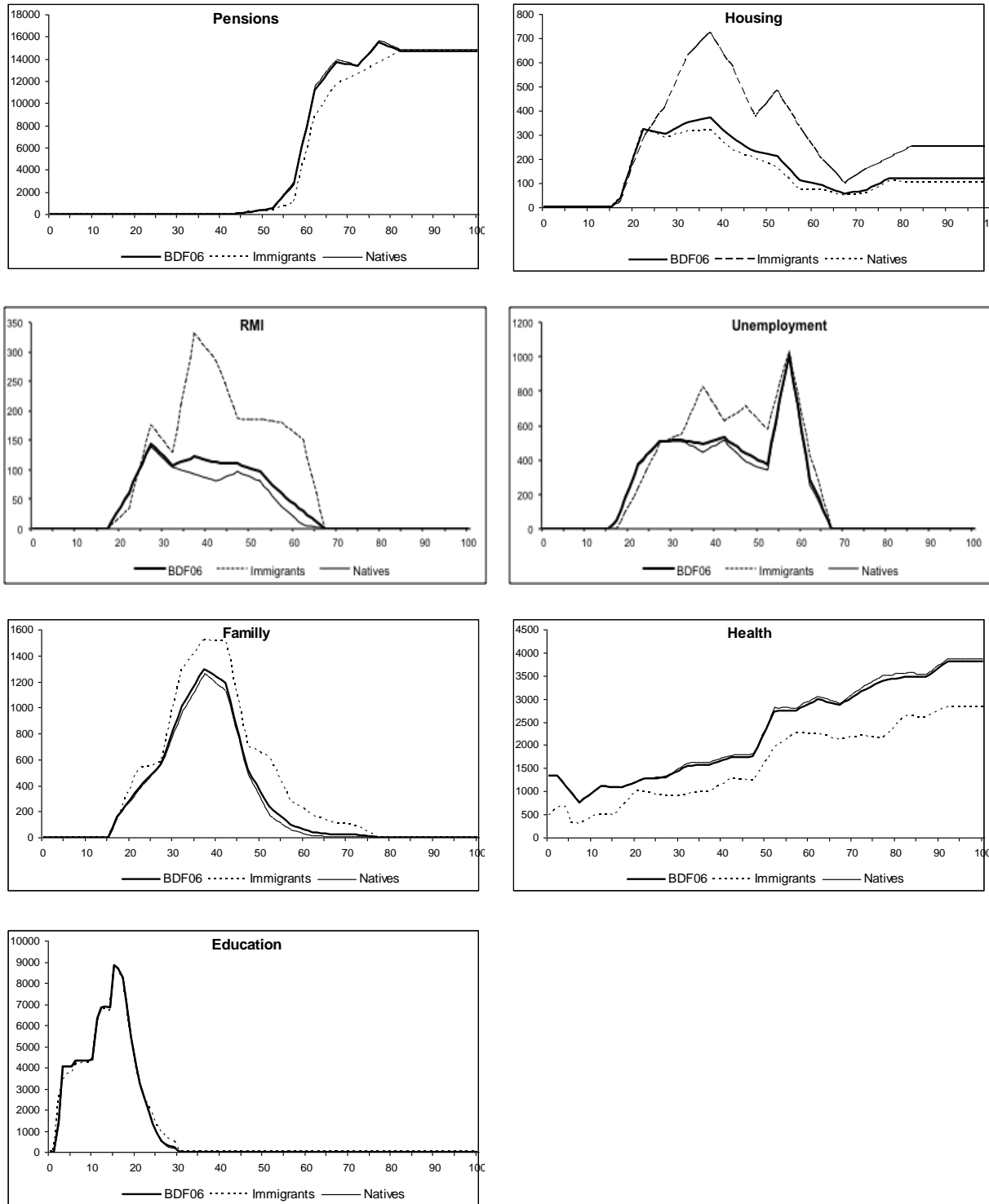
considered. Some resources and expenditures are clearly individualized in the study, such as retirement, unemployment and minimum income (RMI), but many others are only relevant at the level of the household and thus require certain assumptions to enable their individualization. Consequently, we have attributed these totals to the different members of the household proportionally to the revenues of each member of the household.

The majority of the taxes and transfers are reported directly in the BdF06 study. The social contributions and the GSC-NDRC were calculated by reconstructing the gross revenues of activity and then by applying employee and employer social contributions rates as a function of the income level and the type of employment. The calculation of the consumption taxes follows from the application of the different rates to the expenses of consumption appearing in the study. With the exception of the GSC-NDRC, the taxes paid on capital income do not appear in the study, so we adopt the assumption that the profile of capital taxes is the same as that of capital incomes.

For the distribution by age and origin of health care expenditures, we used the health care study of 1993 (ESS93), which considered a sample of 21,586 individuals. The distribution by origin was computed in the same manner as for the BdF06 study. With the exception of the first few years of life, we considered large age classes (0-2 years, 3-4, 5-9, 10-14, 15-19, 20-29, 30-49, 50-59, 60-69, 70 years and over), and we grouped the total expenditures on health to evaluate the total cost of health care. For educational expenses, we evaluated the average cost by age by applying the enrollment rates by age, derived from the population census of 2005 (RP05) to the average expenditure per graduate derived from the statistics of the national Ministry of Education. We then assumed that the costs of education by age were similar between native and immigrant students. This is equivalent to assuming that, at a given age, the immigrant and native populations follow the same course of education and that only the length of their studies differs between the two sub-populations. The disaggregation of educational expenses by origin was thus based solely on the differences in enrollment rates.

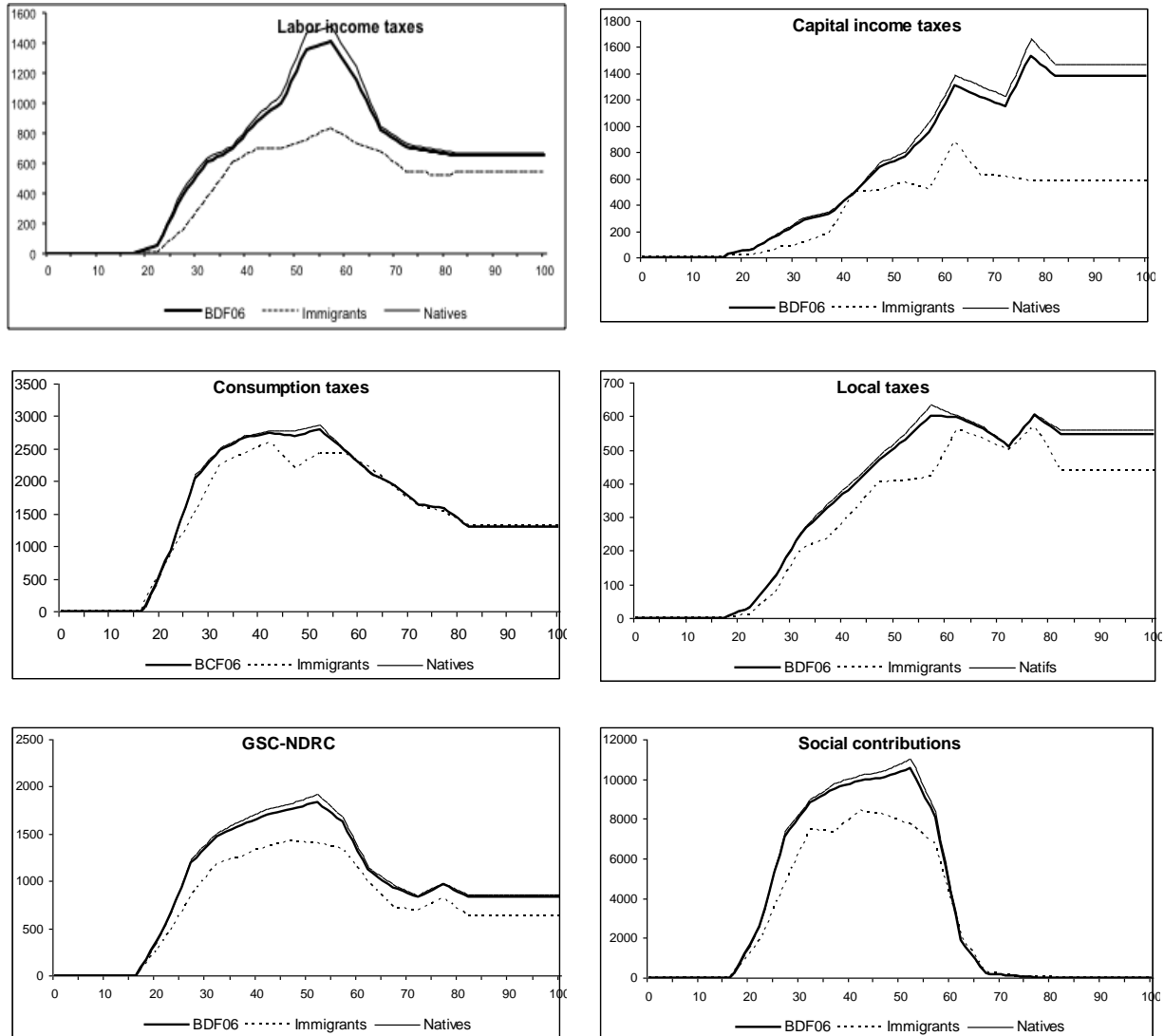
Figures 3 and 4 show the age distribution of the individualizable public revenues and expenses. When we compare these age profiles by origin, we observe relatively significant disparities. These are particularly marked in the case of transfers (Figure 3), which are higher for immigrants in the categories of RMI and housing, and likewise for the transfers connected to family and unemployment allocations. For the first two (RMI and housing), the maximal displacement is observed around the ages of 35-40 years. In contrast, the transfers given to immigrants are less than those given to natives in the areas of health insurance at all ages and old age benefits. Regarding the expenses of health care after age 60 and retirement, one explanation can be found in the lower utilization of the health care system (often due to a return to the country of origin after the working years) and lower pensions due to lesser professional careers. The age profiles of the transfers in the area of education do not show significant differences, by construction.

Figure 3: Per capita average transfers profile per age and origin (in euros)



Sources: Bdf06, ESS93, author's calculations

Figure 4: Per capita average taxes profile per age and origin (in euros)



Sources: Bdf06, ESS93, author's calculations

The respective contributions to public revenues (Figure 4) show more homogeneous disparities because at every age the average contribution of immigrants is less than that of natives. This difference appears for all revenues that are more or less proportional to salaries (labor income taxes, social contributions and GSC-NDRC). Inequalities in capital income explain the equally significant differences in the taxes on capital revenues. On the other hand, for the taxes that are less sensitive to wage inequalities, the difference is less marked (consumption taxes and local taxes). The primary explanation for these differences is found when we stop considering the averages and disentangle these two populations according to their skill level. Given that taxes in level (Figure 6) are increasingly important as the skill

level increases, we can easily understand these disparities in the aggregated profile given that immigrants have a lower skill level than the natives (Figure 7).

Each of the aggregates reconstituted from the profiles shown in Figure 3 and 4 are different from those given by the national accounting (Table 2). We therefore rescaled them uniformly over these aggregates with the help of the national accounting report (INSEE, 2009) and the IRDES database, for social expenditures. To obtain results independent of the choice of base year (2005), we took into account the recent changes in the budget of the public administrations (APU) since 2005. The availability of data thus allowed us to account for the evolution of different components of the budget of the APU until 2007. Beyond that, we applied the traditional method of GA, assuming that the individual taxes and transfers evolve in line with productivity.

Table 2: Public taxes and spendings in 2005 (in million of euros)

Taxes	Profiles	Millions of €	% of GDP	Transfers	Profiles	Millions of €	% of GDP
Labor income taxes	<i>BdF06</i>	49 400	2.9%	Pension	<i>BdF06</i>	221 627	12.8%
Capital income taxes	<i>BdF06</i>	58 900	3.4%	Housing	<i>BdF06</i>	13 809	0.8%
Consumption taxes	<i>BdF06</i>	196 500	11.4%	RMI	<i>BdF06</i>	7 940	0.5%
Property taxes	<i>BdF06</i>	31 200	1.8%	Unemployment	<i>BdF06</i>	38 837	2.3%
GSC-NDRC	<i>BdF06</i>	76 600	4.4%	Family	<i>BdF06</i>	46 431	2.7%
Social contributions	<i>BdF06</i>	312 308	18.1%	Health	<i>ESS93</i>	180 374	10.5%
Other taxes	<i>Flat</i>	145 417	8.4%	Education	<i>EN& RP05</i>	117 700	6.8%
				Other spendings	<i>Flat</i>	251 930	14.6%
				Interest	-	42 807	2.5%
Total		870 325	50.4%	Total		921 454	53.4%
				Deficit		51 129	3.0%

Sources : INSEE (2009), IRDES Eco-Santé 2009

Finally, the assumptions for the construction of our reference scenario suppose an actualization rate of 5% and an annual productivity growth rate of 1.5%.⁵ Traditionally, we retained the only financial wealth of the public administration, which totaled 744 billion euros in 2005.

3. FISCAL IMPACT OF IMMIGRATION

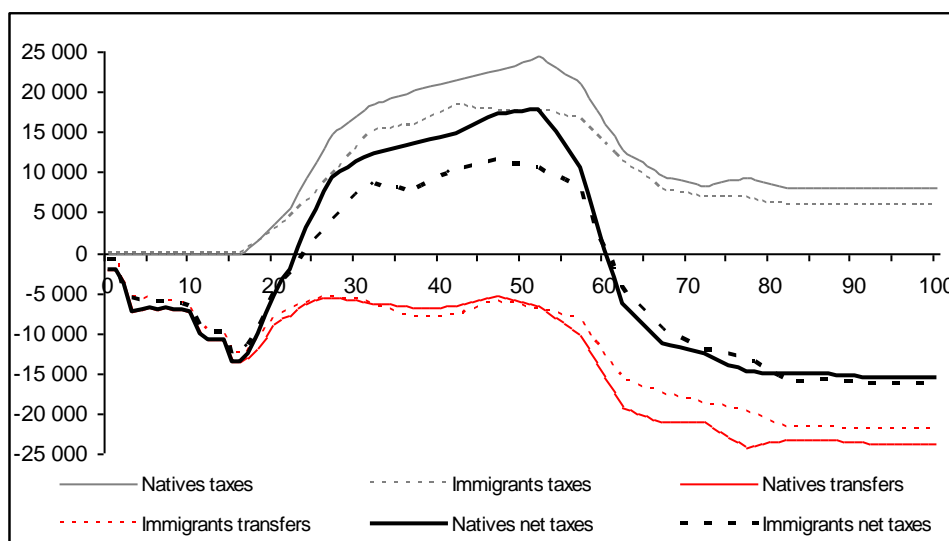
3.1. Instantaneous fiscal impact

Figures 5 show the aggregate profiles of taxes and transfers by age obtained from the individual profiles presented in the previous section. The primary differences appear on the side of tax payments. For example, the total taxes paid by a 40-year-old immigrant are less, by slightly less than one-fifth, than those paid by a native of the same age. The differences in behavior on the transfer side appear to be less. Before 20 years and beyond 55 years of age, the average transfers received by immigrants are slightly less than those of natives, notably

⁵ The values chosen for the actualization rates and the productivity growth are those retained in the majority of international studies. Because this choice is rather arbitrary, we will test the sensitivity of the results to these parameters in the appendix.

due to their lesser use of health care and their lower retirement pensions as a result of their less-complete professional careers. On the other hand, these transfers are larger during their active working lives, particularly due to the higher probability of unemployment in this population. By subtracting the transfers received from the deductions paid at each age, we obtain the age distribution of the net taxes (Figure 5), that clearly appear to be less than those of a native.

Figure 5: Age distribution of taxes and transfers (in euros)



Source: author's calculations

By applying to each of the net payments the age and origin distribution of the population in the year 2005, we can deduce the instantaneous net impact of the immigrant and native populations on the budget of the APU (Table 9). The global net contribution of immigration to the budget of the APU would thus be positive and on the order of 3.9 billion euros for the year 2005. Thus, for the year 2005, an immigrant would have made a net payment on the order of 800 euros, compared to about -220 euros on average for a native. In contrast to what Figure 5 might suggest, the net average contribution of an immigrant to the budget of the APU is not less than that of a native, despite an excess cost of immigration for certain branches of the social security system. Their weights in the branches of housing, RMI, unemployment and family are larger, on average, than the corresponding weights in the total population (Table 3). The explanation is simply found in the difference in the age distribution of the immigrant population compared to the native population, concentrated in the active age groups of net contributors (see Figure 1) and sparse among the net beneficiaries (youths and retirees).

Table 3: Fiscal impact of immigration in 2005

Taxes	Annual amounts (in Million of €)	% of total	Transfers	Annual amounts (in Million of €)	% of total
Labor income taxes	3 414	6.9%	Pension	16 365	7.4%
Capital income taxes	3 350	5.7%	Housing	2 593	18.8%
Consumption taxes	18 335	9.3%	RMI	1 740	21.9%
Property taxes	2 541	8.1%	Unemployment	5 047	13.0%
GSC-NDRC	6 215	8.1%	Family	6 724	14.5%
Social contributions	26 457	8.5%	Health	11 154	6.2%
Other taxes	11 714	8.1%	Education	4 222	3.6%
			Other spending	20 295	8.1%
Total	72 026		Total	68 140	
Net fiscal impact	3 885				

Source : Author calculations

At the same time, this purely statistical approach does not let us know precisely the magnitude and sign of the net contribution of immigrants to the welfare system. One of the crucial problems of the preceding estimates is in measuring the immediate fiscal impact of immigration, which naturally varies with age distribution. Thus, a change in the characteristics of this population (for example, connected with aging) would therefore reduce the significance of the result. Finally, the static nature of this type of study does not enable us to account for the future benefits and contributions of immigrants (such as retirements) or the net contributions of the descendants of immigrants (such as education costs).

3.2. Dynamic impact

Tables 4 and 5 show the generational accounts of natives and immigrants present in France in the year 2005. These accounts give the net payment (total taxes paid minus total transfers received) of each of the generations alive in 2005 until the end of their lives. Independent of their origin, we recover fairly standard results: these accounts increase in the first years of life and peak at around age 25. They then decrease due to the reduction of time remaining in active working life and the lesser actualization of expenses tied to old age (retirement, health care, disability). They become negative at around 50 years, reach their minimum at around 65 years and then increase again due to the decrease in the time left to live. The differences between the native and immigrant populations are relatively significant. Indeed, the generational accounts of immigrants are negative up to age 14. Thus, the immigrants arriving in France before this age would cost more than they would pay in taxes over their life cycles. The accounts then become positive, but the total remains significantly less than that of the natives. For example, the generational account of an immigrant aged 25 years old in 2005 is more than 40% less than that of a native. These accounts then become negative again at ages 47 and 50, respectively. An immigrant aged 65 years old in 2005 had a generational account more than 10% greater than that of a native. Finally, the estimation of the value, actualized in 2005, of the average contribution of an immigrant over the rest of his life is on the order of -8,737 euros. The budgetary contribution of the immigrants present in France in 2005 over the remainder of their lives would thus be negative, but of an extremely slight order of magnitude. For comparison, the average contribution of native generations in 2005 over the rest of their lives would be 28,210 euros.

We can better understand the differences in the generational accounts between natives and immigrants by disaggregating them for the different types of taxes and transfers included in our analysis (Tables 3 and 4). It then appears that the differences in generational accounts between natives and immigrants is due to the taxes that each of the generations will pay from now until the end of their lives. In effect, these actualized payments are clearly higher among the natives (on the order of 20 to 30% on average, depending on the generation), especially for labor income taxes and even more for capital income taxes. The differences in consumption taxes, in contrast, are lower. Differences also appear on the transfers' side. The different generations of immigrants will receive transfers that are clearly greater than those received by the natives, consisting of housing expenses, MRI, unemployment and family benefits, but the differences in the utilization of these social transfers compared to the natives are more than compensated for by the lesser utilization of transfers for retirement and health care; recall that these represent approximately two-thirds of the total social expenses. The total transfers received by the different generations of immigrants, from now until the end of their lives, are thus less than those received by the natives, but they are not sufficient to compensate for their lower payments of taxes.

Table 4: Natives' Generational accounts

Age in 2005	Generational accounts	Taxes						Transfers						
		Labor income taxes	Capital income taxes	Consumption taxes	Property taxes	GSC-NDRC	Social contributions	Pension	Housing	RMI	Unemployment	Family	Health	Education
0	-27 125	11 665	15 352	57 277	7 779	23 776	102 511	-41 084	-4 424	-2 539	-10 184	-16 675	-67 389	-103 192
5	-6 886	13 831	18 202	67 931	9 223	28 199	121 586	-48 696	-5 248	-3 011	-12 080	-19 782	-68 694	-108 345
10	32 008	16 360	21 526	80 380	10 909	33 366	143 888	-57 561	-6 213	-3 565	-14 297	-23 418	-73 526	-95 842
15	95 106	19 357	25 456	95 151	12 905	39 498	170 373	-68 000	-7 359	-4 222	-16 934	-27 736	-77 495	-65 887
20	178 409	22 892	29 861	111 162	15 238	45 998	199 187	-80 347	-8 284	-4 909	-19 498	-31 281	-81 878	-19 731
25	219 037	26 560	34 423	121 045	17 641	50 186	217 595	-94 789	-7 669	-4 944	-19 658	-32 736	-85 786	-2 830
30	209 827	28 731	38 540	121 256	19 555	50 606	213 586	-111 698	-6 853	-4 129	-18 341	-31 882	-89 508	-34
35	179 096	29 793	42 154	116 293	20 666	48 847	197 053	-131 451	-5 772	-3 426	-16 642	-26 506	-91 913	0
40	135 104	30 364	45 707	108 291	21 163	45 738	172 192	-154 676	-4 509	-2 809	-15 101	-17 085	-94 171	0
45	74 859	29 865	48 331	98 172	21 115	41 267	140 456	-182 028	-3 522	-2 198	-13 000	-7 615	-95 984	0
50	-7 832	28 211	49 386	86 284	20 431	35 582	101 498	-213 803	-2 653	-1 354	-11 492	-2 805	-97 116	0
55	-106 993	24 040	49 578	72 296	19 040	28 640	54 267	-249 309	-1 963	-550	-9 807	-989	-92 237	0
60	-185 609	18 692	47 541	59 411	16 838	22 238	15 239	-274 412	-1 726	-116	-3 191	-362	-85 760	0
65	-498 323	14 057	42 376	48 352	14 540	18 133	2 670	-258 977	-1 570	-10	-319	-208	-77 366	0
70	-1 811 983	11 143	37 172	38 051	12 351	15 059	677	-225 849	-1 531	0	0	-137	-68 918	0
75	-1 579 949	8 914	32 277	29 466	10 441	12 479	119	-191 568	-1 458	0	0	-60	-58 558	0
80	-1 26 279	6 902	24 498	21 466	8 031	9 376	13	-148 653	-1 156	0	0	-59	-46 698	0
85	-95 324	5 199	18 122	15 866	5 984	6 947	6	-111 004	-866	0	0	-48	-35 531	0
90	-71 692	3 884	13 309	11 747	4 420	5 123	4	-82 032	-642	0	0	-35	-27 469	0
95	-54 336	2 963	9 962	8 878	3 331	3 854	3	-61 868	-487	0	0	-27	-20 946	0
100	-15 603	885	2 640	2 550	939	1 071	1	-17 561	-142	0	0	-8	-5 977	0

Source: Author's calculations

Table 5: Immigrants' Generational accounts

Age in 2005	Generational accounts	Taxes						Transfers						
		Labor income taxes	Capital income taxes	Consumption taxes	Property taxes	GSC-NDRC	Social contributions	Pension	Housing	RMI	Unemployment	Family	Health	Education
0	-100 838	15 090	20 521	86 508	14 008	29 791	104 531	-134 332	-10 845	-6 812	-17 152	-26 063	-73 590	-102 494
5	-30 445	10 565	12 830	68 410	9 055	23 986	97 420	-65 929	-9 912	-6 300	-15 192	-27 214	-51 040	-107 453
10	15	11 035	12 914	74 147	9 227	26 131	109 949	-60 032	-11 155	-7 089	-16 851	-31 532	-51 332	-95 857
15	20 817	12 564	14 435	85 526	10 357	30 236	129 320	-62 506	-13 043	-8 317	-19 731	-37 209	-54 173	-66 643
20	91 226	14 499	16 325	97 652	11 800	34 774	150 885	-66 284	-14 998	-9 776	-23 137	-42 312	-56 390	-21 811
25	122 704	17 016	19 121	106 398	13 815	38 216	166 499	-78 583	-15 812	-10 956	-25 189	-44 404	-58 232	-5 184
30	123 113	19 012	21 802	109 183	15 475	39 061	167 838	-92 001	-15 526	-10 877	-25 161	-44 861	-60 733	-98
35	99 269	19 971	24 484	105 369	16 418	37 737	154 156	-108 047	-13 793	-10 743	-24 168	-38 585	-63 529	0
40	70 663	19 629	26 521	98 133	17 061	35 341	135 666	-126 697	-11 117	-8 641	-20 924	-28 168	-66 141	0
45	24 968	18 571	26 224	88 766	17 169	31 893	109 193	-148 997	-8 890	-6 450	-18 237	-16 735	-67 539	0
50	-34 969	17 280	25 367	80 810	16 605	27 531	78 854	-174 773	-7 481	-4 989	-14 871	-10 586	-68 716	0
55	-101 175	15 394	25 904	70 144	15 818	22 541	46 146	-203 846	-5 520	-3 462	-11 490	-5 716	-65 089	0
60	-161 711	12 806	22 144	57 737	14 717	17 310	15 664	-230 272	-4 068	-1 747	-4 530	-3 233	-58 239	0
65	-176 937	10 419	17 699	45 770	12 613	13 557	3 256	-223 329	-3 371	-218	-535	-1 821	-50 977	0
70	-166 179	8 205	14 431	35 623	10 429	11 200	870	-198 578	-3 268	0	0	-885	-44 205	0
75	-144 286	6 509	11 379	27 150	8 302	9 011	380	-166 910	-2 981	0	0	-111	-37 013	0
80	-120 016	5 057	8 686	19 722	5 802	6 289	112	-132 535	-2 507	0	0	0	-30 642	0
85	-87 065	3 690	6 159	13 930	4 044	4 375	55	-95 090	-1 824	0	0	0	-22 405	0
90	-55 988	2 391	3 869	8 882	2 567	2 770	35	-60 426	-1 168	0	0	0	-14 907	0
95	-29 176	1 282	1 952	4 637	1 328	1 424	18	-31 342	-615	0	0	0	-7 860	0
100	-16 240	722	1 041	2 587	734	781	10	-17 399	-346	0	0	0	-4 370	0

Source: Author's calculations

To evaluate the sustainability of fiscal policy in France over the long term, we calculate the total of the inter-temporal financial obligations, the inter-temporal public debt (IPL), which corresponds to the difference between the nominal value of the national debt for the year 2005 and the actualized value aggregated from the net payments of living and future generations (Table 6). This is determined by adding to the net debt observed in 2005 the sum of the generational accounts of the present and future generations, multiplied by the respective sizes of the cohorts according to our population projections, as well as public consumption. In a case where the fiscal policy is not changed (such as the rights to retirement benefits that will have to be honored), this net inter-temporal debt, based simultaneously on the actual debt and future revenues and obligations of the public administrations, would be on the order of 200% of the PIB in 2005. The current fiscal policy is thus not sustainable in the long term because the net current and future payments are negative and will further increase the current level of the national debt.

For a newborn in 2005, the prospective net payments over his life cycle are negative (on average, a newborn in 2005 will thus receive more over his life cycle than he contributes). As we have said, the net payment of immigrants present in France in 2005 over the rest of their life is likewise found to be negative.⁶ Because the actualized value of the net payments of present and future generations of immigrants as well as natives is not able to cover the total public consumption and the current national debt, adjustments to the fiscal policy are clearly necessary. Thus, a proportional increase in the tax rate by 14.2% for the generations alive in 2005 as well as for future generations would make the budget viable over the long term. Such a policy would significantly increase the net contribution of a newborn in 2005 (to approximately 3,900 euros) as well as the net average contribution of immigrants.

Table 6: Intertemporal budget constraint equilibrium

	Natives	Immigrants
New born\Average immigrants	-27 125	-8 737
Implicit debt (in % of 2005 GDP)		157.0%
Explicit net debt in 2005 (in % of 2005 GDP)		43.1%
IPL (in % of GDP)		200.2%
<hr/>		
Taxes (%)		14.2%
New born\Average immigrants	3 898	26 726
<hr/>		
Transfers (%)		-14.9%
New born\Average immigrants	9 406	29 709
<hr/>		
Taxes&Transfers (%)		7.3%
New born\Average immigrants	6 589	28 183

Source: Author's calculations

⁶ It seems more logical to use this indicator of the net average payment for the immigrant populations rather than considering the contribution of the first generation of immigrants (as we do for the natives) because, by definition, the immigrants were not born in France.

Nevertheless, these results must be considered with great caution. The estimation of the generational accounts of the immigrants is sensitive to the data used to estimate the profiles of taxes and transfers. The small size of our sample (for example, in BdF06, 19,752 individuals, of whom 2,310 are immigrants) thus leads to a certain level of uncertainty regarding the generational accounts by origin. Furthermore, the construction of the generational accounts raises questions as to the proper interpretation of the life-cycle contributions of immigrants. The principle of GA leads to a lack of distinction between age and generation. This implies that the estimated age profiles are applied longitudinally and that the net tax profiles of individuals are time-invariant. Even if GA could be considered as a simple thought experiment, the non-identification of cohort effects can become problematic when working with a particular population, such as immigrants.

The extrapolation of the generational accounts of immigrants on the basis of current net tax profiles thus suggests that the net average taxes of an immigrant aged 30 in 2005 can be correctly projected based on the net taxes paid by the oldest generations of immigrants alive in 2005. Meanwhile, the immigrant population is characterized by great heterogeneity; by definition, the immigrants are not born in France, and they do not all arrive at the same age. It thus seems that the net contribution of the immigrants depends more on the time since their arrival in France than on their age. The calculation of the generational accounts of immigrants thus equates to reproducing, to infinity, a process of assimilation based on previous waves of immigration. For all these reasons, it seems more appropriate to evaluate the impact of immigration on public finances in deviation compared to this benchmark demographic scenario.

4. CHANGES IN IMMIGRATION POLICY

To examine the impact of a change in immigration policy on the long-term sustainability of the fiscal policy, we test two alternative demographic scenarios: an end to immigration as of 2005 (zero immigration scenario) and an increase in the immigration flows on the basis of the immigration rates observed at the end of the 1950s (high immigration scenario). Table 7 shows the adjustments to the fiscal policy that can balance the inter-temporal budgetary constraint for different immigration scenarios and different adjustment tools. The top part of the table shows the principal results of the benchmark scenario: necessary adjustments of the fiscal policy, generational accounts of newborns and average generational accounts of immigrants in 2005 after the adjustment of the fiscal policy.

Our first alternative scenario supposes an end to immigration as of 2005. Although unrealistic, this extreme case allows us to evaluate the impact of future immigration flows compared to the benchmark scenario. The removal of these immigrants, of course, eliminates the taxes and transfers that they would have paid and received,⁷ but it has no impact on the generational accounts of the generations living in 2005 and the immigrants already present in

⁷ This scenario likewise leads to the removal of the taxes paid and transfers received by all descendants of these immigrants.

France at this date. Initially, we suppose that the non-individual expenses per capita remain the same, implying a proportional reduction in the global total of these expenses. The removal of these future immigration flows thus slightly increases the adjustments necessary to re-establish long-term fiscal sustainability. In the case of an adjustment to the tax system, the necessary increase is more than three-tenths of a percentage point compared to what was required in the benchmark scenario. The fiscal burden on a newborn thus increases by almost 600 euros. In the case of an adjustment to the system of transfers, the removal of the immigration flows presently requires a reduction in transfers of 15.2%, as opposed to 14.9% in the benchmark scenario. This alternative immigration scenario thus displays a positive but extremely small contribution of immigration (first-generation immigrants and descendants of these immigrants) to the budget of public administrations.

These conclusions may seem sensitive to our hypothesis on the assumption of non-individualizable public expenditures (e.g., spending on defense, police, justice and culture). It seems reasonable to consider that some of these expenses have the nature of a “public good” and thus imply economies of scale. The increase in the population due to immigration can provide the benefit of increased returns associated with the use of public infrastructure. For example, expenses connected to national defense exceeded 35 billion euros in 2005 and represented approximately 13% of the final consumption of the public administration. We thus consider an alternative scenario in which 20% of non-individualizable public expenditures do not vary with the size of the population. As a result, the elimination of future immigration flows no longer has an impact on these expenditures, imposing an increased cost per capita to finance them. With the introduction of this assumption, the removal of future immigration flows increases the need for long-term financing of the budgetary policy, regardless of the adjustment tool employed. The necessary modifications of the fiscal policy are logically greater than those of the preceding scenario and those that follow from the benchmark scenario. Thus, the maintenance of the current immigration policy would have a positive effect on the sustainability of public policy (compared to the hypothetical case of an end to immigration), but the orders of magnitude, while not negligible, remain very small.

Similar results follow from the following two scenarios. We now suppose an increase in the net annual immigration. This surplus of immigrants corresponds to an increase in the immigration flow, limited to individuals aged 25 to 64 years old. The simulated growth reproduces the rates of immigration observed at the end of the 1950s, on the order of 0.35% of the total population. As of 2010, the immigration flow would thus be twice as large as it is in the reference scenario (100,000 net entries per year). In addition to the decrease in the average age of the population connected to the implementation of this policy, the adjustments necessary for budgetary equilibrium in the long term become lower than those in the benchmark scenario, implying an increase of 13.4% in the total taxes or a decrease of 14.1% in the total transfers. If we suppose, as before, that 20% of the non-individualizable public expenditures do not depend on the population size, the doubling of the immigration flows becomes even more beneficial for long-term budgetary policy. Thus, this large increase in the immigration flows is positive for the global effort necessary for the reduction of budgetary imbalances. Even so, the effects remain relatively small compared to the long-term imbalance.

Table 7: Fiscal impact of different migratory scenario

	Taxes		Transfers		Taxes & Transfers	
	Natives	Immigrants	Natives	Immigrants	Natives	Immigrants
Benchmark (I)						
Fiscal policy adjustments	14.21%		-14.88%		7.27%	
New born\Average immigrants	3 898	26 726	9 406	29 709	6 589	28 183
Zero migration scenario (II)						
Fiscal policy adjustments	14.51%		-15.15%		7.41%	
New born\Average immigrants	4 550	27 471	10 064	30 400	7 247	28 904
Zero migration scenario\Defense as a public good (III)						
Fiscal policy adjustments	14.99%		-15.65%		7.66%	
New born\Average immigrants	5 606	28 678	11 304	31 705	8 393	30 159
High migration scenario (IV)						
Fiscal policy adjustments	13.35%		-14.08%		6.85%	
New born\Average immigrants	2 016	24 574	7 435	27 634	4 653	26 063
High migration scenario\Defense as a public good (V)						
Fiscal policy adjustments	12.99%		-13.70%		6.67%	
New born\Average immigrants	1 238	23 685	6 512	26 663	3 804	25 134
Total selection of new immigrants (VI)						
Fiscal policy adjustments	11.44%		-12.30%		5.93%	
New born\Average immigrants	-2 141	19 823	3 068	23 038	370	21 372
Selection of 50% of new immigrants (VII)						
Fiscal policy adjustments	12.81%		-13.61%		6.60%	
New born\Average immigrants	847	23 238	6 277	26 415	3 480	24 779

Source: Author's calculations

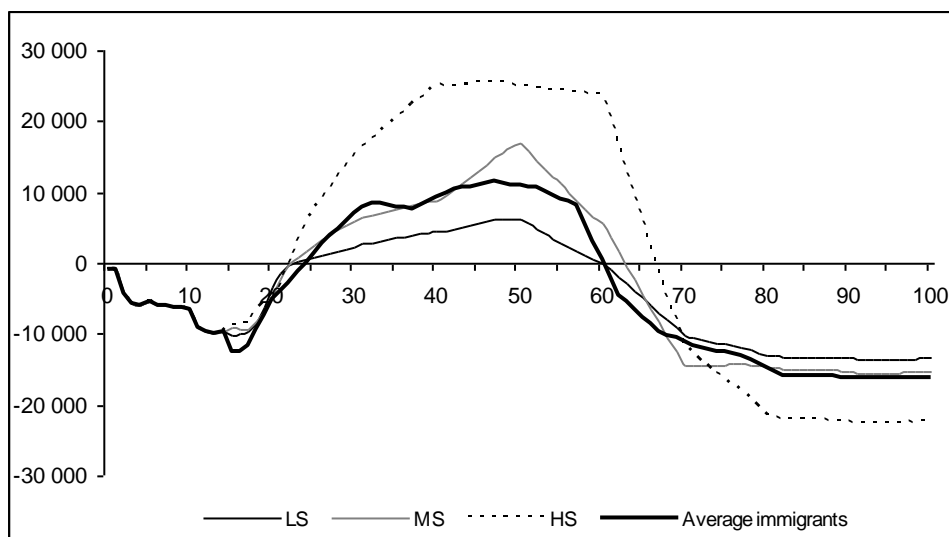
5. CHANGE IN THE SKILL LEVEL OF IMMIGRANTS

We now test the impact on the long-term fiscal equilibrium of the implementation of a more selective immigration policy seeking to increase the skill level of the immigrant flows. As recalled by Borjas (1999), the qualification level of immigrants is the determining factor of the positive or negative impact of this population on the economy of the destination country. A simple modification of the magnitude of the immigration flows ignores the great heterogeneity of the immigrant population. Thus, a change in the composition of the immigrant flows, for example, by the implementation of a selective immigration policy, may be more effective than a simple change in the magnitude of these flows. Until now, we had supposed that the level of education of the future flows of immigration was the same as those of the current flows, implying constant age profiles of taxes and transfers. Let us now suppose a change in the skill structure of the immigrants, seeking to improve the average skill level of the future flows.

For this purpose, we will also have to disaggregate the profiles by age of the taxes and transfers of immigrants according to their skill level. We thus return to the BdF06 study as well as ESS93. We distinguished three main levels of education: below the baccalaureate (LS), baccalaureate level (MS) and above the baccalaureate (HS). For each type of taxes and transfers, we first evaluate the average situation of each education category compared to the average of the sample considered for the native and immigrant populations. We then applied these different proportions to our profiles by origin to divide them according to the level of education. Finally, these proportions were recalibrated with the distribution by age and level of education obtained from the population census of 2005 to be coherent with our aggregate profiles without educational distinctions.

The distribution by age and level of education of the taxes and transfers of immigrants is shown in Figure 6. Significant differences appear in the taxes paid. For example, a highly skilled 50-year-old immigrant pays almost 1.5 times more in taxes than a medium skilled immigrant and almost 2.5 times more than a low skilled immigrant. Differences also appear on the transfer side during the second half of the life cycle. In particular, the retirement and health care expenses are relatively higher among moderately and highly qualified immigrants. In total, the net taxes of a highly skilled immigrant are significantly larger than those of a medium or low skilled immigrant up to age 65. Thus, a change in the skill structure of the future immigration flows can potentially have significant effects on the long-term sustainability of the fiscal policy. However, we have to keep in mind that our GA model does not allow us to account for the effects on the labor market induced by this increase in the number of high skilled immigrant workers. This intensification of competition on the skilled labor market may potentially affect the value of education and the evolution of salaries.

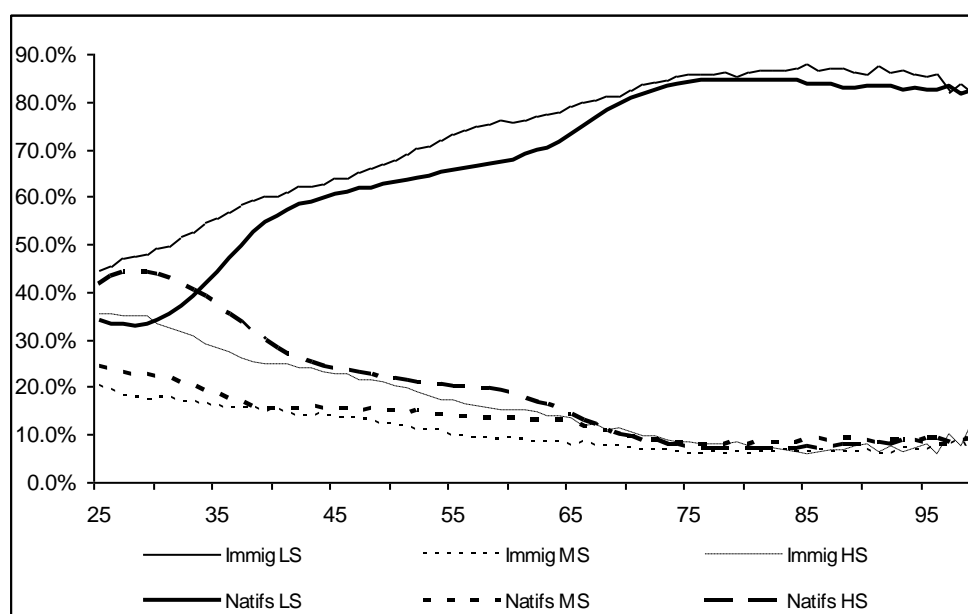
Figure 6: Age and skill structure of net immigrants taxes (in euros)



Source: author's calculations

Part of the difference between the immigrant and natives populations in their utilization of social security is tied to the individual characteristics and, in particular, to the differences in the skill level of these two populations. A simple observation of the 2005 census shows that the average skill level of immigrants is lower than that of the native population. For example, in 2005, the low skilled represented 56% of the immigrants aged 35 years compared to 44% of the natives of the same age, whereas at the same time, the most highly skilled represented 28% of the immigrants compared to more than 37% of the natives. Thus, the gaps in the net taxes between the native and immigrant populations, shown in Figure 6, are in part due to differences in the average skill of the two populations.

Figure 7: Age and skill structure of immigrant and natives population in 2005



Source: Population Census, Insee, author's calculations

To understand the impact of the implementation of a more selective immigration policy on the skill level, let us begin with an extreme and unrealistic scenario that will allow us to show the significance of an improvement in the skill level on future waves of immigration. Starting from the benchmark demographic scenario with annual net flows of 100,000 immigrants, let us assume the implementation of a policy of total selection of immigrants, such that every new immigrant after 2005 has a high skilled level. We likewise suppose that the probabilities of survival of a high skilled immigrant are the same as those of a native. Concretely, this requires a preliminary calculation of the contribution of the immigrants already present in France in 2005, to which we must add the contributions of the new immigrants selected on the basis of their educational level. This implies an increase over time in the education level of the immigrants, whose net tax profile thus progressively approaches that of the most skilled immigrants. The results of this exercise are shown in the lower part of Table 7.

The impact of such a policy is noticeable. We observe a significant reduction in the adjustments to the fiscal policy that are required by the inter-temporal budgetary constraint. An increase in the total taxes of 11.4%, compared with 14.2% in the benchmark scenario, would be enough to balance the long-term budgetary constraint. This reduces the burden on a newborn. If the adjustment is carried out on the transfer side, a reduction in the total transfers of 12.3% is enough to make the budgetary policy sustainable, in contrast to a reduction of 14.9% in the benchmark scenario.

Clearly, such an immigration policy is hard to imagine and is purely theoretical. Most immigration in France occurs by family groupings, and less than one-fifth of the flow consists of the entry of workers. Let us then suppose a less extreme case in which 50% of the new immigrants have a high skilled level, with the remaining 50% retaining the same skill distribution observed in 2005. In this case, the improvement in the level of education of the immigrants, tied to the implementation of a selective policy, translates into a reduction in the adjustments to the fiscal policy necessary according to the inter-temporal budgetary constraint. The benefits to be obtained from such a policy are more significant in the case of an adjustment via taxes.

6. CONCLUSION

The principal objective of this article was to study the instantaneous and dynamic impact of immigration on the welfare system and on the long-term sustainability of the fiscal policy in France. To this end, we constructed a GA model with immigration, enabling us to measure the effects of a change in immigration policy on public finances. The main conclusion of this article is that the evaluation of the impact of immigration on welfare systems is strongly dependent on the methodology employed. Simple observation of the tax profile shows a lesser contribution of the immigrant populations; for example, the total taxes paid by an immigrant aged 35 years old in 2005 was, on average, on the order of 15,500 euros, in contrast to 19,500 for a native. Comparatively, the differences between our two sub-populations on the level of transfers received are relatively smaller; for example, an immigrant aged 35 years old received, on average in 2005, approximately 7,500 euros of transfers, compared to 6,500 euros for a native.

The application of these profiles (total taxes minus total transfers) to the distribution by age and origin of the population allows us to deduce the instantaneous impact of immigration on the budget of public administration in 2005. The net global contribution of immigration would thus be positive and on the order of 3.9 billion euros for the year 2005. Thus, even if, on average, immigrants seem to pay less taxes and receive more transfers than natives, the difference in the age distribution of the immigrant population compared to the native population is concentrated in the active age groups and is less numerous among the net beneficiaries of the welfare system (youths and retirees). This leads to an average net contribution of an immigrant to the public budget that is higher than that of a native. At the same time, this instantaneous evaluation of the fiscal impact of immigration does not take into

account the effects of the life cycle (taking into account the future benefits and contributions of immigrants) or the net contributions of the descendants of immigrants.

A study of the fiscal consequences of immigration in a dynamic framework allows us to overcome these limitations. By applying the methodology of GA, we showed that fiscal policy is unsustainable over the long term because of demographic aging. The average life cycle contribution of the immigrants present in France in 2005 appears to be clearly negative (on the order of -8,700 euros) and lower than that of the natives (on the order of 28,210 euros). Even so, the global impact of immigration on public finances is slightly positive in the long term due to the perpetual arrival of individuals of active working age and considering the net contribution of the descendants of these immigrants. At the same time, the impact of immigration remains very slight compared to the global effort that would have to be undertaken to reduce the fiscal imbalances. However, beneficial effects can result from an increase in the flows of immigrants and even more so from a change in the skill structure of the immigrants that seeks to improve the education level of future flows.

Finally, this article limited itself only to the fiscal impact of immigration. In reality, there are multiple economic impacts of immigration on the labor market via many different mechanisms that are not taken into account by our model of partial equilibrium. Immigration may change the remuneration of the factors of production and imply significant redistributive effects. Thus, the consequence of such a change in immigration policy might also be studied in a global manner and within the framework of a general equilibrium model.

REFERENCES

- Auerbach, A., Gokhale J. and Kotlikoff L., 1991, « Generational accounts: a meaningful alternative to deficit accounting », in Bradford, D. (ed.), *Tax Policy and the Economy*, vol. 5, 55-110, Cambridge: MIT Press.
- Auerbach, A. and Oreopoulos, P., 2000, « The Fiscal Effects of U.S. Immigration: A Generational-Accounting Perspective », dans J. Poterba, ed., *Tax Policy and the Economy* 14, 123-56.
- Bonin H., Raffelhüschen B. and Walliser J., 2000, « Can Immigration Alleviate the Demographic Burden », *FinanzArchiv*, 57.
- Borjas, G.J., 1999, « Heaven's door : Immigration Policy and the American Economy », Princeton University Press, Princeton/Oxford.
- Chojnicki X., 2006, « Vieillissement démographique et immigration internationale : un modèle de comptabilité générationnelle appliqué à la France », *Economie et Prévision*, n°174, 39-57.
- Collado D., Iturbe-Ormaetxe I. I. and Valera G., 2003, « Quantifying the Impact of Immigration in the Spanish Welfare State », *International Tax and Public Finance*, 11, 3, 335-353.
- Héran, F. and Pison, G., 2007, « Deux enfants par femme dans la France de 2006 : la faute aux immigrées ? » *Population et Sociétés*, 432
- Insee, 2009, « L'économie française – Comptes et dossiers – Edition 2009 »
- Lee R. and Miller T., 2000, « Immigration, Social Security and Broader Fiscal Impacts », *American Economic Review*, 90, 350-354.
- Mayr, K., 2005, « The Fiscal Impact of Immigrants in Austria - A Generational Accounting Analysis », *Empirica*, Springer, 32, 2, 181-216.
- Monso, O., 2008, « L'immigration : quels effets sur les finances publiques? », *Revue Française d'Economie*, A paraître.
- Monteil, C. and Robert-Bobée, I., 2005, « Quelles évolutions des différentiels sociaux de mortalité pour les femmes et les hommes ? : tables de mortalité par catégorie sociale en 1975, 1982 et 1990 et indicateurs standardisés de mortalité en 1975, 1982, 1990 et 1999 », Document de travail de l'Insee F0506
- Robert-Bobée, I., 2006, « Projections de population 2005-2050 pour la France métropolitaine : méthode et résultats », Document de travail de l'Insee F0603.

APPENDIX A: SENSITIVITY ANALYSIS

The choices of the actualization and growth rates (respectively, 5% and 1.5% in our study) may be subject to discussion. Table 8 allows us to verify to what extent our results are sensitive to the choice of each of these parameters for some of the immigration scenarios considered above. Thus, different values for the actualization or growth rates significantly change the generational accounts of newborns or the average accounts of immigrants as well as the evaluation of the inter-temporal public debt (IPL) in the case of the benchmark scenario. For a given rate of productivity growth, a higher rate of actualization tends to diminish the imbalance by attributing less weight to the net future payments. The generational accounts of newborns are thus much smaller as the rate of actualization increases (and conversely for the average accounts of immigrants), notably due to the larger weight attributed to educational expenditures. An increase in the growth rate of productivity decreases the imbalance of the fiscal policy as the actualization rate is smaller because the growth in the actualized value of the taxes (paid over the course of active life) does not allow it to compensate for the growth in the actualized value of transfers (received in retirement). Thus, the adjustments required to the taxes based on the long-term budgetary constraint are relatively stable and vary between 13.2% and 17.1%. Whatever the actualization and growth rates considered, the fiscal policy is unsustainable in the long term.

If we compare the benchmark scenario with the zero-migration scenario, we can observe that the adjustments to the budgetary policy in all cases are greater when we suppose a zero-immigration flow compared to our reference framework. The differences in the adjustment necessary to taxes compared to the benchmark scenario are relatively stable for different values of the actualization and growth rates. In the same manner, the adjustments required in the case of the high immigration scenario always remain lower than those of the benchmark scenario. Thus, whatever the rates of actualization and growth considered, an increase in the immigration flows has a positive effect on the sustainability of the fiscal policy but would not be able to reduce the fiscal imbalances significantly over the long term. Finally, we have seen that a policy seeking to increase the education level of immigrants could have a positive effect on the debt burden. This result is confirmed for all the combinations of growth and actualization rates that are tested.

Table A.1: Sensitivity of migratory scenario to actualization rate and productivity growth rate

Interest rate	3%	3%	3%	5%	5%	5%	7%	7%	7%
Growth rate	1%	1.5%	2%	1%	1.5%	2%	1%	1.5%	2%
	Benchmark								
IPL (in % of GDP)	391.0%	547.5%	870.0%	171.4%	200.2%	240.0%	109.4%	119.8%	132.7%
CG New born	-3 162	2 905	4 001	-34 673	-27 125	-18 860	-52 277	-48 722	-44 265
CG average immigrants	-38 791	-54 713	-74 879	-2 595	-8 737	-16 435	11 034	8 573	5 493
Taxes ajustments	15.6%	16.3%	17.1%	13.9%	14.2%	14.6%	13.2%	13.3%	13.5%
	Zero migration scenario								
IPL (in % of GDP)	363.2%	497.8%	769.2%	166.6%	193.1%	229.2%	108.3%	118.2%	130.4%
Taxes ajustments	16.0%	16.7%	17.6%	14.1%	14.5%	14.9%	13.5%	13.6%	13.8%
Difference with benchmark	0.37%	0.44%	0.55%	0.29%	0.30%	0.31%	0.27%	0.27%	0.28%
	High migration scenario								
IPL (in % of GDP)	407.4%	584.8%	958.1%	168.7%	199.0%	241.6%	105.7%	116.1%	129.1%
Taxes ajustments	14.9%	15.7%	16.7%	13.0%	13.3%	13.8%	12.4%	12.5%	12.6%
Difference with benchmark	-0.67%	-0.53%	-0.35%	-0.88%	-0.86%	-0.82%	-0.87%	-0.88%	-0.89%
	Skilled migration scenario (50%)								
IPL (in % of GDP)	333.4%	456.9%	710.9%	158.1%	181.2%	213.0%	213.0%	116.0%	126.5%
Taxes ajustments	13.3%	13.6%	13.8%	12.7%	12.8%	13.0%	13.0%	12.6%	12.7%
Difference with benchmark	-2.27%	-2.69%	-3.20%	-1.18%	-1.40%	-1.65%	-0.25%	-0.71%	-0.86%

Source : Author's calculations

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