Preferential Trade Arrangements vs. Open Regionalism: A Theoretical Analysis of APEC

by

Taiji Furusawa[É]

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Abstract

The Asia Paciåc Economic Cooperation (APEC) adopts open regionalism as its fundamental principle. Open regionalism refers to a principle of regional arrangements such that any internal agreement is extended to nonmember countries. We examine member countries' incentive to adopt open regionalism when they are economically integrated. We ånd that in a simple three-country model, they always choose not to adopt open regionalism. In an extended model, however, we show an example in which politically motivated governments of member countries adopt open regionalism.

[É]Department of Economics, Yokohama National University, 79-3 Tokiwadai, Hodogaya-ku, Yokohama 240-8501 JAPAN. Email: furusawa@ynu.ac.jp. Tel/Fax: +81-45-339-3534.

1 Introduction

Substantial multilateral trade liberalization has been accomplished through the eight rounds of GATT negotiations after the World War II. As the number of contracting parties increases and as the negotiation agenda becomes diverse, however, it becomes more and more dié cult to further proceed with multilateral negotiation over international trade and other related issues.[1] Dié culty in multilateral negotiation spurs a surge of regional economic integration. Economic integration of the European Community has been deepened to form the European Union (EU). The Canadian-U.S. free trade area extends its membership to Mexico to become the North American Free Trade Agreement (NAFTA). These Preferential Trade Arrangements (PTAs) are permitted through the GATT Article XXIV as an exception to its Most Favored Nation (MFN) principle. Each member country of a PTA is required to completely eliminate tariãs for almost all goods imported from other member countries, but is allowed to set positive, discriminatory tariãs against nonmember countries.

Because of its discriminatory nature, it is ambiguous whether or not PTAs are welfare enhancing from the global point of view. Welfare implications of PTAs are originally brought to our attention by Viner (1950) who identiåes a favorable \trade creation eãect" of PTAs and adverse \trade diversion eãect." Whether or not a PTA is welfare enhancing depends largely on which of these two eãects outweighs the other. This criterion remains practically valid when we assess welfare consequences of a particular PTA, even though Ohyama (1972) and Kemp and Wan (1976) show that there always exist an internal transfer and external tariã proåles such that neither member countries nor nonmember countries will be worse oã by the formation of the PTA. Krugman (1991), for example, shows that as the number of PTAs that constitute the world increases, the trade creation eãect comes to dominate the trade diversion eãect. He reports a simulation result that the welfare of each country is minimized if the world is divided into three equal-sized blocs. Grossman and Helpman (1995) and Levy (1997) examine the incentive to form a PTA in political economy models. Levy especially asks whether the PTA formation is detrimental to multilateral trade liberal-

[1] The failure of the World Trade Organization (WTO) meeting in Seattle in December 1999 reveals the dié culty of multilateral negotiation in recent years.

ization. Bagwell and Staiger (1997a,b) also investigate how the formation of a PTA aãects multilateral tariã cooperation. The analyses of PTAs in relation to multilateral trade liberalization is particularly important since PTAs that harm multilateral trade liberalization eãorts cannot be desirable from the viewpoint of the world welfare.[2]

Another type of regional economic integration comes to an existence in 1989. Unlike PTAs under the GATT Article XXIV, Asia Paciåc Economic Cooperation (APEC) launched in 1989 adopts open regionalism as its fundamental principle. Among several possible deåni-tions of open regionalism, we spotlight on the aspect of oãering unconditional MFN, which is the most prominent feature of APEC.[3] That is, in this article, open regionalism refers to a principle of regional arrangements such that any internal agreement is extended to nonmember countries. Because of this inherent feature of openness, regional economic integration is complementary to global trade liberalization if it adopts the principle of open regionalism. Therefore, whether or not a trading bloc adopts open regionalism crucially aãects global welfare. We examine countries' choice between a preferential arrangement and open regionalism when they form a trading bloc. When member countries of a PTA reciprocally reduce internal tariã rates while keeping their external tariã rates at relatively high levels, it may not be best for them to eliminate internal tariãs completely. This is because they can mitigate trade diversion eãect by setting low, but positive internal tariã rates. Even though preferential arrangements are preferable in the aspect of keeping positive external tariãs, inability to adjust internal tariã rates in an optimal manner can lower member countries' individual welfare. Open regionalism is more desirable in this aspect, since member countries are allowed to set internal tariã rates at any desired levels. However, member countries under open regionalism must also reduce the tariã rates to nonmember countries even though nonmember countries do not reduce their tariã rates in return. Because of this lack of reciprocity, cooperation within the trading bloc may well be limited. Together with the limitation of exercising the market power to the nonmember countries, this fact makes open regionalism relatively unattractive to member countries.

[2] See Baldwin and Venables (1995) and Panagariya (2000) for the survey of the literature on PTAs.

[3] See Bergsten (1997) for details on the deånitions of open regionalism.

Whether a PTA is preferred or open regionalism is adopted cannot be determined a priori. In a simple three-country model, we examine member countries' incentive to adopt open regionalism when they form an economic integration, and ånd that they always choose not to adopt open regionalism. Indeed, we show that if the status quo tariã rates are large enough, it is possible for PTA member countries to select the best tariã proåle that maximizes their social welfare in the absence of any constraint on the feasible tariã proåles. This result, however, is not universally true. In the Concluding Remarks, we discuss a possible extension of the model, so that politically motivated governments of member countries adopt open regionalism when they are economically integrated.

2 The Model and Preliminary Results

There are three countries, Country 1, Country 2, and Country 3. Each country is endowed with three goods, Good 1, Good 2, and the numeraire good. Each consumer's preferences can be characterized by a quasi-linear utility function that is separable for the three goods. We assume that the numeraire good linearly enters the utility function and the countries are endowed with a large amount of the numeraire good, so that we can proceed with the partial equilibrium analysis for the non-numeraire goods. Furthermore, we suppose that Country 1 is a natural exporter of Good 2 and a natural importer of Good 1, whereas Country 2 is a natural exporter of Good 1 and a natural importer of Good 2. They may also trade the numeraire good. Country 3 is a natural exporter of Goods 1 and 2, and a natural importer of the numeraire good.

Country 1's import demand for Good 1 and Country 2's import demand for Good 2 are represented by a common function $m(p) = 1 - p$. Export supply functions are deåned with the usage of the function $x(p) = p$. We assume that both of Country 1's export supply of Good 2 and Country 2's export supply of Good 1 are deåned by $ax(p)$, where $a \in (0;1)$ is a parameter that represents the mutual dependence between Country 1 and Country 2. Country 3's export supplies of Good 1 and Good 2 are individually represented by the common function $(1 - a)x(p)$.

Country 1 imports Good 1 from Country 2 and Country 3, whereas Country 2 imports Good 2 from Country 1 and Country 3. Country 3, on the other hand, only imports the numeraire good. We assume that each country imposes tariãs only on its imports of the non-numeraire goods. In this setting, therefore, only Countries 1 and 2 impose import tariãs. We consider an economic integration between these two symmetric countries, 1 and 2. Let $ú_i$ and $ú_i^É$, for $i = 1;2$, represent the speciåc tariã rates that Country i imposes on its imports from the partner country and from Country 3, respectively. We assume that all tariã rates are the same before the economic integration. We call this common rate $ñ$.

Now, let us consider the market clearing conditions. Due to the symmetry, we need only consider the market clearing condition for a representative non-numeraire good. Let $ú$ and $ú^É$ denote the internal and external tariã rates imposed on the imports from the member country and Country 3, respectively. Letting p denote the domestic price in the importing country, we have

$$m(p) = ax(p Ä ú) + (1 Ä a)x(p Ä ú^É):$$

The market clearing domestic price can be derived explicitly as

$$p(ú;ú^É) = \frac{1 + aú + (1 Ä a)ú^É}{2}: \tag{1}$$

We can compute the surplus from the import inclusive of tariã revenues, and the surplus from the export as

$$\begin{aligned} M(ú;ú^É;a) &= \int_{p(ú;ú^É)}^{1} m(p)dp + aúx(p(ú;ú^É) Ä ú) + (1 Ä a)ú^É x(p(ú;ú^É) Ä ú^É) \\ &= \frac{[1 Ä aú Ä (1 Ä a)ú^É]^2}{8} + \frac{aú[1 Ä (2 Ä a)ú + (1 Ä a)ú^É]}{2} \\ &\quad + \frac{(1 Ä a)ú^É[1 + aú Ä (1 + a)ú^É]}{2}; \\ X(ú;ú^É;a) &= \frac{a[1 Ä (2 Ä a)ú + (1 Ä a)ú^É]^2}{8}; \end{aligned}$$

respectively. Social welfare for Country 1 and Country 2 can be represented by $w_1 = M(ú_1;ú_1^É;a) + X(ú_2;ú_2^É;a)$ and $w_2 = M(ú_2;ú_2^É;a) + X(ú_1;ú_1^É;a)$, respectively.

The best response to the partner country's tariã rates is given by the tariã rate proåle $(ú;ú^É)$ that simultaneously satisåes $D_1M(ú;ú^É;a) = 0$ and $D_2M(ú;ú^É;a) = 0$. It is easy to

see that these tariã rates do not depend on the partner country's tariã rates. Indeed, we have $ú = ú^É = 1=3$, and hence the Nash tariã rates, common to Countries 1 and 2, are given by $(ú^N; ú^{N É}) = (1=3; 1=3)$. We assume that the initial tariã rates are less than or equal to the Nash tariã rates, i.e., $ñ î 1=3$.

Due to the symmetry, it is natural to assume that Countries 1 and 2 set the same tariã rate proåle $(ú; ú^É)$ after they are economically integrated. We deåne the social welfare function, common to both member countries, under the condition that they individually select the same tariã proåle $(ú; ú^É)$ by

$$W(ú; ú^É; a) = M(ú; ú^É; a) + X(ú; ú^É; a):$$

3 Unconditional Economic Integration

If there is no regulation for regional economic integration, Countries 1 and 2 select the tariã rates so as to maximize $W(ú; ú^É; a)$ when they are economically integrated. Now, it follows from $D_1W(ú; ú^É; a) = 0$ and $D_2W(ú; ú^É; a) = 0$ that

$$ú = \frac{(1 Ä a)[(3 + a)ú^É Ä 1]}{4 Ä a Ä a^2}; \tag{2}$$

and

$$ú^É = \frac{1 + a + a(3 + a)ú}{(1 + a)(3 + a)}; \tag{3}$$

respectively. Figure 1 depicts these relationships: The ú-line represents (2) while the $ú^É$-line shows (3). Notice that both of the ú-line and $ú^É$-line are positively-sloped. Let us consider the ú-line, for example. If $ú^É$ increases, the untaxed world price of the imports from Country 3 decreases. Consequently, each member country beneåts from importing less from the partner country and importing more from Country 3. This shift in the source of the import can be accomplished by an increase in the internal tariã rate ú. That is why the ú-line is positively sloped.

As Figure 1 shows, (2) and (3) are simultaneously satisåed at $(ú; ú^É) = (0; 1=(3 + a))$. Thus, the internal tariã is completely eliminated, while the external tariã rate is set at

1=(3+ a) if Countries 1 and 2 are economically integrated. As the member countries become more dependent on each other, i.e., as a increases, the external tariã rate decreases.

Proposition 1 If there is no regulation for regional economic integration, the member countries completely eliminate the internal tariã while they select a positive external tariã rate.

4 Preferential Trade Arrangements

If Countries 1 and 2 adopt a PTA, they must eliminate the internal tariã completely, while they must select the external tariã rate such that it does not exceed the status quo tariã rate $\tilde{u}$. As Figure 1 indicates, the resulting tariã proåle depends on whether or not $\tilde{u}$ exceeds 1=(3 + a).

If $\tilde{u} \ï 1/(3 + a)$, the member countries attain the unconditionally optimal tariã proåle $(0; 1/(3 + a))$ under the PTA. Social welfare for member countries unambiguously improves as a result. The impact on Country 3's welfare can be assessed by looking at the eãect on its export price for the non-numeraire goods. As we can see from (1), the domestic prices for these goods in the importing countries decrease since at least one of $ú$ and $ú^É$ falls from $\tilde{u}$. However, the export price $p(ú; ú^É) Ä ú^É$ can increase, as both $p(ú; ú^É)$ and $ú^É$ decrease except when $\tilde{u} = 1/(3 + a)$. In the status quo situation, the tariã rate proåle is $(ú; ú^É) = (\tilde{u}; \tilde{u})$ and hence Country 3's export price for either good equals $p(\tilde{u}; \tilde{u}) Ä \tilde{u} = (1 Ä \tilde{u})=2$. Under the PTA, on the other hand, the export price is $p(0; 1/(3 + a)) Ä 1/(3 + a) = 1/(3 + a)$. Now, $(1Ä\tilde{u})=2 > 1/(3+ a)$ if and only if $\tilde{u} < (1+ a)/(3+ a)$. Since $\tilde{u} < 1/3$ and $1/3 < (1+ a)/(3+ a)$, however, this inequality always holds. Therefore, Country 3's export prices fall and hence its social welfare declines, as a result of the PTA between Countries 1 and 2.

Next, consider the case where $\tilde{u} < 1/(3 + a)$. In this case, the internal tariã drops to zero, while the external tariã remains to be $\tilde{u}$. In Figure 1, this change is represented by a movement from B to A. The ågure also depicts a member country's indiãerence curve that

passes through A.[4] This curve is horizontal on the ú-line and is vertical on the ú^{É}-line. As we can guess from this observation, the slope of the indiãerence curve at A is positive and point B is outside of this indiãerence curve, which means that the PTA enhances the member countries' social welfare.[5] As for the impact on the nonmember country's social welfare, we can see easily from (1) that Country 3's export prices fall and so does its social welfare.

We record our åndings as a proposition.

Proposition 2 Member countries of a PTA reduce the external tariãs if the status quo tariã is sué ciently large. Social welfare of the member countries rises, whereas social welfare for the nonmember country falls, as a consequence of the PTA.

5 Open Regionalism

Member countries of a trading bloc that adopts open regionalism select a non-discriminatory tariã rate so as to maximize the individual country's social welfare. To ånd the tariã rate ú that maximize $W(ú; ú; a)$, we derive

$$D_1W(ú; ú; a) + D_2W(ú; ú; a) = \frac{1 Ä a Ä (3 Ä a)ú}{4}:$$

Then, it follows from $D_1W(ú; ú; a) + D_2W(ú; ú; a) = 0$ that $ú = (1 Ä a)=(3 Ä a)$. Notice that this tariã rate decreases as a increases. If a is small, trade with the nonmember country is relatively more important than internal trade. Since the nonmember country will not reduce its own tariã rate in return (indeed the non-member country is assumed not to impose a tariã on its imports of the numeraire good in this model), the member countries select a relatively high tariã rate to exercise their market power. If a is large, on the other hand, the weight on the internal trade is high, and hence the member countries considerably reduce the tariã rates.

[4] Each indiãerence curve is a circle surrounding the most-favorable tariã vector $(0; 1=(3 + a))$.

[5] Indeed, we can easily derive that at any point on the vertical axis, the slope of the indiãerence curve equals $a=(1 + a)$.

Since an agreed-upon tariff rate should not exceed $\bar{\tau}$, the cooperative tariff rate under open regionalism is given by

$$\tau^c(\bar{\tau}; a) = \min\left\{\bar{\tau}; \frac{1-a}{3-a}\right\}.$$

Notice that regional free trade is not chosen unless $a = 1$.[6] Moreover, if $\bar{\tau}$ and a are so small that $\bar{\tau} \leq (1-a)/(3-a)$, there is no room for regional trade liberalization. Under open regionalism, regional trade liberalization is more likely to take place if the dependence between member countries is large.

As for welfare consequences, it is obvious that the formation of a trading bloc is beneficial to member countries since they can always choose to maintain the status quo tariff profile $(\bar{\tau}; \bar{\tau})$. Thus, as far as $\bar{\tau} < (1-a)/(3-a)$, Countries 1 and 2 reduce both internal and external tariff rates, which benefits both countries. What about the impact on Country 3's social welfare then? When the internal and external tariff rates are the same at τ, the export price for either good in Country 3 equals $p(\tau;\tau) - \tau = (1-\tau)/2$. Since this tariff rate decreases if the bloc is actually formed when $\bar{\tau} > (1-a)/(3-a)$, the export price rises so that Country 3 benefits from the bloc formation by Countries 1 and 2 if they adopt open regionalism.

Proposition 3 If the status quo tariff rate is sufficiently large, countries reduce the non-discriminatory tariff rates when they are economically integrated under open regionalism. Social welfare rises for both member and nonmember countries as a result of the economic integration. Moreover, the deeper the mutual economic dependence between member countries, the lower the agreed-upon tariff rate.

[6] Caplin and Krishna (1988) point out the possibility that MFN requirement raises cooperative tariff rates. See also Ludema (1991) for the impact of MFN requirement on international trade negotiations.

6 Comparison Between the Two Types of Regional Economic Integration

This section investigates whether or not countries adopt open regionalism when they form a trading bloc. The previous sections reveal that in either regime, the cooperative tariã proåle varies with the status quo tariã rate τ.

If $\tau \geq 1/(3+a)$, the PTA can select the most favorable (to member countries) tariã proåle $(0, 1/(3+a))$. Therefore, the member countries prefer the PTA to the trading bloc that adopts open regionalism in this case.

Let us next consider the case where $\tau < 1/(3+a)$. In this case, the tariã proåle under the PTA is $(0, \tau)$, whereas it is $(t^c(\tau; a), t^c(\tau; a))$ under open regionalism. If τ is relatively high such that $(1-a)/(3-a) \leq \tau < 1/(3+a)$, $t^c(\tau; a)$ is equal to $(1-a)/(3-a)$. In Figure 1, the tariã proåle under open regionalism is depicted as point C, at which an indiãerence curve is tangent to the 45° line. Since $\tau \geq (1-a)/(3-a)$ in this case, a typical tariã proåle under the PTA can be represented by point A, which lies within the indiãerence curve that passes through C. Indeed, the tariã vector under the PTA must always lie within the indiãerence curve that passes through C. Therefore, we ånd that member countries will not adopt open regionalism even in this case. Finally, if $\tau < (1-a)/(3-a)$, $t^c(\tau; a)$ is equal to τ so that the trading bloc will not be formed if they are supposed to adopt open regionalism. Even in this case, the PTA can successfully reduce the internal tariã rate, which is beneåcial to member countries as we have seen in Section 4.

Proposition 4 Member countries of a trading bloc always prefer the PTA to the bloc that adopts open regionalism. Open regionalism will never be adopted in the economic environment that we consider.

7 Concluding Remarks

Under a PTA, member countries of a trading bloc are allowed to discriminate tariãs on the basis of its membership. This feature makes PTAs more preferable than trading blocs that adopt open regionalism. However, they must completely eliminate the tariãs for almost all imported goods under a PTA, which makes PTAs less preferable. We have shown in a simple three-country model that member countries will not adopt open regionalism when they are economically integrated.

This result, however, is not universally true. Indeed, our analysis indicates some directions of extending our basic model, so that in a richer setting member countries adopt open regionalism. Here, we consider the case in which the government of each country is politically motivated.

Let us consider the case in which each government of a trading bloc puts more weight on the well-being of the import-competing industries. In that case, the ú-curve shifts to the right while the ú^{É}-curve shifts up from the respective counterparts when the governments are benevolent social welfare maximizers. Figure 2 indicates the situation in which the two governments are politically motivated. The best tariã rate proåle, represented by point A, is not attainable under a PTA even if the status quo tariã rate is as high as 1/3. The PTA tariã rate proåle is depicted as point B at which an indiãerence curve is tangent to the vertical axis. The tariã rate proåle under open regionalism, on the other hand, is shown by point C. As Figure 2 indicates, member countries adopt open regionalism in this situation, where complete elimination of internal tariãs is quite unfavorable to the politically motivated governments.

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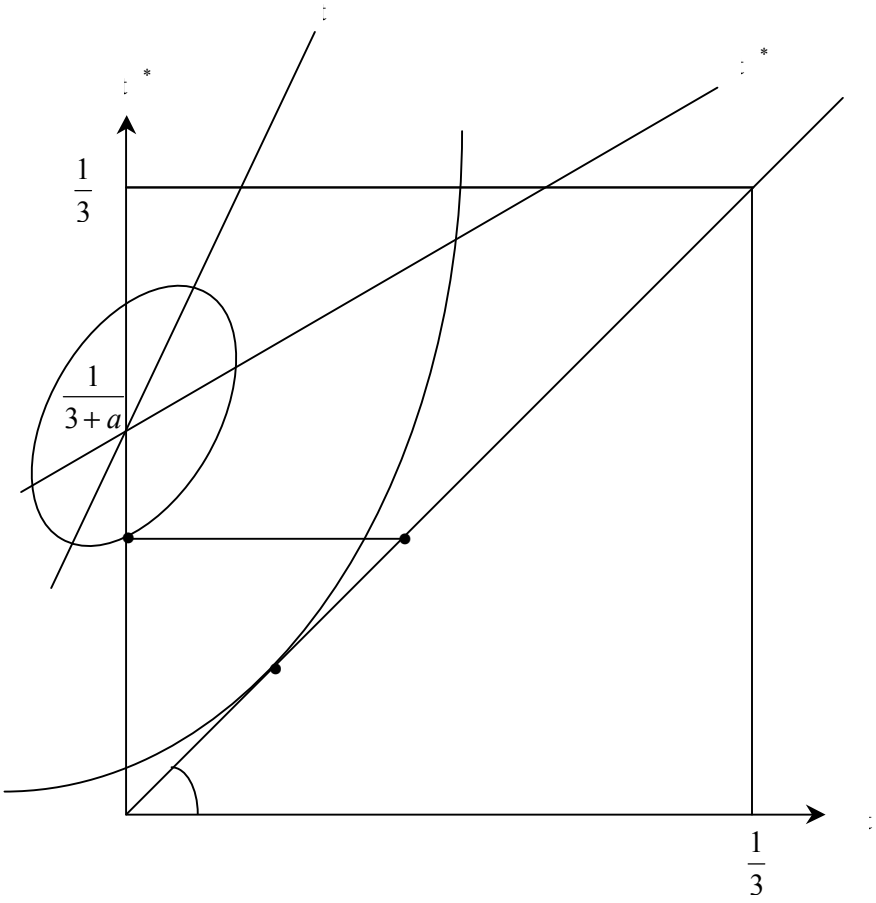
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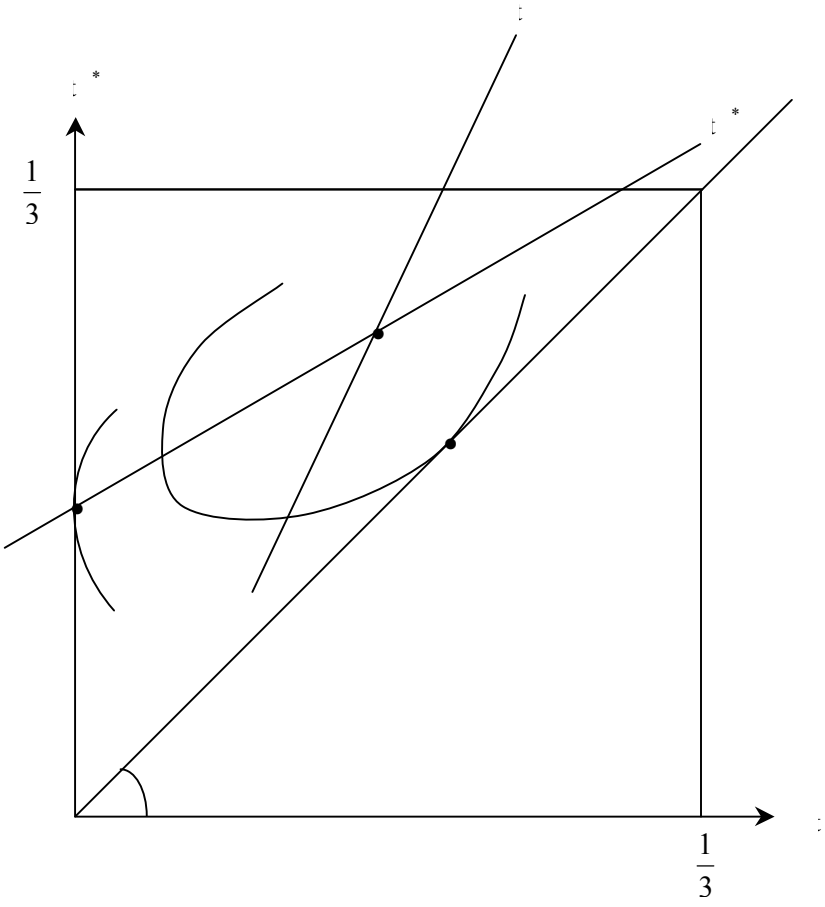
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