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Segregation, radicalization and the protection
of minorities: National versus regional policy

by

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Abstract

We analyse the optimal level of political decision making, national or regional, in a society where people hold different views on public policy. The benefit of policy making at the regional level is that it allows for policy differentiation, which serves the interests of regional majorities. The argument in favor of a national policy is that it may generate a more moderate policy, which protects the interests of regional minorities. Our paper analyses how the degree of segregation and the degree of radicalization of preferences affect the trade-off between these two concerns.

1   Introduction

In a pluralistic world where individuals disagree about the ideal public policy there is always latent conflict. Not everyone can get his or her ideal policy realized. In many countries, conflicting interests follow ethnic, linguistic, religious, and cultural lines. These groups typically cluster in space. Hence, national minorities may form regional majorities. The geographic level of decision making, regional or national, may thus be important in determining the relative influence of different groups in society. Regional majorities may be able to define policies in a regional vote, but have little influence over policies in a national vote.

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In most countries there are political tensions between those advocating increased regional autonomy and the proponents of stronger national governments. With increased residential segregation and increased radicalization of preferences, the calls for increased decentralization of political power seem to be on the rise. However, are increased segregation and increased radicalization necessarily valid arguments in favor of regional autonomy from an aggregate welfare perspective? The present paper demonstrates that this is not necessarily the case. Indeed, we show that under some circumstances these forces may constitute arguments in favor of decision making at the national rather than regional level.

The optimal distribution of political authority between central and local jurisdictions is the central theme in the economic literature on fiscal federalism. Generally speaking, this literature is relatively sympathetic to decentralization of public provision of goods and services. The benefits of decentralization are captured by the well-known "decentralization theorem" (Oates, 1972). This theorem states that, in the absence of scale economies and inter-regional spillovers, welfare maximizing local authorities may tailor the supply of local public services to local tastes, and thereby achieve a solution that is welfare superior to the solution provided by the central government. As stated by Oates (1994, page 130): "The tailoring of outputs to local circumstances will, in general, produce higher levels of well-being than a centralized decision to provide some uniform level of output across all jurisdictions. And such gains do not depend upon any mobility across jurisdictional boundaries." Mobility increases the regional segregation of the population and therefore strengthens the benefits of local autonomy. This is the essence of the Tiebout model (Tiebout 1956). But, as emphasized by Oates, mobility of voters is not essential to the decentralization theorem.

Tailoring of public policies to local tastes may, however, not be a good idea from a welfare perspective if local policies are the result of majority voting rather than welfare maximization. Regional autonomy may lead to extremist policies at the local level, with regional minorities suffering. The fundamental trade-off analysed in the present paper is between the gains from regional autonomy, which, in line with the decentralization theorem, are due to *differentiation* of policies, and the gains from a common policy, which are due to the potential *moderation* of policies in a national vote. We abstract from the standard arguments in favor of centralized decision making, namely scale economies and strategic interaction, and focus on the potential of a national vote in creating a different, and more moderate, vote than local

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elections.

By focusing on potential conflicts of interests at both the national and regional level, our analysis departs from most of the recent literature on political centralization and decentralization, see for instance Bolton and Roland (1996), Alesina and Spolaore (1997), Ellingsen (1998), Besley and Coate (1999) and the subset of this literature that deals with education and in particular education finance systems, such as Fernández and Rogerson (1996, 1999), and Hoxby (1996) for an overview. In this literature, regions are typically assumed to be inhabited by people with relatively homogenous tastes.

Ellingsen (1998) analyses intra-regional conflicts. There are, however, only two types of people in his model, and hence the possibility of centralization representing a compromise solution is not considered. Crémer and Palfrey (1996) also consider local conflicts of interests, and address the positive issue of when regional median voters are likely to vote in favor of centralization. In the absence of scale advantages and interregional externalities (as in our paper), they demonstrate that with full information about the election outcome regional median voters will never vote for a centralized solution. This is not surprising. If there is more uncertainty about the identity of the median voter on the local level than on the central level, however, the majority vote on the local level may be in favor of forming, or joining, a political union.

In the following model we analyze the choice between national and regional policies in situations with heterogeneous populations at the regional level. Individuals can differ with respect to their types, e.g., their religion or their ethnic identity, and they can differ with respect to their political opinions, whether they are moderate or radical. This type of situation captures some important features of many emerging democracies. These countries typically are making a transfer from a dictatorship that placed a lid on religious and ethnic factionalization, to a democratic process where political interest groups often form along religious and ethnic lines. Our analysis can be seen as an attempt at shedding light on the design of consitutions in these countries. In particular we analyze how the degree of segregation and the degree of radicalization of preferences affect the welfare maximizing level of political decision making.

2 The model

Consider a country consisting of two regions, A and B. There are two groups in the country, a and b. We can think of a and b as two different religious groups. Each group consists of "fundamentalists" and "secularists". The fundamentalists wish to base policy on religious principles, but the fundamentalists in the two groups hold very different views on what these policies should be. We assume that policy issues can be measured on a single dimension, denoted by g. Let the ideal policy of type a fundamentalist a-type be given by $g_a^* = 0$, and that of a fundamentalist b-type by $g_b^* = \gamma$. The secularists wish to keep religion and politics separate, and can thus be seen as a compromise solution. For simplicity, we assume that the secularists in a and b share the same policy ideal, and let this ideal lie in the middle of the two extremes, i.e., $g_m^* = \gamma/2$.

Being exposed to policies that differ from one's own ideal is associated with a loss of utility. We shall make the key assumption that the utility loss is a convex function of the distance between the actual and ideal policy.[1] The utility loss of individual i being exposed to policy g is given by the following quadratic loss function:

$$v_i = \left(g_i^* - g\right)^2. \tag{1}$$

Our formulation of preferences implies that the utility loss experienced as a result of a given distortion between the ideal and the actual policy is the same for all individuals. Note that the utility loss for an fundamentalist living in a region where policy is defined by the opposite fundamentalist type is given by γ^2, whereas a secularist being exposed to fundamentalist policies, or, similarly, a fundamentalist living in a jurisdiction with secular policies, loses $\gamma^2/4$. Living in a region where policies are according to one's own ideal results in zero loss.

We normalize the size of group b to unity, so that a measures the size of a relative to b. Without loss of generality, let $a > 1$. We assume that there is a concentration of group a in region A, and a concentration of group b in B. Region A is thus the "home" region of group a, and B the "home" region of group b. Let a share $s \geq 0.5$ of groups a and b be located in

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[1] While a convex loss function is intuitively appealing, it is perfectly possible to construct preference systems that do not have this property. One could, for instance, imagine a situation where people have strong preferences for a certain policy and are equally unhappy with all other policies. If this were the case, the mechanisms emphasised in this paper would not be relevant.

their home regions. Thus, s is our measure of segregation. For $s = 1$, there is full segregation, with the two religious groups living separately in their respective home regions. The closer is s to one half, the more integrated is the population. We assume that a share m of each group is secular, irrespective of where they live. We shall refer to an increase in m as a secularization and a reduction in m as a radicalization of society.

Policies are determined by majority voting and is thus defined by the preferences of the median voter in the relevant jurisdiction.[2] Decisions are either made at the regional level or at the national level. The outcome of majority vote at the regional level depends on the regional composition of preferences, while the outcome of majority vote at the national level depends on the composition of preferences in the country as a whole. Without policy competition or scale economy arguments in favor of the centralized solution, the only argument in favor of a national policy is the possibility that the national vote produces a moderate policy (we will elaborate on this point below). We shall therefore limit ourselves to studying the case where a secularist is the median voter at the national level. This implies that $a(1 - 2m) < 1$. Given that the national median voter is a secularist, the national policy outcome is given by $g_n = \gamma/2$. Each fundamentalist then loses $\gamma^2/4$, so that the total loss in the country is:

$$L_n = (1 + a)(1 - m)\frac{\gamma^2}{4}, \tag{2}$$

which is simply the loss of the total population of fundamentalists exposed to a secularist policy. Consider next the situation with regional autonomy. Clearly, the welfare loss in this case depends on whether the decisive voters in the two regions are fundamentalist or secular. Note that the number of fundamentalist b-types in B is $(1 - m)s$. The rest of the population in B consist of a-types living in this "foreign" region, their number given by $(1 - s)a$, and secularist b-types, numbering ms. We see that

$$s(1 - m) = a(1 - s) + ms \Rightarrow s = \frac{a}{1 - 2m + a} \equiv \bar{s}. \tag{3}$$

[2]We therefore abstract from different electoral rules, e.g., plurality rule versus proportional rule, and different forms of government, e.g., presidential versus parliamentary systems. For an overview of the literature on the relation between voting systems, forms of government, and economic policy, see Persson and Tabellini (2004). For an analysis of the optimal electoral rule behind a veil of ignorance, see Aghion and Bolton (2003).

Hence, if $s > \bar{s}$, the fundamentalist b-type forms a majority in B, whereas if $s \leq \bar{s}$, a secularist is the decisive voter in B. Note also that the number of fundamentalist a-types in A is given by $as(1 - m)$. The rest of the population in A is given by secularist a-types, numbering asm, plus b-types, their number given by $(1 - s)$. We see that

$$as(1 - m) = (1 - s) + ams \Rightarrow s = \frac{1}{1 - 2am + a} \equiv \hat{s}. \tag{4}$$

Hence, for $s < \hat{s}$, the median voter is a secularist in both regions. Clearly, for $a > 1$, $\bar{s} > \hat{s}$. Summarizing, we can therefore conclude that:

Lemma 1 *For $s < \hat{s}$, the median voter in both regions is a secularist; for $s \in (\hat{s}, \bar{s})$, the median voter in A is a fundamentalist from the a-group and the median voter in B is a secularist; for $s \in (\bar{s}, 1)$, the median voter in both regions is a fundamentalist, from the a-group in A and from the b-group in B.*

In this way, we see that increased segregation might lead to a radicalization of regional policies, with A being the first region to be radicalized, followed by B for a sufficient degree of segregation. We also note that an increase in m increases $\hat{s}$ and $\bar{s}$. Intuitively, an increase in the degree of secularization increases the political power of secularists, and leads to the implementation of moderate policy in one or both regions for a larger range of segregation.

With fundamentalist policies in both regions, i.e., for $s > \bar{s}$, the total population of "foreign" based fundamentalists has a loss $(1 + a)(1 - s)(1 - m)\gamma^2$ and the total population of moderates loses $(1 + a)m\frac{\gamma^2}{4}$. With fundamentalist policy in A and secularist policy in B, i.e., for $s \in (\hat{s}, \bar{s})$, the fundamentalist b-types living in region A lose $(1 - s)(1 - m)\gamma^2$, the fundamentalist b-types in B lose $(1 - m)s\frac{\gamma^2}{4}$, the fundamentalist a-types in B lose $a(1 - s)(1 - m)\frac{\gamma^2}{4}$ and, finally, the secularists in A lose $(mas + (1 - s)m)\frac{\gamma^2}{4}$. With a secularist median voter in both regions, i.e., for $s < \hat{s}$, the policy outcome and hence the welfare loss is clearly identical to that of the national solution. The welfare loss under regional autonomy is thus given by:

$$L_r = \begin{array}{ll} (1 + a)(1 - s)(1 - m)\gamma^2 + (1 + a)m\frac{\gamma^2}{4} & for \quad s > \bar{s} \\ \gamma^2\left(1 - \frac{3}{4}(m + s) + \frac{1}{2}sm(1 + a) + \frac{1}{4}a(1 - m - s)\right) & for \quad \hat{s} \leq s \leq \bar{s} \\ (1 + a)(1 - m)\frac{\gamma^2}{4} & for \quad s < \hat{s} \end{array}. \tag{5}$$

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We now turn our attention to the analysis of how the key variables of our analysis, namely segregation and radicalization, affect the trade-off between majority vote at the national and regional level. Our first observation is that:

Proposition 1 *If the secular group constitutes less than half of the population, and if the population is sufficiently integrated, national policy welfare dominates regional policy.*

Proof. For $m < \frac{1}{2}$, it follows that $\hat{s} < 1$. When this is true, for $s = \hat{s}$, $(L_r - L_n) = \frac{1}{2}(1-s)(1-m)\gamma^2 > 0$, and hence the national policy welfare dominates. ∎

Our analysis thus demonstrates that national policy can welfare dominate even in the absence of scale economies or strategic interaction, which are the standard arguments in favor of centralized decision making. Intuitively, the secular policies resulting from a national vote limit the loss for regional minority interests, who would otherwise be exposed to fundamentalist policies in one or both regions. In this way, the secularist policy outcome of national majority vote represents a compromise solution that may increase aggregate welfare, even if a majority of the population are fundamentalist and hence do not get their ideal policy realized. We also see that:

Proposition 2 *If the secular group constitutes less than half of the population, and if the population is sufficiently segregated, regional policy welfare dominates national policy.*

Proof. For $m < \frac{1}{2}$, it follows that $\bar{s} < 1$. When this is true, for $s = 1$, $(L_r - L_n) = -\frac{1}{4}\gamma^2(1+a)(1-2m) < 0$, and hence regional policy welfare dominates. ∎

This result is according to the decentralization theorem discussed in the introduction. It is also clear that:

Proposition 3 *Given that the type of median voter in the two regions does not change, and given that the secular group constitutes less than half of the population, increased segregation reduces the welfare loss under regional policy relative to national policy.*

Proof. For $s > \bar{s}$, $\frac{\partial L_r}{\partial s} = (1+a)(m-1)\gamma^2 < 0$. For $s \in (\hat{s}, \bar{s})$, $\frac{\partial L_r}{\partial s} = -\frac{1}{4}\gamma^2((3-2m) + a(1-2m)) < 0$. Since L_n is unaffected by s, the result follows. ∎

We can also show that:

Proposition 4 *By changing the type of median voter, increased segregation may increase the welfare loss under regional policy relative to national policy, and increased secularization may increase the welfare loss under national policy relative to regional policy.*

Proof. Assume that the secular group constitutes less than half of the population, and consider the situation where $s = \bar{s}$. The welfare loss under regional policy is then given by $L_r = (1 - \bar{s})(1 - m)\gamma^2 + (1 - \bar{s})m\frac{\gamma^2}{4} + asm\frac{\gamma^2}{4} + a(1 - \bar{s})(1 - m)\frac{\gamma^2}{4} + \bar{s}(1 - m)\frac{\gamma^2}{4}$. A marginal increase in s, such that $s > \bar{s}$, leads to a change in the median voter in region B, from secular to fundamentalist. The welfare loss under regional policy is then given by $L_r = (1 + a)(1 - \bar{s})(1 - m)\gamma^2 + (1 + a)m\frac{\gamma^2}{4}$. Hence, the change in welfare loss due to the increase in s is given by $\frac{1}{2}\gamma^2 a\frac{1-3m+2m^2}{1-2m+a}$. It is straightforward to show that, for $m < \frac{1}{2}$, this increase in s has lead to an increase in the welfare loss under regional policy. A marginal decrease in m has exactly the same effect, and the result follows. ∎

Increased segregation and reduced secularization of the population may lead to a radical change in the political power structure in region B, with fundamentalists replacing secularists as the decisive voters. This radicalization of policy leads to a loss in the welfare of regional minority groups, a loss that may dominate the gain for the majority of fundamentalists. Following up on this observation, we also find that:

Corollary 1 *By changing the type of median voter, increased segregation and decreased secularization may lead to a shift in the welfare maximizing level of policy, from regional policy to national policy.*

Proof. Assume that the secular group constitutes less than half of the population, and consider the situation where $s = \bar{s}$. There exist values of a and m such that $L_n - L_r = \kappa$. For $\kappa < \frac{1}{2}\gamma^2 a\frac{1-3m+2m^2}{1-2m+a}$, a marginal increase in s, such that $s > \bar{s}$ and the median voter in region B changes from secular to fundamentalist, leads to a situation where $L_n < L_r$. A marginal decrease in m has exactly the same effect, and the result follows. ∎

Hence, by affecting the regional power structure, increased segregation and decreased secularization may not only weaken the argument in favor of regional policy. Such a development may in fact change the optimal level of policy making, from regional autonomy to national majority vote. Figure 1 illustrates a possible outcome of the model. The vertical axis measures the

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difference in welfare loss between the regiona and the national policy, $L_r - L_n$, while the horizontal axis measures the degree of segregation, from $\hat{s}$ to unity. Recall that for $s < \hat{s}$, the median voter in both regions is a secularist, and hence in this case $L_r = L_n$. For $s \in (\hat{s}, \bar{s})$, there is a secular median voter in region B and a fundamentalist a-type voter in A. For $s \in (\bar{s}, 1)$, there is a fundamentalist majority in both regions, with an a-type ruling in A and a b-type in B. At s_1, $L_r = L_n$ in the regime with a secular median voter in B, and at s_2, the same is true with a fundamentalist majority on both regions. In both regimes, segregation below the critical levels s_1 and s_2 leads to a situation where national policy welfare dominates regional policy (i.e., $L_r > L_n$), whereas segregation above the critical levels leads to a situation where the regional policy welfare dominates ($L_r < L_n$). This implies that for $s \in (s_1, \bar{s})$, the welfare maximizing solution is regional policy, whereas for $s \in (\bar{s}, s_2)$, the optimal solution is a national policy. Hence, increased segregation from $s \in (s_1, \bar{s})$ to $s \in (\bar{s}, s_2)$ changes the optimal level of decision making from regional to national. Thus, Figure 1 serves as an illustration of the result presented in Corollary 1.
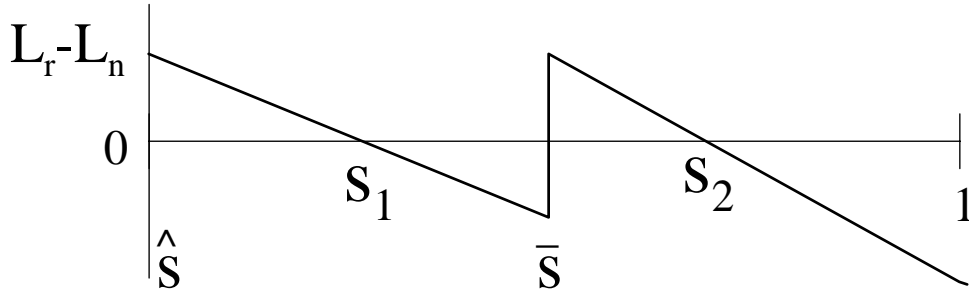

Figure 1: Segregation and relative welfare loss

2.1   Mobility and welfare

So far, we have abstracted from migration between the two regions in the country. In a situation with regional autonomy, people dissatisfied with the local policy may have an incentive to leave that region for a region offering a policy more in harmony with one's own ideal. Since individual migration decisions are based on the prospects of increased utility, one would expect migration to increase aggregate welfare in society. This intuition is correct

also in the present analysis. However, the main purpose of this section is to point at a less obvious effect of migration, which may lead to the opposite conclusion, namely the possibility of migration having a *negative* effect on aggregate welfare. Basically, the reason why migration could reduce aggregate welfare is that relocation may be associated with a negative externality. The externality is due to the fact that while each migrant takes policy as given, migration affects the regional composition of interest groups which in turn may affect regional policies.

Assume that each individual faces a fixed mobility cost c. Each fundamentalist b-type in A has a negative utility γ^2, and would gain $\gamma^2 - \gamma^2/4 - c = 3\gamma^2/4 - c$ by moving to B. In contrast, a radical a-type in B or a moderate in A would gain only $\gamma^2/4 - c$ from relocating. The pre-migration stage can be described by $c > 3\gamma^2/4$, such that no-one has an incentive to move. To see that increased mobility may be an argument in favor national policy, assume that we start out with $c > 3\gamma^2/4$ and with a degree of segregation such that $s = \bar{s}$, so that a secularist is the median voter in B. Assume now that mobility costs fall to $c = 3\gamma^2/4$, such that the fundamentalist b-types in A are indifferent between staying in A or moving to B, and choose to relocate. This move changes the composition of preferences in B, shifting the decisive voter from a secularist to a fundamentalist b-type. This, in turn, leads to a radicalization of policy in B, triggering a migration of fundamentalist a-types from B to A. Secularists have no incentive to change location, since there is fundamentalist policies in both regions. It can then be shown that:

Proposition 5 *A reduction in migration costs may lead to a shift in the welfare maximizing level of policy, from regional policy to national policy.*

Proof. Consider first a situation where $s = \bar{s}$, $c > 3\gamma^2/4$ and where $(1 - m) > ms + a(1 - s)$. In this situation the median voter is a fundamentalist type in region A and a secular in region B and there is no incentive to migrate. Consider now a reduction to $c = 3\gamma^2/4$ which induces migration of the fundamentalist b-type from region A to region B. By assumption, the fundamentalists of type b will now have a majority in region B. The radicalization of policy in B will in turn result in migration of the fundamentalist of type a from region B. In order to measure the welfare effects of this reduction in migration costs, notice that all those who initially lived in region A are equally well-off as they were before the reduction in migration costs. The winners are the fundamentalist b-types in B, whose total gain is

$(1-m)\,s\frac{\gamma^2}{4}$. The losers are secularists in B, from the a-group and b-group, whose loss is $(1-s)\,am\frac{\gamma^2}{4}$ and $ms\frac{\gamma^2}{4}$, respectively, and the fundamentalists from the a-group who lose $a\,(1-s)\,(1-m)\left(\frac{3\gamma^2}{4}-\frac{\gamma^2}{4}\right)$. We now demonstrate that, given that the fall in migration costs triggers migration so that the decisive voter in B changes from a secularist to a fundamentalist b-type, the outcome is necessarily a fall in welfare. The highest gain from a reduction in migration costs takes place for $s=\bar{s}$, so that the fundamentalist b-types make up half the population in B (but policy is defined by a secularist). The change in aggregate loss due to the lowering of mobility costs, is then given by $\frac{1}{4}\gamma^2 a\frac{1-3m+2m^2}{1-2m+a}$, which is positive given that $m<\frac{1}{2}$. $\blacksquare$

Hence, by causing a radicalization of regional policy, migration flows due to lower migration costs may be an argument in favor of national policy. By eliminating the incentives for relocation, the national policy protects regional minorities that would suffer under regional policy.

3   Concluding remarks

Protection of minority interests was seen by the founding fathers of the American constitution as one of the main advantages of a union. Madison argued in the federalist papers that: "Among the numerous advantages promised by a well constructed Union, none deserves to be more accurately developed than its tendency to break and control the violence of faction." Elaborating on his position, he states that: "The smaller the society, the fewer the distinct parties and interests, the more frequently will a majority be found of the same party; and the smaller the number of individuals composing a majority, and the smaller the compass in which they are placed, the more easily will they concert and execute their plans of oppression. Extend the sphere, and you take in a greater variety of parties and interests; you make it less probable that a majority of the whole will have a common motive to invade the rights of other citizens." (Madison 1787).

Clearly, Madison was aware of the possibility that regional autonomy may lead to unattractive solutions for the country, by giving too much power to regional majority interests. Our analysis shows that regional autonomy may be a bad idea when regional majorities hold relatively extreme political views, while the national median voter is more moderate.

Democratic institutions do not guarantee fair or efficient outcomes. In

particular, majority voting may result in the marginalization of minority interests. Our analysis shows how the choice between common policy and regional autonomy is a trade-off between the concerns for majorities and minorities at the national and regional levels. While regional majorities benefit from decentralization of decision making, decentralization may harm regional minorities. Indeed, when the national median voter has moderate political view, the secularist in our analysis, choosing a national policy determined by a national majority vote can be one way of protecting regional minorities. In a highly segregated society, where the size of regional minorities is small, regional autonomy is the welfare maximizing structure of government. When the size of regional minorities is larger, however, a national policy may be welfare superior. We have also demonstrated that migration may be associated with a negative externality, implying that increased mobility may reduce welfare.

Our analysis of the optimal choice between regional and national policy is based on a median voter model. This model generates discrete changes in policy as the type of median voter changes, and emphasises how small alterations in population structure can result in dramatic policy changes. Exploring the same questions as we do here within a probabilistic voting model, where policy is a continuous function of changes in the preference structure in society, would be an interesting project. Another suggestion for future research is to extend our model by introducing constitutional rights, and qualified majority vote, as means of protecting minority interests.

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