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Models of Federalism and Redistribution

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1. Introduction

In this end of century, the tendency towards economic integration triggered by the globalization and liberalization processes seems to cohexist with the opposite tendency towards political disintegration, such as the break-up of large states (Soviet Union, Yugoslavia, etc.), the separation between regions previously belonging to a unified nation (Czechoslovakia), or the devolution of powers by the central government (Spain, Belgium, United Kingdom and Italy).

Yet, it also happens that economic integration is accompained by some form of political unification. Federations among jurisdictions (regions/nations)[1] sharing a common market (for goods, capital and labour) and a common currency have recently been planned. The interesting question is that the creation of a full-fledged fiscal union - despite the Pareto improvements that should accrue to the federation - is often resisted.[2] The paper contends the two main rationales for this opposition to centralization. The first rationale maintains that local jurisdictions are able to autonomously reach an efficient resource allocation for public goods provision. In section 2, this tenet is criticized by showing that - due to preferences and income level "heterogeneity" in populations - interregional spillovers are pervasive and a fiscal union is the institutional organization which avoids exporting "adverse selection" problems from one local jurisdiction to the other. The second rationale concerns the fear that in a fiscal union the advantages of risk-sharing would be undermined by a federal coalition of voters imposing an excessive interregional redistribution. To analyze this tenet, the two main theoretical models of organization of social insurance for health care and for unemployment[3] - the Free Market approach and the Welfare State approach - are presented in sections 3 and 4. The thesis is put forward that in a federation characterized by regional disparities - that is, where "regions" differ in their expected income levels - the outcome of a majority voting about the degree of interregional

[1] In the paper, the general term "jurisdiction" indicates both regions or nations. Hereafter the word "region" will also be used, with reference to whatever political entity the territory of which has been historically defined by a common language and culture.

[2] The obvious example is the European Union, where centralization is fiercely opposed and the subsidiarity has become an important principle inspiring the integration process.

[3] The pension system is not included in the analysis because it may involve intergenerational redistribution, which complicates the voting decision-making. However, the extension of individual risk insurance to the pension schemes corresponding to the two approaches (the private funds and the "pay-as-you go" systems), should not affect the voting on interregional redistribution determined by health care and unemployment insurance.

redistribution depends on the specific model of social insurance which is adopted by the jurisdictions joining the fiscal union (section 5). It is demonstrated that federal voting is not destabilizing. On the contrary, voting coalitions exert a re-equilibrating effect with respect to the degree of redistribution determined by either model of social insurance corresponding to the two approaches above mentioned. Therefore, fiscal unions should not be opposed on the grounds that distributive voting coalitions undermine the efficient resource allocation.

2. Centralization versus decentralization in public goods provision

One of the main objections against fiscal unions is the claim that allocative efficiency in terms of the correspondence of public goods to the preferences of individuals is best served by regional jurisdictions, which are "closer" to their populations, than by a supranational government. However, the critical question is that the decentralization of public goods provision to local jurisdictions having populations characterized by preferences and income level "heterogeneity" may be plagued with spillover effects. Therefore, for the thesis of the superiority of decentralization to be demonstrated, the organization of the public goods provision has to be referred to a jurisdictional system which is free from externalities. As for a fiscal union, the problem consists in avoiding that a regional jurisdiction could engage strategic behaviour by generating negative externalities which damage another jurisdiction.

The literature on Fiscal Federalism which has developed in the last decades tackles the search for efficiency in public goods provision as the problem of determining what is the level of government inside a federation that favours individual utility maximization as for public goods. The virtues of decentralized government as the best instrument of allocative efficiency are forcefully assessed in the most influential analysis on the advantages of local provision of public goods, the Oates model.[4] Political monopoly powers tend to arise with central authorities redistributing resources in the population by the provision of public goods. Thus, the role played by the externalities stemming from the lack of correspondence between the political jurisdiction and the economic jurisdiction (the area on which the public good spreads its effects) is decisive. Yet, the problem of these spillover effects - both in the form of public goods determining externalities towards other jurisdictions and in the form of mobility across jurisdictions as a consequence of distortions provoked in individual utility functions - is overlooked by the Oates model. Since each local jurisdiction is assumed to be composed by individuals with equal preferences and income level, the absence of spillover effects - the "correspondence principle" - is assumed

[4] See Oates (1972).

by definition.[5] It has to be noted that this is a major shortcoming of this model: in case of intraregional "dispersion" of preferences higher than interregional "dispersion" of preferences, contrary to the Oates' result, social welfare is maximized by centralization.

To demonstrate that allocative efficiency can be obtained by empowering local communities for tax collection and public good provision something more than the decentralization hypothesis is required. If the rationale is that local political institutions realize allocative efficiency because they best know the individual preferences, an analytical framework is needed in which the "vicinity" to individual preferences of local governments allows the problem of spillover effects to be endogenously solved. In fact, this is the endeavour of the Tiebout model,[6] where the question of allocative efficiency is put in terms of the "principal-agent" model: the consumer - not the central government - is the principal of the agent-local jurisdiction. Governments at the lowest possible level compete and attract mobile residents by offering different "packages" of taxation and public goods (provided that there are no relocation costs and that the excludability condition ensures that free riders not contributing to the costs can be excluded). Local jurisdictions are then supposed to specialize in satisfying preferences held by different types of consumers, with the income level as the main determinant of each type's tastes.[7] Hence, politicians in the federal government are no longer in the position to extract rents from consumers due to the threat to leave the jurisdiction in case of inefficient public goods provision (the "exit" option). If the public goods provision were centralized at the highest level of government, this efficiency-enhancing effect could not take place.

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[5] The superiority of local jurisdictions as for allocative efficiency has been maintained also by the "market preserving view" from a different perspective. According to this view, government failures creating disturbances to the functioning of the perfect competition market only arise in the central government, where political monopolies are formed. Yet, this tenet can be contended. On the one hand, although local jurisdictions lack the power of printing money and are then more inclined to respect the principle of a hard budget constraint, possible free-riding on the budget of the central government cannot be excluded. On the other hand, endowing local jurisdictions with the largest possible devolution of powers, such as irreversible powers on public good competence and tax collection, is not a solution. Since local jurisdictions have scope for strategic behaviour, accountability problems arise. In their effort to extract resources from the other communities - either directly, in case of horizontal transfers, or indirectly, in case of vertical transfers from the central government - local jurisdictions can easily resort to the moral hazard of unfaithful revelation of per capita tax revenues and public goods costs. On this, see Rodden and Rose-Ackerman (1997).

[6] See Tiebout (1956).

[7] These are the conditions for the Tiebout efficient equilibrium: 1) Publicly provided goods and services are produced with a congestible technology; 2) There is a perfectly elastic supply of jurisdictions, each capable of replicating all attractive economic features of its competitors; 3) Mobility of households among jurisdiction is costless; 4) Households are fully informed about the fiscal attributes of each jurisdiction; 5) There are no interjurisdictional externalities; 6) For each jurisdiction and for each type of consumer preference it is possible to determine the optimal dimension.

Therefore, differently from Oates' Fiscal Federalism, in the Tiebout model the "correspondence principle" (and then the absence of spillover effects) is endogenously met by the individuals sorting into the jurisdictions. Jurisdictions differ as for the offer of the specific "package" of taxation and public goods and the autonomous choice among "packages" by each type of consumer is meant to endogeneously determine the supply of jurisdictions, in the number - for each type-market - compatible with the functioning of perfect competition. Although this model should be interpreted as just setting the theoretical conditions for the efficient equilibrium where jurisdiction competition functions similarly to the perfect competition model,[8] the recent theoretical opinion in favour of "fiscal competition" basically stems from the Tiebout rationale for the elimination of the spillover effects by achieving the correspondence between political jurisdictions and economic jurisdictions.

Yet, the determination of optimal size in jurisdictions, a problem which is very likely to be present in real economies, is not satisfactorily treated in this model. The equilibrium "Pareto-efficient" dimension corresponds to the equality between the cost of admitting an additional member and the average cost of providing the public good. The fulfillment of this equivalence assessed by the "theory of clubs"[9] allows public goods to be financed through marginal cost pricing, which is necessary for the existence of perfect competition in each market, so that the condition of "elastic" supply of a sufficient number of jurisdictions for each type is met.

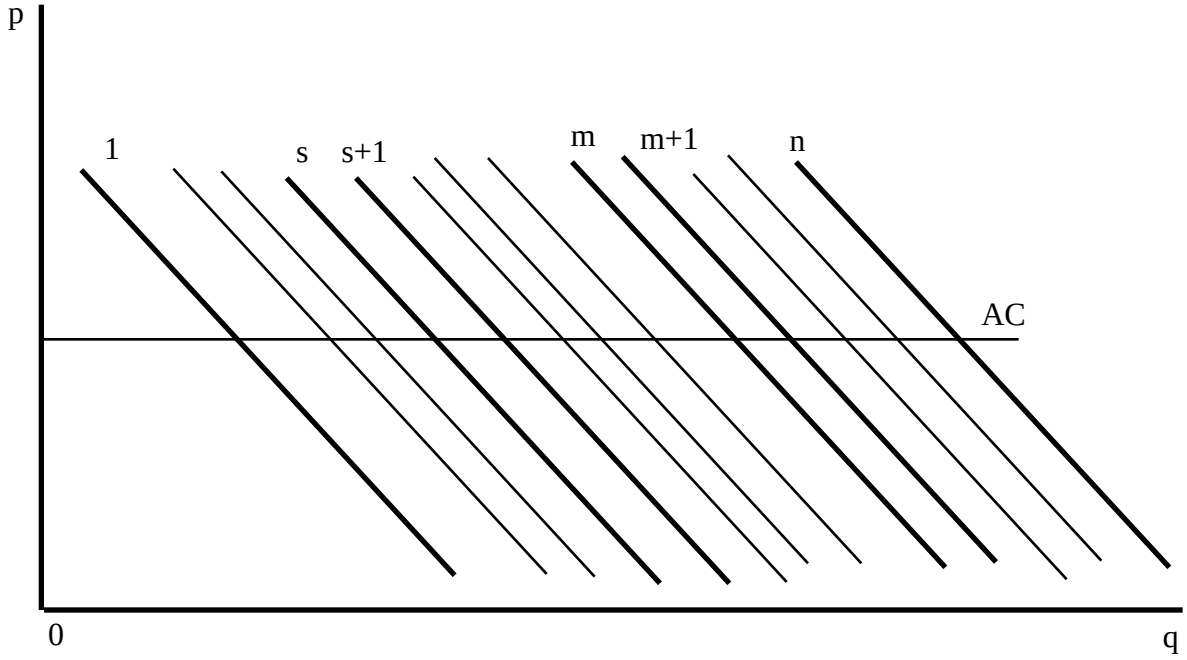
Let us show why the optimal dimension problem puts at risk this important condition of the Tiebout model. Figure 1 relates to the Oates model, where each negatively sloped demand curve represents the public goods (in a specific mix) preferred by each type and the equilibrium demand for public goods is determined at the intersection with the average cost of production AC (under the assumption of constant returns to scale). Given that to each demand curve corresponds a "homogeneous" jurisdiction by hypothesis, the "dispersion" of preferences occurs only *among* jurisdictions of a federation. It is straightforward to see that a centralized solution - for instance, the quantity of public goods chosen by the median voter - would expose each local jurisdiction, but the median voter's one, to a loss. The efficient Oates equilibrium is then reached by local production of the public goods, at each intersection point between AC and the specific quantities desired in each jurisdiction. On the contrary, the Tiebout equilibrium is not founded on a pre-assumed "homogeneity" hypothesis. Fully mobile individuals are the "autoctioneers" who are

[8] Bewley (1981) has shown the stringent requirements for the Tiebout equilibrium to exist.
[9] See Buchanan (1965).

responsible for the formation of a perfect competition market of "homogeneous" jurisdictions for each type. This means that the existence of a complete overlapping between jurisdictions and types is far from being granted.

Local jurisdictions may in fact end up being composed by different types as for preferences and income level. In Figure 1, demand curves from 1 to n are depicted, each one corresponding to the public goods preferred by a type. For the public goods demanded by the type of consumers represented by the demand curves from s+1 to m, let us assume that the number of individuals is so large and the optimal size is so small, that the number of jurisdictions corresponding to perfect competition is easily obtained so that the "homogeneity" of population in each jurisdiction is not violated. Fully mobile individuals, moving across political jurisdictions, will allow that jurisdictions for each type comply with the perfect competition conditions. On the contrary, it may easily happen that, as to the other demand curves, the perfect competition market of jurisdictions for each type cannot be formed. For instance, on the demand curves from 1 to s and on the demand curves from m + 1 to n the optimal size of each economic jurisdiction implied by economies of scale could be too large for a sufficient number of jurisdictions for each type to be formed. Hence, the capability of fully mobile individuals to build up the perfect competition market of "homogeneous" jurisdictions is granted only in the first case. In the latter two cases, the optimal size of the jurisdictions imposed by the economies of scale could impede jurisdiction competition for each type to function through "free entry and free exit" similarly to the perfect competition market. The optimal dimension problem might then undermine the Tiebout supply-side mechanism of formation of "homogeneous" jurisdictions because the presence of economies of scale makes inefficient an organization of public goods provision decentralized to "homogeneous" jurisdictions in the market for each type. Since individuals belonging to different types must join in order to set up a jurisdiction, there will not be a separate market for each type and jurisdictions will necessarily be composed by populations characterized by "heterogeneity" in preferences and income level.

Figure 1



Therefore, the efficient organization of public goods provision can easily determine a wide "dispersion" of preferences and income levels inside the "heterogeneous" population of each local jurisdiction. The problem indicated at the beginning of this section as the main question of the centralization versus decentralization debate - that is, possible negative externalities exported by a local jurisdictions to another one - is then hardly avoided. In the effort to attract a particular type of new residents, a jurisdiction could act as a Cournot firm and try to outcompete a number of other jurisdictions by exporting negative externalities.[10] The well-known example is "fiscal competition". The absence of the "homogeneous" populations devised by the Tiebout's theoretical framework can induce local jurisdictions to resort to strategic behaviour. This is particularly apparent in the case of social insurance for health care and unemployment, where jurisdictions can succeessfully modify the "heterogeneity" of their populations, and thus export "adverse selection" problems, by manipulating fiscal policies.

Under full mobility of capital and labour,[11] in a cluster of regional jurisdictions linked by a common market and a single currency, but without a fiscal union, any regional jurisdiction is tempted to reduce the tax rate and then the public goods provision in order to attract the "rich" and drive away the "poor". From tax competition among regional

[10] See Inman and Rubinfeld (1997), p. 82.

jurisdictions the shrinking of the resouces destinated to financing public goods will necessarily result. This move creates a negative externality. As a consequence of the opposite migration trends, in the other regional jurisdictions a decrease in the factor incomes of the "rich" and an increase in the factor incomes of the "poor" will ensue. Therefore, in order to avoid their tax base to vanish and the financing of public goods provision to be curtailed, all regional jurisdictions are led to reduce the tax rate in a race to the bottom.[12]

The more "heterogeneous" is the population across regional jurisdictions - for instance, as for the proportion between "high income" and "low income" individuals or between "low risk" and "high risk" individuals - the more the market will be characterized by strategic behaviour. Since an "invisible hand" governing competition among jurisdictions does not exist, a central government is needed in a federation to rule on "packages" of taxes and public goods which could satisfy a "heterogeneous" population. Centralization is the institutional organization by which the financing of public goods can be preserved once the regional Welfare States are under the threat of shrinking tax bases. A fiscal union allows the externalities to be internalized by means of tax harmonization. Central political institutions empowered with the authority to determine the federal "package" of taxation and public goods will impede that strategic interaction among the regional jurisdictions will cause the rolling-back of the Welfare State.

In a large fiscal union the problem of mobile tax bases is by far less important than in regional jurisdictions,[13] and economies of scale do not trigger strategic behaviour producing externalities but increase efficiency in public goods provision. The larger is the population, the wider can be the public goods provision financed by a general fund (a unique budget is financed by tax collection), and then the lower will be the per capita cost of providing social insurance such as health care services and unemployment transfers. The conclusion is that a large fiscal union will not only benefit from the economies of scale in the production of public goods just as any "heterogeneous" local jurisdictions, but also presents the advantage that spillover effects such as the export of "adverse selection" problems are avoided.

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[11] It is worth reckoning that competition is linked to marginal variations. Hence, also partial mobility, which is closer to reality, is sufficient to determine "fiscal competition".

[12] See Sinn (1997), pp.262-4. The opposite view that full capital and labour mobility leads to the equalization of tax rates across the "regions" of a federation, thus removing incentives for separation, have been put forward by Bolton and Roland (1997).

[13] In case a fiscal union were set up in the European Union, the struggle for attracting financial capitals and skilled workers would be less harmful because it would be just an aspect of the competition with the other advanced economies.

However, a difficult task is faced by the "heterogeneous" jurisdictions participating in a fiscal union, i.e. how to overcome the distributive conflicts on the "package" of taxation and public goods. In the following sections, I will then take issue with the problem of decision-making inside a fiscal union of a federation. The "voting by feet" mechanism envisaged by the Tiebout model has proved unable to exclude "heterogeneous" jurisdictions. Majority voting about the "package" of tax collection and public goods provision seems to be the decision-making mechanism which better responds to the need to reconciliate the different income-determined preferences of an "heterogeneous" population. In the following, it will be maintained that whether the federal voting coalition favours a "high" or a "low" degree of interregional risk-sharing against random income fluctuations depends on the model of social insurance adopted by the regional jurisdictions participating in the fiscal union.[14] Two alternative models of social insurance will now be analyzed.

3. Public provision of social insurance: the Welfare State view

Although the social insurance problem is rooted in asymmetric information rather than in ex post opportunism, the organization of a social insurance system presents several aspects of public goods provision.[15] Social insurance is one typical area in which the appropriate economic dimension of the jurisdiction, which has to be in charge of the public goods, is likely to coincide with the political boundaries of central government. The Welfare State approach maintains that this is because the public centralized organization of social insurance is the most significant example of the failure of the market coordination asking for public intervention.

The reasons for public provision of social insurance for health and unemployment are well-known. As for health care, the provision of insurance for sickness and disability suffers from adverse selection and moral hazard due to asymmetric information.[16] I will take issue only with the major problem - adverse selection - which crucially affects the

[14] The social insurance model is often taken as responsible for sharp divides among collectivities and social groups partecipating in a federation. The question of the link between Welfare State and group-inequality is presently debated in Belgium, where the Flanders is the" rich" region and the Wallonia is the "poor" region: "At about the same time as the country become federal, statistical data revealed that the Walloon population had a per capita consumption of publicly funded health care significantly higher than the Flemish population. This could be attributed in part to its demographic structure (more elderly people) and to its economic situation (more unemployment)" (See Van Parijs (1999), p.1).

[15] Social insurance for health care and unemployment is here broadly defined as public good. More precisely, health care servicies and unemployment benefits fall in the category of "impure" public goods.

[16] See the seminal paper by Arrow (1963).

alternative between private and public insurance.[17] The possibility of concealing risks of illness and the objective difficulty for insurers of knowing precisely the chances of a loss in the insurance contract, induces private companies to identify and rank individuals along a scale of increasing riskiness. The attempt (which is doomed to be unsuccessful) is trying to match each individual with his specific lottery of risky events, in order to offer him a particular contract at the "correct" premium. It then happens that poor individuals are not willing to buy a private insurance because it costs them more than it appears to be worth, and even that no contract is available for such high risk people as the chronically or congenitally ill. As for unemployment, the market failure due to adverse selection is similar to that for health care. Private information and the infeasibility of monitoring prevent the offer of actuarially fair pooling coverage schemes, while the moral hazard problem is also severe due to the high incentive to cheat about personal chances.[18] This explains why there is no possible coverage offered by private companies which can be affordable by low income individuals like those having a high probability of being unemployed. Therefore, unemployment insurance in the form of transfers to the unemployed is publicly provided and its financing comes from compulsory taxation.

One of the main tenet of the Welfare State approach is the thesis of "missing markets" for human capital insurance, due to the failure of the market organization to handle social insurance for health care and unemployment. If contracts were not sold and bought in the adulthood but at the birth, when there is a much higher uncertainty on future health conditions and career opportunities, the asymmetric information problem would not arise. In fact, at the moment of birth private insurers could only guess the probabilities that a given combination of health with luck would (not) result sickness and disability and a given the combination of innate abilities and education and training would (not) result poor career opportunities. Yet, insurance contracts are signed in the adulthood, when private insurers are more able to detect the type of each individual and partly overcome asymmetric information.[19] However, the higher degree of information allows companies to figure out the average probability that the insured individuals will make a claim, and not the

[17] Moral hazard is not taken into account, in that it is considered a problem which is endogenous to the public provision of health care, when the choice is made between an "universal" or a "means-test" coverage.

[18] With regard to unemployment, it has been observed that "with private information, competitively determined arrangements will fall short of complete pooling, (so that) this class of models also raises the issue of *social insurance*: pooling arrangements that are not actuarially sound, and hence require support from compulsory taxation" (See Lucas (1987), p.62).

[19] "Private redistribution contracts have to 'wait' until a person has reached the legal state of adulthood, but then most of the veil of ignorance have been lifted. When both the insurer and the insuree have the same knowledge about the inequalities then existing they will not be able to find a mutually agreeable

probability of a specific individual. Similarly to the "lemons problem", where buyers know less about the quality of the products than producers do, the consequence is a market failure consisting in the market being dominated by one "quality" of individuals. Private insurance companies are induced to discriminate against high risk individuals as for sickness and disability as well as for poor career opportunities. Therefore, "adverse selection" takes inevitably place in this market as insurers taylor contracts towards the "low risk" (both for health and skill) class of individuals.

The legitimation of the Welfare State as a set of institutions designed to organize *compulsory and universal* social insurance at the actuarially fair conditions does not derive from equity. Obviously, there is an equity aspect, that is the failure of private companies to offer insurance contracts according to the principle of equality of opportunity, that is at premiums which are related not to the "quality" of each individual but to their ability to pay. But the main question regards efficiency and is represented by the failure of private companies to offer a contract for health care and unemployment insurance to *all* individuals of a jurisdiction.[20] It might be objected that compulsory and universal public coverage cannot be considered a Pareto improvement because the "low risks" are bound to loose in the balance between costs and benefits from social insurance. However, granted that the uncertainty covered by social insurance usually comes with other forms of market failure - first of all, liquidity constraints due to credit rationing - efficiency gains can be obtained because the monetary transfers and the social protection guaranteed by the Welfare State reduce the liquidity constraint and the degree of uncertainty, respectively, so that low income individuals are led to use their idle human capital and take risks in the marketplace.[21]

The Welfare State approach then conceives social insurance for health care and unemployment as a form of *ex ante* insurance (before the veil of ignorance is lifted, all individuals are equal in terms of individual risk) as well as a form of redistribution from the *ex post* viewpoint (because it is actuarially inefficient). The compulsory public system, which is legitimated by the adverse selection market failure, is able to offer full coverage both to "low risks" and "high risks" at conditions that can be accepted also by this latter class of individuals. Public provision of social insurance for health care and unemployment is then strictly interwoved with the redistributive function of the State.

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redistribution contract. And when the insuree has superior knowledge, there will be the typical adverse selection problem, analyzed so frequently in the literature" (See Sinn (1996), p.263).

[20] The efficiency conditions for a publicly organized compulsory and universal health care system have been recently elaborated by Diamond (1992).

[21] See Aghion (1998), pp.18-34.

Let us assume that a population I is composed by two types of individuals A and B who are exposed to a risky event stemming from a random variable z. This can take the value of $z_1 > 1$, with probability 1 - p, when the favourable event (low risk as for health and career opportunities) turns out, and the value of $z_2 = 1$, with probability p, when the unfavourable event (high risk as for health and career opportunities) turns out, where $p < 1 - p$. Individuals A and B both have the same concave von Neumann-Morgenstern utility function u , but the random variable z takes the value z_2, with probability p' in the case of the A individuals, and with probability p'' in the case of the B individuals, with $p' < p''$. This causes the two utility functions to differentiate, as in expected terms the A individuals are the "low risk" ones, and the B individuals are the "high risk" ones. Therefore, for the A individuals we obtain:

(1) $E'[u(z)] = (1 - p')\, u(z_1) + p'\, u(z_2)$

and for the B individuals:

(2) $E''[u(z)] = (1 - p'')\, u(z_1) + p''u(z_2)$

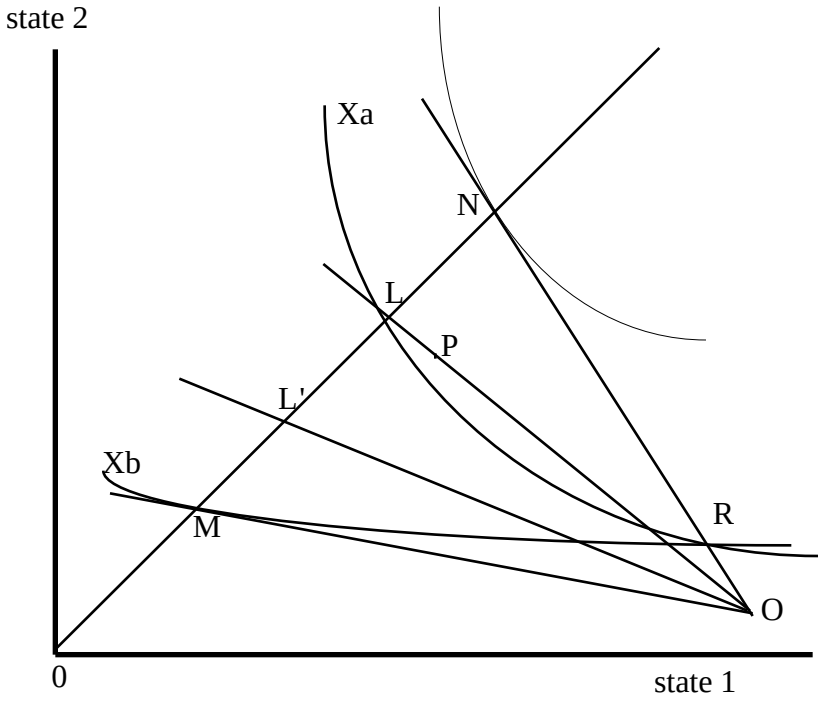
By the comparison between (1) and (2), we have:

(3) $E'[u(z)] - E''[u(z)] = [\, p''u(z_1) + p'u(z_2)\,] - [\, p'u(z_1) + p''u(z_2)\,] =$

$(p'' - p')\,[u(z_1) - u(z_2)] > 0$

In Figure 2, the axes represent income in the good state (state 1) and in the bad state (state 2). With no insurance, any individual A is on indifference curve X_a and any individual B on the indifference curve X_b. From equations 1 and 2 it follows that the MRS for any individual A is equal to $(1 - p')\, u'(z_1) / p'\, u'(z_2)$ and the MRS for any individual B is equal to $(1 - p'')\, u'(z_1) / p''u'(z_2)$, with u' indicating a derivative. As the inequality in equation 3 shows, $MRS_a > MRS_b$. Thus, the A individuals have steeper indifference curves than the B individuals, at any given value of state 1 and state 2.

Figure 2



It has been said above that private insurers can have the information about the average probability that individuals belong to a certain type will make a claim. It may be then assumed that ε' and ε" are the known proportions respectively of the two classes of individuals in the total population I (the proportions of the two types will be A = ε'I and B = ε"I). Yet, this information is usually not sufficient to allow the insurer to assign each individual to his specific type, and offer him a contract. Therefore, the "Welfare State" universal compulsory social insurance system, where the principle of equality of opportunity is realized in terms of equal treatment, can be seen as the solution to the private companies' failure to set up a market in which both "low risks" and "high risks" find insurance at actuarially fair conditions. By reckoning that social insurance was previously defined as a form of *ex ante* insurance and a form of redistribution from the *ex post* viewpoint, it can be maintained that a compulsory and universal social insurance system corresponds to a "pooling equilibrium".[22] In fact, in a "pooling equilibrium", despite the different degree of riskiness the same contract is offered to the A and B types of individuals, so that the "low risks" subsidize the "high risks". Given that the uniform

[22] See Rotschild and Stiglitz (1976), pp. 632-38.

premium is e* = p*D (with p* = ε'p'+ ε"p" and D indicating the payout), the total revenue Ip*D equals the average outlay A p'D + B p"D. Each individual belonging to the type A pays more than the premium that would suffice for budget balance in the contract offered to the low risks in a "separating equilibrium".[23] The opposite happens for each individual belonging to the type B. The excess contribution of each A individual is equal to (p* - p') D, whereas each B individual benefits from a subsidy to its contribution equal to (p" - p*) D, in the fiscal budget the loss of the subsidy will be compensated by the "profit" consisting in the excess contribution.[24]

In Figure 2, a potential "pooling equilibrium" contract is "offered" by the public social insurance system at point P on the OL line (the position of this line is determined by the relative number of high risk individuals B and low risk individuals A in the population). Full coverage is publicly provided to all the uniformely treated individuals, despite the difference between the A and B types. Being on the OL line, the social insurance equilibrium point P fits with the no-profit condition of any perfect competition equilibrium. The "public insurer" will not make a profit, with the positive revenues from the "low risks" destinated to subsidizing the losses of the "high risks".

4. Private provision of social insurance: the Free Market view

The traditional opposition to Welfare State benefits has been recently rejuvenated, by research projects that stress not only the usual considerations of economic efficiency (reduced incentives to work, high tax rates hampering investment and growth, etc.) but more and more the restrictions posited on the freedom of choice of the individual. The intellectual programme of the Free Market approach points to the satisfaction of consumers' preferences about public goods, against the distorsions in allocative efficiency due to the redistributive schemes of the Welfare State.

One of the most recent lines of research, denominated Functional Federalism,[25] founds the supply-side political process of jurisdiction formation on the "voice", that is on decision-making by majority voting instead that on the "exit" threat by mobile individuals (the Tiebout supply-side process). Individuals with identical preferences due to the "homogeneity" of their income levels, but who might be residents in different areas, reach an agreement for a collective action in the provision of public goods, which can be thought

[23] Ibidem.
[24] See Henry (1989), pp. 120-9.
[25] See Casella and Frey (1992) and Frey and Eichenberger (1995).

of as a club. The main feature of this model of jurisdiction organization is that clubs are usually uni-functional, as these "homogeneous" groups of individuals vote on uni-purpose taxation "ear-marked" to the financing of a specific public good. A second feature is that clubs are in most cases interjurisdictional, in the sense that they overlap various political jurisdictions as individuals belonging to different political jurisdictions join a club and each individual can participate in various clubs. Once the optimal club size is endogenously reached by the aggregation of demands for a specific public good and is controlled by means of exclusion clauses, the size of each club complies with the condition of Pareto efficiency assessed by the "theory of clubs".[26] The "correspondence principle" is then satisfied (both kinds of spillover effects fade out) and the opportunity is lost for central authorities to extract rents from consumers through the organization of the "package" of tax collection and public goods.[27]

Functional Federalism points to jurisdiction competition in the provision of public goods as the equivalent of market competition among suppliers of private goods, by focusing on the individual as the primitive concept, instead of focussing on a pre-existing jurisdiction. While the Tiebout's "voting by feet" mechanism has been shown unable to determine the formation of efficient jurisdictions for public goods provision, the elimination of the constraint of territorial boundaries allows interjurisdictional clubs to comply with the condition of income uniformity. The consumer sovereignity, just as in free market competition is promoted by utility maximization, in jurisdiction competition is represented by individuals keeping full control on the amount of financial resources devoted to each public good. In this case, the principle of "negative freedom" consisting of a strict correspondence for each individual between costs (tax payments) and benefits (the utility obtained from the utilization of the public good) is finally met. Yet, the opinion is widely shared that this model puts forward a very extreme view about the organization of jurisdictions. In the real world, too high transaction costs prevent both that individuals belonging to different large communities join on the basis of income homogeneity, and that several clubs overlapping various political jurisdictions may be formed for the production of the public goods preferred by any specific type.

Therefore, this model can be regarded as a particularly promising benchmark for the organization of the social insurance system endorsed by the Free Market approach. Two

[26] Thus, a limited number of clubs in a "market" should not be traced back to inelastic supply but to the particular quality of the public good (for instance, a natural monopoly).

[27] For an empirical evidence of a jurisdictional club, reference is often made to the U.S. experience of the so-called "special districts". These interregional uni-functional agencies, the extension of which depends on

tenets of Functional Federalism, the superiority of "uni-functionality" over "multi-functionality" in jurisdiction organization, and of "heterogeneity" over "homogeneity" as for the income-determined preferences of individuals joining the jurisdictions, are central to the debated question of the distributive characters of the social insurance system. By maintaining that the dominant position of political institutions hampers the freedom of choice of "low risk" individuals to autonomously organize their preferred scheme of social insurance - instead of being included in the compulsory and universal public insurance - Functional Federalism provides the theoretical foundations for a social insurance inspired to "negative freedom".

"Uni-functionality", and more generally the view of a direct matching between costs and benefits of public goods at the individual level, suggests that the individual utility maximization is best served by separate social insurance contracts for individuals of different "quality" as for health and/or skill.[28] Provided that income levels and health conditions are correlated, a group of individuals sharing the same income-determined preferences, and residents in various areas or political jurisdictions, might agree on and contribute to the formation of the interjurisdictional club for the provision of their autonomously chosen health care services and/or insurance against temporary unemployment. Just as the interjurisdictional clubs take advantage of the condition of preferences and income uniformity encompassing different areas, in a fiscal union private insurers overlapping the various regional jurisdictions try to gather the "high quality" individuals, taylor contracts towards them and indulge to the practice of "cream-skimming". The discrimination of the "high risk" individuals makes the privately provided social insurance to correspond to a "separating equilibrium". More precisely, private contracts for health care and unemployment insurance will be available for the "low risks", while contracts for the residual group of the "high risks" will be difficult to find and - in the positive case - so high premiums will be asked that are unaffordable by this class of individuals.

In Figure 2, under the hypothesis of two interjurisdictional clubs, respectively composed by the A individuals and by the B individuals, the social insurance endorsed by

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the optimal size of the provided public good, are made possible by the pooling of financial resurces coming from the communities interested in its production.

[28] "Consider an insurance scheme in which everybody pays the same premium and those who die or experience injury are compensated, or their beneficiaries are. The people who are least likely to die or to hurt themselves get the poorest bargain. If they know it, and if the organization is unable to discriminate in its premiums, they will leave to form an association on their own - one that charges lower premiums to those who can indentify themselves as low risks and that excludes the higher risks". (See Schelling (1978), p.188).

the Free Market approach can be described as a "separating equilibrium". In a private social insurance, insurers offer a contract with a premium μ' to the A individuals and a different contract with the premium μ'' to B individuals, where μ' < μ''. One may think of the A individuals as setting up private companies and organize their own "separating" scheme of social insurance at the intersection R between the indifference curve X_a and the ON line representing the actuarially fair insurance for these "low risk" individuals A.[29] In the case of the unfavourable event, the insurer offering the contract for individuals A will have an expected pay-off of μ' - p' D = 0 along the ON line, as in equilibrium expected profits are nil. On the other hand, in the low-income interjurisdictional club the insurance contract that the individual B would buy is represented in Figure 2 by the tangent point M between the indifference curve X_b and the OM line of the actuarially fair insurance for high risk individuals B. In fact, between the contracts identified by points R and M located on the same indifference curve, individuals B prefer contract M, as at point R they would be "underinsured", as this contract warrants a larger consumption in the good state 1 than in the bad state 2. However, given that μ" = p" D (so that the same condition of zero expected profits apply), due to the high probability of suffering a loss stemming from the bad risk characteristics, the premium will be higher than that for the A individuals, and will not be affordable by all "high risk" individuals B. Any "separating equilibrium" is vulnerable to the entry of a new insurer who offers a contract capable to attract both the high and the low risk individuals. The sufficient condition for a "pooling" contract to hamper the "separating equilibrium" is that the line ON cuts the indifference curve Xa (like in Figure 2). In order the new insurer to make positive profits, a new equilibrium point has to lie below the OL line. Thus, the more the population is composed by "high risks", the more the OL line rotates anti-clockwise (i.e., to the position OL'), the more a "separating equilibrium" is likely to last.

The indication for the jurisdictions of a federation is the following. In a federation, a favourable condition for the creation of a private social insurance system corresponding to a "separating equilibrium" is that the jurisdictions have a sufficiently high ratio "low risk"/ "high risk" individuals. This conclusion obviously fits both with the tendency to limit immigration, to reduce the size of the Welfare State, and to oppose fiscal unions - that is, the implementation of a public social insurance system inside a federation.

[29] A feature of the "separating equilibrium" at the point R is that it may not be "Pareto optimal" for the "low risks", as it cannot be too desirable in order not to attract the "high risks". (See Rotschild and Stiglitz

5. The stabilizing role of voting coalitions in fiscal unions with regional disparity

In section 2, it was shown that the quest for decentralization cannot be defended on the grounds that individuals "voting by feet" would be able to set up a system of competiting jurisdictions, in which the principal-consumers (and not the agent-central government) rule on public goods. However, there is another theoretical approach which instead opposes fiscal unions on the grounds that central government - the so-called Leviathan - tends to distort resource allocation by manipulating voting coalitions and favour redistribution in order to reinforce their power. The problem of the "soft budget constraint" is traced back to the inclination of rent-seeking politicians to manouvre changing coalitions of voters by indulging in redistributive policies. Therefore, public institutions are to be prevented from becoming political monopolies. Upon decentralization, the central government would limit itself to the tasks of policing the market and of ensuring mobility of goods and factors across subgovernmental jurisdictions.[30]

Recent contributions in the political economy literature argue that the wider the regional disparity inside a fiscal union, the higher is the interregional redistribution stemming from mutual risk insurance decided by federal majority voting. The fear is that centralization might lead to distributive conflicts inside fiscal unions and/or increasingly larger federal redistributive programmes.[31] The interregional risk-sharing against random income fluctuations among the "regions" of the fiscal union is supposed to cause an inefficient resource allocation in the federation, due to the destabilizing effect of majority voting on the over-all income distribution.[32]

In this section, it will be maintained that the level of the tax rate decided by federal majority voting has a re-equilibrating influence on the over-all income distribution which was determined by the model of social insurance adopted in the federation.

Let us start from the the analysis of the mutual risk insurance between two regional jurisdictions where income distribution is shaped by the "Welfare State" model of social insurance. Suppose for simplicity a federation of just two jurisdictions, R1 and R2, the populations of which are normalized to unity and are composed by the two classes of risk

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(1976), p. 636).

[30] See the "market preserving view" put forward by Weingast (1993) and (1995), which builds on Brennan and Buchanan (1984).

[31] Among others, see Alesina and Perotti (1998) and Persson and Tabellini (1996).

[32] With regard to the European Union, it has been argued that "centralizing redistribution could set in motion a process of centralization that would be hard to control, and that in the end could lead to excessive centralization and excessive redistribution" (See Persson, Roland and Tabellini (1997), pp. 29-30).

averse individuals A and B in the same proportion. To deal with the fiscal structure of the federation, the following assumptions are made.[33] As for the aggregate risk, in jurisdiction R1 aggregate income p will be either equal to γ (with $\gamma > 1$), with probability α (in the good state of the world), or equal to $\delta = 1$, with probability β (in the bad state of the world). Granted that there is a negative correlation between the regional shocks, in R2 the income level in the good state of the world is $\gamma > 1$, with probability β, and the income level in the bad state of the world is $\delta = 1$, with probability α. The difference between the two jurisdictions is in the assumption $\alpha > \beta$. This means that the federation is characterized by regional disparity, and in expected terms R1 can be considered the "rich" region and R2 the "poor" region.

The expected utility for the "rich" region is:

(4) $E_{R1} = \alpha\, u(\gamma) + \beta\, \upsilon(\delta)$

and for the "poor" region is:

(5) $E_{R2} = \beta\, u(\gamma) + \alpha\, \upsilon(\delta)$.

Therefore, given that $\alpha > \beta$, we have:

(6) $E_{R1} > E_{R2}$

There is clear and widespread evidence showing a correlation between individuals at a high (low) income level on the one side, and individuals with low (high) risk on the other.[34] The hypothesis can then be put forward that the ratio between the A and the B individuals equals the ratio between the "high incomes" and the "low incomes" (taking the median income as the reference level). Therefore, income distribution in the federation is conditional on the model of social insurance being adopted by R1 and R2. The "Welfare State" model of social insurance redistributes from the "high incomes" to the "low incomes", in that the "pooling equilibrium" makes the A individuals poorer and the B individuals richer. Thus, the income distribution interval is narrower in comparison to the case in which a public social insurance is absent. Given that individual risk consists in the probability distribution of the "low risks" and the "high risks", but the social insurance

[33] See Persson and Tabellini (1996, pp. 983-4) and Bucovetsky (1998), pp. 304-5.
[34] For a survey of the empirical findings on the ranking of low and high risk individuals in terms of wealth levels, see Smith (1999).

system guarantees a positive income also in case of unemployment, the bad state of the world corresponds to the individual having a low income. It can then be said that the distribution of individual risk corresponding to the "Welfare State" model of social insurance is reflected by a right-skewed income distribution.

Since individuals forming each population do not face a federal aggregate risk, but only the aggregate risk of the jurisdiction which they belong to, there is scope for risk sharing between the juridictions. In case the two regional jurisdictions adopt a "Welfare State" social insurance, the mutual risk insurance will be organized as follows. When the regional jurisdictions set up a fiscal union, the interregional risk-sharing against random income fluctuations will pass through this interpersonal redistributive system of the public social insurance scheme. This mutual risk insurance is state-independent (i.e., it does not operate depending on the occurrance of the unlucky event) and centralized (i.e., it is organized by a federal social insurance encompassing all jurisdictions that collects in a general fund the proceeds from a proportional income tax, and directly redistributes to individuals in the form of services and transfers).[35] The organization of risk-sharing through federal social insurance then entails that the unemployment insurance is not a state-contingent interregional transfer just meant to even out - across the good and the bad states of the world - the income level of the employed individuals of the region hit by a negative shock, but an insurance in the form of unemployment transfers against the misfortune of being unemployed. In other words, the redistributive character of the Welfare State is extended to the system of mutual risk insurance, in the sense that the "rich" subsidize the "poor". The unemployment transfers, just as the health care services, depend on a federal tax rate which is decided on by majority voting.

In formal terms, the i individuals composing population I differentiate on the basis of different probabilities about the risky event of being "high" income (Y>1) with probability p_i, or "low" income (Y=1), with probability $1 - p_i$. Let $p_i = p\ V(\xi_i)$, where where p denotes average income which depends on the aggregate risk of the jurisdiction and ξ_i is distributed over the population according to the known distribution $V(\xi_i)$. The distribution $V(\xi_i)$ coincides with the typical income distribution, as it is right-skewed, with a mean value equal to 1, the median value $\xi_m < 1$, and $V(\xi_m + x) - V(\xi_m) < V(\xi_m) - V(\xi_m - x)$ for any positive x. This correspondence of the distribution of individual risk with the

right-skewed income distribution is justified by the assumption above introduced that the risk of being the high risk individual B has a correlation with the risk of belonging to the group of "low incomes", which normally concerns a large portion of the population. Therefore, the redistributive character of the Welfare State model adopted be the federation gives birth to interregional redistributive transfers that impede that a negative shock hitting a region causes unemployed individuals to get zero income.

Let us assume that preferences are single-peaked, so that the federal majority voting determines the outcome which is preferred by the median voter. If there were no regional disparity, that is $\alpha = \beta$, the institution of a fiscal union among two completely identical regional jurisdictions would not bring about modifications with respect to the separate decision-making of the two regions. In deciding on the degree of mutual risk insurance between the two jurisdictions, the two median voters agree on what is the optimal tax rate. The usual *intraregional* redistribution through the Welfare State would take place in the federation from the "high incomes" - who contribute more to proportional taxation - to the "low incomes" who benefit more, provided that in the jurisdictions the ratio *A individuals / B individuals* equals the ratio *"low incomes" / "high incomes"* . With regional disparity, the wider the distance between the probabilities regarding aggregate risk (the wider $\alpha > \beta$), the larger the conflict of interest among the two regional median voters. The two median voters ξ_{m1} and ξ_{m2} will express two different values for the tax rate, and the equilibrium tax rate will then be in the middle. With a mutual risk insurance against random income fluctuations organized in a federation composed by a "rich" jurisdiction and a "poor" jurisdiction, the federal majority voting about the funding of public goods will lead to *interregional* redistribution. Therefore, the redistribution from the "high incomes" to the "low incomes" will not only take place *inside* each jurisdiction but also *across* jurisdictions. Since a redistribution from the "rich" of the "rich" region to the "poor" of the "poor" region may take place in the federation, the tax rate will be determined by a coalition of voters cutting across the two jurisdictions.

The outcome of federal majority voting will depend on the skewedness of the distribution of individual risk.[36] The larger is the regional disparity, the larger is the

[35] In a fiscal union organized according to the "Welfare State" model of social insurance, the exploitation of economies of scale - such as the opportunity to spread costs over all the tax-payers of the federation - allow the federal fiscal budget to be balanced at a lower average premium.

[36] The dependence of federal majority voting on the "skewedness" hypothesis draws on Persson and Tabellini (1996), pp.996-1003. Starting from a different model of the relationships between social insurance

number of high risk individuals of the "rich" region who think that their expected income is growing, so that they might no longer gain, but loose, in case of an excessive interregional redistribution, and then switch to voting for a lower tax rate; similarly, the larger is the regional disparity, the larger is the number of low risk individuals of the "poor" region who think that their expected income is decreasing, so that they might no longer loose, but gain, from a higher tax rate. In terms of the median voter theorem, to the 1/2 of voters who are in favour of a lower tax rate in R1 one has to add a number of high risk individuals on the left of the median voter (till reaching the high risk who keep preferring a higher tax rate). These high risk individuals now switch to voting for a lower tax rate because the more their region becomes "rich" in expected terms, the more they become "affluent" as their uncertainty decreases. Similarly, to the 1/2 of voters who are in favour of a lower tax rate in R2 one has to subtract a number of low risk individuals on the right of the median voter (till reaching the low risk individuals who keep preferring a lower tax rate). These low risk individuals now support a higher tax rate because the more their region becomes "poor" in expected terms, the more they are afraid to become "drop outs" as their uncertainty increases. As shown in Figure 3 by the areas which form at the left (in R1) and at the right (in R2) of the median voter, the winning voting coalition is the one favouring a lower tax rate, because the number of low risk individuals who switch to voting for a lower tax rate is larger than the number of high risk individuals who switch to voting for a higher tax rate. Given the skew, the algebric sum between these two groups of voters gives a majority in favour of a lower tax rate.

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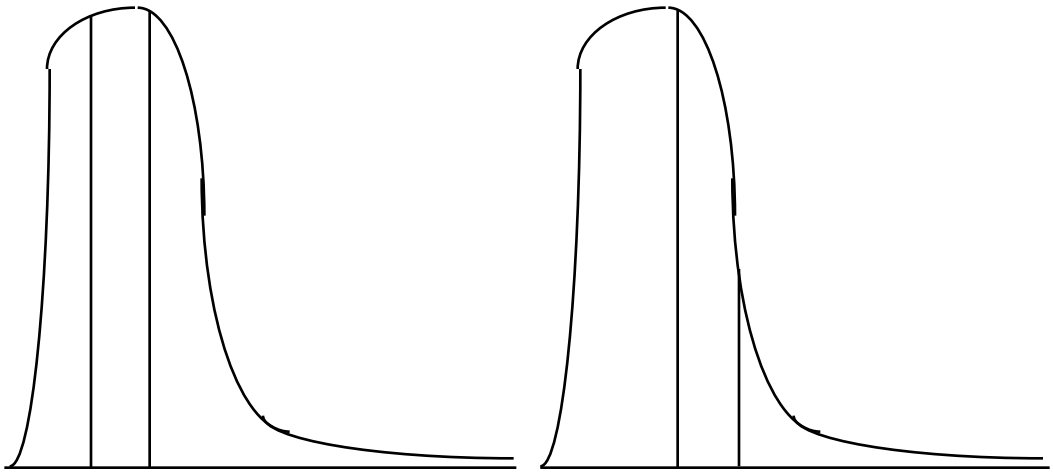
and majority voting, Persson and Tabellini contribute to the thesis that fiscal unions lead to excessive redistribution. In their model, majority voting in favour of a higher tax rate derives also from the additional hypothesis that the larger is the regional disparity the more the individual risk becomes relevant. However, the formal proof is valid only for very small deviations from the tax rate which the two median voters would agree on in case there were no regional disparity.

Figure 3



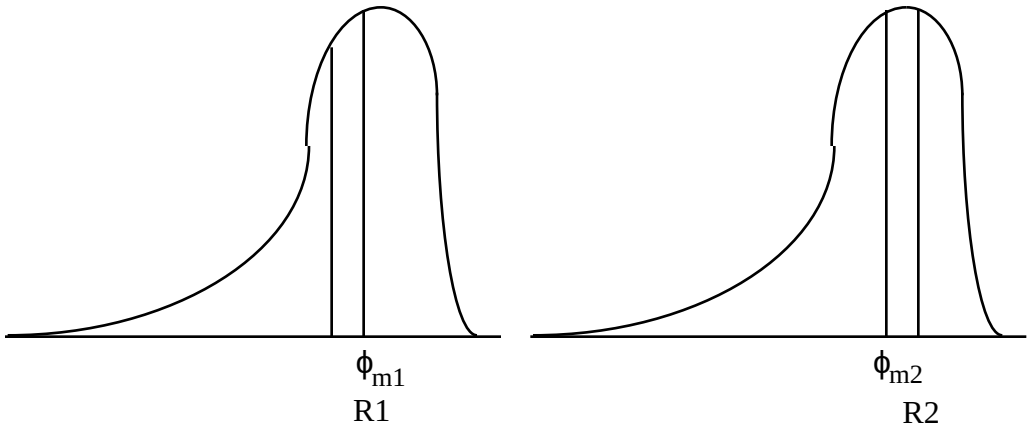
Let us now analyze mutual risk insurance between two regional jurisdictions where income distribution is shaped by the "Free Market" model of social insurance. The model of social insurance endorsed by the Free Market approach has been previously described as a "separating equilibrium", where different contracts are offered to the "low risks" and the "high risks". In the federation, nothing changes as for social insurance with respect to what was happening at the jurisdictional level before the fiscal union was set up. The attempt by private insurers to taylor contracts towards low risk individuals leads to a cream-skimming process, aimed at excluding the "high risks" who are likely to remain without coverage as for health care services and unemployment transfers. However, mutual risk insurance is organized in the federation. In case of a negatively correlated shock state-contingent transfers from the economy in expansion to the economy in recession are organized, and the regional government of the jurisdiction in recession will even out the income levels of the employed individuals of the jurisdictions across the good and the bad states of the world. For mutual risk insurance to abide by the private model of social insurance - in which insurance does not imply redistribution - interregional risk-sharing must be conceived as offering a coverage for random income fluctutations only to the "high skills". This is not different from a stabilization policy inside a single jurisdiction. Just as stabilization can be regarded as an insurance among employed individuals across generations (provided that the "Ricardian Equivalence" is invalid as consumers do not take into account future tax payments), mutual risk insurance will consist of a federal risk-sharing scheme limited to the employed individuals to cope with random disturbances to

their income levels by means of interregional transfers. In both cases, the Free Market approach underlines that the condition to avoid moral hazard problems is a fast adjustment process.[37]

In the absence of public social insurance, income derives only from the reward linked to employment and not also from welfare benefits. The individual risk to be insured by mutual risk insurance then concerns only the probability of being unemployed. To analyze the federal majority voting on the tax rate, we then introduce the hypothesis that income takes the value of one with probability p_i (in case the individuals are employed) or the value of zero with probability $1 - p_i$ (in case the individuals are unemployed). Let the distribution of individual risk corresponding to the "Free Market" social insurance be $p_i = p\,W(\phi_i)$, where p denotes average income which depends on the aggregate risk of the jurisdiction and ϕ_i is distributed over the population according to the known distribution $W(\phi_i)$. Given the absence of public social insurance, a negative shock hitting a region causes unemployed individuals to get zero income. As the probability of being unemployed can be considered much lower than the probability of being employed, the distribution ϕ_i is left-skewed, so that the distribution has a mean value of one, a median value of $\phi_m > 1$, and $W(\phi_m + x) - W(\phi_m) > W(\phi_m) - W(\phi_m - x)$, for any positive x. Thus, the distribution of individuals is denser to the right than to the left of the median voter.

[37] When the adjustment is sluggish, shocks tend to persist and transfers last longer. Hence, a large redistribution from the employed to the unemployed inevitably occurs, and work incentives are negatively affected. Interregional transfers meant to smooth temporary reductions in disposable income are then deemed to be responsible for favouring "moral hazard". For this market failure to be avoided, interregional risk-sharing should be implemented in a situation of full wage and price flexibility. In fact, the widespread quest for labour market reforms towards more flexibility has been also originated by the efficiency-reducing effects of long-lasting transfers.

Figure 4



With regional disparity, that is with $\alpha > \beta$, also in this Free Market case a voting coalitions across jurisdictions will set up. From the 1/2 of voters who are in favour of a higher tax rate in R1 one has to subtract a number of high risk individuals at the left of the median voter (till reaching the high risk who keep preferring a higher tax rate); and to the 1/2 of voters who are in favour of a higher tax rate in R2 one has to add a number of low risk individuals at the right of the median voter (till reaching the low risk individuals who keep preferring a lower tax rate). As shown in Figure 4, the number of individuals in R2 who switch to voting for a higher tax rate is larger than the number of individuals in R1 who switch to voting for a lower tax rate. Since the distribution of individual risk is now left-skewed due to the "Free Market" model of social insurance, just opposite to the previous case, the winning voting coalition is the one favouring a higher tax rate.

6. Concluding remarks

The paper has questioned the validity of theoretical models opposing centralization of fiscal policies in a federation. The reasoning has been build up in two steps. First, contrary to "invisible hand" views on jurisdiction competition, not only a federal government proves essential for the organization of the "packages" of taxes and public goods of the "heterogeneous" populations of the regional jurisdictions, but a fiscal union is needed to avoid the negative externalities created by "tax competition". Second, it has been shown that in a federation with regional disparity the level of the tax rate chosen by federal majority voting depends on the model of social insurance on which the interregional risk-sharing relies. Under the social insurance scheme of "pooling equilibrium" corresponding

to the Welfare State approach, the federal voting turns out to favour a lower tax rate; while under the social insurance scheme of "separating equilibrium" corresponding to the Free Market approach, the federal voting turns out to favour a higher tax rate. Therefore, the opposition to fiscal unions, on the grounds of excessive redistribution inside large jurisdictions with "heterogeneous" populations, appears to rest on unsound underpinnings. In fact, whenever the social insurance system of the fiscal union causes distributive conflicts because of a too "high" or a too "low" interregional redistribution, the federal majority voting functions as a re-equilibrating mechanism.

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