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## Opening up the Economy of Turkey to the Outside World: The Stabilization Decisions of January 24th 1980, Economic Situation in Pre- and Post-January 24th Period

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As a result of the fact that the stabilization program put into force in 1978 and 1979 in the Economy of Turkey could not be efficiently implemented due to the political instability and weak governments, a need to draft a new stabilization program emerged. The stabilization program of January 24th, 1980 was prepared in this environment. This is a program which includes the structural transformations in the long term as well as the aims foreseen to be realized in the short term. The program adopted the implementation of significant changes in the structure of the economy and the price mechanism in the market which becomes the only guide as the basic principle. The difference from the previous programs is an economic development program intending to provide a very permanent and structural change in the economy rather than to realize the short-term goals. With the decisions, a large devaluation was implemented, the exchange rate policy and importation were liberated, foreign capital and exportation were encouraged, the subsidies with the exception of energy, fertilizer, and transportation were removed, restrictions were imposed on the support purchases in agricultural products, and the overseas contracting services were supported. There are two structural objectives desired to be performed in the long term, shrinking the public sector and removing the intervention in the markets. The basic philosophy is to decrease the state intervention to the minimum level in the economy and to bring functionality to the market economy and to validate the price mechanism. In this paper, the stabilization decisions in the economy of Turkey belonging to pre- and early post-January 24th period will be comparatively analysed.

*Keywords:* The Decisions of January 24th, 1980, Turgut Özal, Süleyman Demirel, export-oriented industrialization policy, the decisions of February 4th and April 5th 1994

#### Introduction

In global economy, many stabilization programs have been applied in order to overcome the inflationary instabilities and crises. Since they ruin the economic stability, the crises should be solved. A crisis is a severe fluctuation in goods, service, and foreign currency markets or production factor, beyond the reasonable variation level (Kibritçioğlu, 2015, p. 504). In theory, the crises are divided into two major groups as: real sector and financial crises. The real sector crises occur with the severe fluctuations in goods, services, and labor markets. On

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one hand, in these sectors, if the prices increase rapidly (inflation) or there is shrinkage in employment (unemployment) that means there is a crisis, on the other hand, financial crises are money, banking, systematic financial, and foreign debt crisis. The countries should apply stabilization programs to avert these crises.

The money crisis occurs when the State authorities take measures in order to protect the national currency. In such case, effected by the speculative attacks, the State authorities increase the interest rates and in a considerable extent spend the international reserves which cause the devaluation or loss of value of the national currency. In the first case, the banks become unable to perform their liabilities or they bankrupt. In the second case, in order to prevent the banking sector crisis, the State interferes and increases the aid for banks. The financial crises are shocks that lead to interruption in major functions of the system such as: credit allotment, payments, and asset valuation. These crises may include money crises but money crises not necessarily lead to systematical financial crises. The foreign debt crises occur when the country shall not be able to pay its public and private foreign debts.

The policies to prevent crises-accordingly the instabilities are classified as orthodox and heterodox. The basis of these policies is the reduction of the factors that cause the excessive demand in economy. The essential condition of these policies is the economy agent's trust. In the heart of these policies, there are strict monetary and financial policies. The decline in the real income, decrease in the total demand, shifting of the economic burden to the fixed income groups and small business, controlling of the nominal money amount, and restrictions in public spending are the major properties of these policies. The orthodox policies are supported by IMF.

The orthodox stabilization programs are implemented to recover the foreign balance and decrease the inflation. For this purpose, the reduction of the real wages is predicted and the liberation of prices is recommended. In order to stabilize the prices, by using the monetary tools, the national currency is chosen as an "anchor". For this purpose, the discipline in public finance and the implementation of strict monetary policy are needed. As a result of the implementation, the decrease in growth rate, reduction in industrial production, increase in unemployment, recession, and deterioration in distribution of income are against the people with fixed income occur.

It is hard to implement such a stabilization program in democratic countries. Though, in these countries, the governments shall refrain from financial and structural reforms. Belt tightening policies cause loss of votes. In that manner, the implementation of such stabilization programs is easier to fulfill in countries having authoritarian—martial administration. In contrary, when implemented in democratic countries, these policies become unsuccessful and the governments that implement this type of stabilization program had to resign (Karluk, 2015, pp. 478-479).

Usually, the heterodox stabilization policies are implemented in countries where the inflation is permanent. In implementation of these policies, with the public reconciliation, the increase in the wage, interest, and exchange rate is frozen, also the income policy is implemented. Different from the orthodox policies, the target of heterodox policies is to reduce inflation in a short term, without causing any decline in production and employment (Kiguel & Liviatan, 1991). The freeze on wages and prices interrupts the short term wage price spiral. The most important issue of the countries which are experiencing high inflation and implementing a stabilization program is the nominal anchor. In addition to the policies implemented under the stabilization program, inflation control is provided by controlling one or more of the relative prices (exchange rate, wage, interest) (Bahçeci, 1997, p. 48).

The continuation of the existence of inflation is important in effectiveness of the policy. Hence, the pessimism of the society resulting from the unsuccessful stabilization program affects the success chance of the policies. In that sense, a stabilization program should be credible and consistent. In such a case, the freeze of prices, wages, and foreign exchange rates should be an indicator of change of policies (Esen, 1989, p. 34). Under the conditions of hyperinflation, the economic units would think that the future inflation rates would be equal to the past inflation rates and expect a higher rate of inflation in the following period. Thus, the hyperinflation transforms into an infinitive spiral and pessimism occurs in the society. In short term, the freeze of prices and wages in economy breaks the expectation of inflation and those results in case of wage spiral, and increases the credibility of the stabilization program upon society. The hyperinflation starts when the monthly inflation becomes over 50% and finishes when it continues under 50% during one year. In Turkey, during the Republic period, hyperinflation has not been experienced; however, there have been chronic inflation periods that high inflation rates were experienced

The heterodox stabilization programs are implemented as shock treatments (heterodox shock) against inflation (Helpman & Leonardo, 1998, p. 28). It is hard to avoid the implementation of shock policies when high inflation moves towards hyperinflation. These programs have four major sources. These are the freeze of prices and wages targeting the avert of the rise of inflation, the application of financial discipline to fix the exchange rate, the prevention of the budget deficits and in order to support those mentioned, and the implementation of strict monetary policies (Cin, Yalçin, & Doğru, 2000, p. 66). After 1985, to decrease the high inflation in Argentine, Brazil, Mexico, and Israel, classical stabilization policies together with income policy have been implemented (Dornbusch, 1992, p. 25). For the policies to be successful and can reach their goals, the society should support them, beside, the country should be given a foreign support. In order to be successful in implementation of these programs, it is not enough to freeze the prices, also the monetary and financial policies should be adopted to balance the existing imbalance. In that point, the problem is the scarcity occurring in goods market following the freeze of the prices. That causes the black market.

The superiority of the heterodox programs is the lesser unemployment. In medium and long term, the control of prices may cause deterioration in relative prices. This situation results in disruption of effectiveness of market mechanism (resource allocation). In that manner, in long term, the freeze of prices and wages should be abandoned. However, it is hard to say that resource allocation is effective in an environment of three digits inflation.

Another key to decrease expectation of inflation in heterodox policies is the importance of stabilization. This key is the anchor of the stabilization program. In order to prevent the ships to drag over the sea, an anchor is thrown into the sea. The ship may float around the anchor but it would not drag and it will finally stabilize. Since they believe that it endures and supports the anti-inflation implementations, some writers claim that instead of the word "anchor", the word "support" should be used (TIM, 1996, p. 91). Some writers defend the use of "hook" instead of anchor. It has been chosen the term "anchor" in this presentation. In theory, the stabilization programs are also classified depending on the anchor chosen. The "exchange rate", "interest rate", "money supply", "bank credits", or "wages and payments" could be chosen as an anchor.

In heterodox stabilization programs, freeze of exchange rate has been prominent to reduce the inflation expectation. In applying this policy, currency is used as an anchor. By fixing the country's currency exchange rate with a chosen foreign currency, the connection between the real value of the country's currency and surplus of currency demand is disconnected. This policy may cause a negative effect on international trade and payment

balance to a positive real value in local currency. In order to prevent this effect, a strong foreign financing is needed. This necessity will grow in proportion to the degree of economy's foreign expansion. The stabilization program, based on the currency exchange rate, is usually implemented in countries having high inflation. The cost of this policy is lower in situations where the economy comes to a point of pause. In economies where the inflation is mild, the stabilization program's possibility of decreasing the price increase is quite low (Dornbusch & Fisher, 1993, pp.1-44).

The programs in which the money supply is increased appropriate to the rate of targeted inflation are named as money base stabilization programs (money base stabilization) and the programs in which the exchange rate is increased appropriate to the rate of targeted inflation are called exchange rate stabilization programs (exchange rate stabilization) (Wijnbergen, 1987, p. 5). The implementation of the exchange rate based programs is based on the purchasing power parity (PPP). If the exchange rate is designated based on the PPP, the speed of increase of prices of goods and services in foreign trade would be equal to the devaluation rate (Yazgan & Akay, 2000, pp. 49-50).

In Turkish economy, with the Stabilization Decisions given on 5th April 1994, the anchor was chosen as exchange rate with two reasons: to decrease the inflation increasing effect of devaluation and to create the stability to attract the foreign capital. A pyramid scheme is established when hot money enters into the economy with the result of high real interests combining with slow depreciation of exchange rate. Hence, the high interest rate-low exchange rate creates an arbitrage profit that causes a loss in credibility of the stabilization program.

In countries, having chronic inflation not reaching to the hyperinflation level, the stabilization program that is implemented is named as "gradual stabilization program". In this kind of stabilization programs, in addition to the targets, there are targets of disciplining the public spending and decreasing the gaps in the balance of payments. In gradual stabilization programs, in addition to the major targets, the intermediary targets are also important. In the program, while the major target is reduction of budget deficit, the intermediary target is the reduction of interest payments in the budget (Uygur, 1993, pp. 23-24).

#### The Economic Situation Before the 24th January 1980 Dated Stabilization Decisions

After the middle of 1970s, the Turkish economy had become distant to the "period of progress". The period of progress is the period between the years of 1963-1970 that progress with stabilization occurred (the medium of growth rate 6.5%, the average yearly inflation rate of 5.5%). The period between the years of 1971 and 1977, the yearly inflation rate passed over 18%. In the first half of 1970s, the increase in world oil prices has not been reflected to consumer's price and the difference has been paid by the Treasury. On 01.01.1970, one barrel of oil was 1.80 USD; on 15.02.1971, one barrel of oil was 2.18 USD; on 01.01.1973, it was 2.59 USD; on 01.06.1973, it was 2.90 USD; on 01.10.1973, it was 3.01 USD; on 16.10.1973, it was 5.12 USD; on 01.01.1974, it was 11.65 USD; in 1977, it was 13.8 USD; in 1979, it was 18.1 USD; and in 1980, it became 33.0 USD. In year 1981, the yearly average crude oil price increased to 38.1 USD and in year 1986 it decreased to 15 USD. It has fluctuated between 15.2 and 23.6 USD in the period of 1987-1997, but in year 1998, it has decreased to 12 USD. The price in 2001 was 22.7 USD. In December 2003, price was 28.4 USD. Although in December of 2004, the oil price was 35.4 USD in August 2005, a barrel of oil (One barrel = 159 liters) has made a peak of 70 USD.

After the world oil shock, Turkey's cheap energy policy based on oil, bankrupted. In 1972, while the rate of oil and oil product importation was 10% of total importation of Turkey, this ratio was 20% in 1974, 21% in 1976,

30.5% in 1978, and raised into 47.1% in 1980. In years of 1978 and 1979, because of the scarcity of foreign currency, the importation of oil had been restricted and that caused stagnation in economy. The increase in oil invoice also caused the scarcity of foreign currency. That caused the international trade to return to bilateral agreement markets rather than free markets, which turned the international trade against the country. Since the external deficit, arising out of the foreign trade deficit, increased the demand of credit, there has been a high increase in the deposits convertible into foreign currency. The total of short term external debt in 1975 was 24%. However, after two years, it has doubled into 58%. The rise in the short term external debt also increased the inflationary pressure.

After the second half of the year 1970, the gap between the public income and public expenditure started to be recompensed with borrowing. While the Public Sector Borrowing Requirement/National Income (PSBR/GNP) rate was 2% between the years of 1972-1974, it was 6.6% in between years of 1974-1976, and rose to 9% between years of 1977-1979. The public deficit increased because of the budget deficit and Public Economic Enterprise (PEE) losses. While the PEE losses had been 52 billion Turkish Lira (TL) in 1978, after two years, the losses reached to 62 billion Turkish Lira. The burden of 1974 Cyprus Peace Operation had an important effect on the budget deficit. The arms embargo applied by USA to Turkey following the operation should also not be forgotten.

The bottleneck of energy and foreign currency that occurred in the second half of 1970s caused the decrease in production in industry sector. The Gross Domestic Product (GDP) and factor prices decreased in years of 1979 and 1980. The GDP which was 47.5 billion TL in 1978 decreased into 42.5 billion TL in year 1980. In addition to these negative developments, after the second half of 1970s, the inflation became higher and the foreign currency shortage increased. While, the wholesale product index was 52.6% in 1978, it has jumped into 63.9% in year 1979. After 1977, the foreign currency shortage created serious problems in economy, and with the words of back then Prime Minister Süleyman Demirel; Turkey became a country in need of "70 cents". The "70 cents" statement created a misunderstanding so it would be good to describe the situation in his words. In a letter Demirel wrote to Emin Çölaşan, he explained his words as:

The second misunderstanding is the issue of "Cent". The "70 Cents" issue is this: in year of 1977 in the season of hadj, 136 thousand people were given the opportunity to go to hadj. This number was one of the biggest numbers for many years. Even the country was experiencing many aforementioned problems, one of the fard (religious duty) worships the "hadj" opportunity had been provided to Turkish citizens. I should state that I really care about this issue. A duty befitting to the State has been performed. However, new requests kept on coming, especially the bus companies lead the requests. The answer we have given to those were: "Although our country is need of '70 cents', our State has spent 70 million for this service". Please appreciate it and do not request for more, this was an issue of wording, a style of statement. (Karluk, 2014, p. 516)

The 9th President Süleyman Demirel, in one of his press statements stated that "Presently, we are not in need of 70 cents but one cent". In that matter, he made the following explanation:

The third misunderstanding is: the one Cent issue. Since its establishment one of the most important issues of Turkish Republic has been the balance of payments. The foreign currency income of Turkey is fatal. In that purpose Turkey will move towards the industrialization. The first condition of industrialization is electricity, the second condition is transportation, and the third condition is capital and technology. In 1965 Turkey's foreign currency income was 450 million USD, in year 2000 it is 45 billion USD. It is 100 times more. Nevertheless, the foreign currency need of Turkey could not be satisfied. Any country, satisfying its need for foreign currency with borrowing is in need of one cent. This is what it has been tried to be told. (Kumcu & Pamuk, 2001, p. 122)

In year 1977, the Convertible Deposits (CP) could not have been paid and in year of 1978 the foreign debt increased to 4.8 billion USD, 1.4 billion USD portion of the foreign debt was CP and 1.5 billion USD part of it was the debts arising out of the imported goods. Following the year 1970, the price stabilization deteriorated and the yearly inflation passed over 18%. As a result of general deterioration in economy, in April 1978 and March 1979, the governments have put two similar stabilization programs in force. To be successful in implementation of the stabilization programs, the foreign support was a necessary, so International Monetary Foundation's (IMF) support was needed. In order to realize that, a letter of intent had to be submitted to IMF and a stand-by arrangement with IMF had to be organized. The stand-by arrangement is defined as an agreement by some authors. However, the right wording is "arrangement". Although the stand-by arrangement is a contract, in which the Member State signs and accepts the conditions of the found, based on international law, it is not an agreement (Karluk, 2014, p. 565).

In order to have an approval of the IMF stand-by arrangement, the country should submit a letter of intent to the IMF, which is a covenant, including an economic program with series of measures that will be taken. To facilitate that, several meetings with IMF teams of three to four members take place for one to three weeks and the program is prepared. Following that, signed by the Head of Central Bank and Minister of Finance of the country, the letter of intent is sent to IMF administration.

If IMF Executive Board approves the letter of intent, the country will be financed. In practice, the letter of intent is prepared by IMF administration and then the country's government approves it. The countries which submit letter of intent to IMF, accept to open their economic policies to the review of IMF, they also guarantee to not to act against the goals set forth in the letter of intent and approve that their economies are periodically audited by IMF technical teams.

The financing that is provided with the stand-by arrangement covers a period of 12-18 months of support of economic program. In order to have the financing, the country should prepare a stabilization program. The program includes the following: The liberalization of prices, freeze of wages, a significant (a high rate) devaluation, tax reform, equal budget, restriction in public spending, privatization of State Owned Enterprises to decrease the number of employees, etc. There is an important message in approval of the loan of IMF which is that the country's program is confirmed and western banks can provide loans to the country with thrust.

There is a quota called Special Drawing Rights (SDR) of each member state in IMF (Karluk, 2013, p. 818). Financing is provided to each Member State based on their quota and the strength of their program. Since the program approved by IMF disciplines the economy, it is impossible for the country to apply a free economic policy. However, as a result of the domestic pressure, the countries deviate from the IMF policies. In that case, IMF cancels the arrangement and the issue gets more complicated. The success of the country that declares the stabilization program depends on the implementation of the program by making no concessions (Alkan & Bahçekapili, 1998, pp. 48-61). Joseph Stiglitz who is the consultant of USA Presidents has made the following statement when he came to Istanbul in 2004 "Being in a very close relationship with IMF is dangerous, the farther your relationship with IMF, the better your relationship is" (Karluk, 2014, p. 573).

Before 1980, the target of stabilization decisions taken in years of 1978 and 1979 was to provide the foreign balance. Thus, the reason of economic recession intensifying after the second half of 1970s was the deficit in the payment balance arising out of the foreign currency scarcity. The other targets were reduction of inflation and recovering of losses of State Owned Economic Enterprises (SOEE). As a result of the decisions taken, the Turkish Lira devaluated against USD at a rate of 23% in year 1978 and 28.6% in year of 1979.

These decisions include the following measures: a high rate of increase in SOEE product prices, bringing restrictions to the emissions increase, restriction of imports, support of exports; bringing discipline to the public spending, increase of interest rates, the decrease of development speed by decreasing the investment spending, narrowing the capacity of agricultural product support purchasing, ending the CP implementation; and bringing restrictions to the increase in wages of employees and in prices. If these measures were applied successfully, 640 million USD would be loaned for 1978 Program and 1.8 billion USD would be loaned for 1979 Program and the foreign balance would be realized.

The 1979 and 1978 Stabilization Decisions could not have been implemented persistently because of the political instability in Turkey. As a result, only a few foreign credits have been used. The wages and payment could not be restricted, the public spending could not be reduced, increase in tax revenues could not be realized and the budget deficit could not be closed. In addition, the high supportive prices were financed by Central Bank. That fueled the inflation and the inflation raised above 80% in December 1979. While the prices were increasing, as result of the scarcity of foreign currency, the imports were restricted. The energy shortage caused the usage capacity in industrial sector below 50% (Boratav, Keyder, & Pamuk, 1984, pp. 15-25; Boratav, 2010, pp. 1-28).

In September 1977, March 1978, and June 1979, a high rate of devaluation has been made. The currency guaranteed in Convertible Deposits was cancelled. Also in order to increase the foreign currency savings, restriction to the foreign trips has been applied. The total foreign debt especially the short term foreign debts increased with the effect of non-guaranteed commercial debts against goods. The inflation and payment balance deficit has become the highest in Republican history. In summary, the implementation of the 1978 and 1979 dated Stabilization Decisions has not been successful because of the conditions of that period and their lack of any integrity (Kuruç vd., 1987, pp. 1-266; Parasiz, 1998, pp. 1-73; Akalin, 2002, pp. 1-71).

The letter of intent prepared by Ziya Müezzinoğlu, the Finance Minister of Bülent Ecevit government in 1979, could not be implemented as a result of resignation of Ecevit government on 16th October 1979. On 30th of June 1979 dated letter of intent, Turkey was requesting a new supporting arrangement. In the letter, it was emphasized that: in the past, the crises occurred because of the implementation of mistaken economic policies. It was also stated that, the internal savings would be increased, the pricing policy of SOEE would be more elastic and the public investment would be shifted to more critical areas. In addition, it was stated that an extensive tax reform would be implemented and arising out of the increasing debt service load, the difference between import and export might increase.

In the letter, it was explained that, the advance payments of Central Bank had been restricted to some level, the number of public officers and workers had been frozen, savings in SOEE had been applied. Also it has been emphasized that in order to reduce the internal demand, the raises had been kept high to restore the balance of credits and savings, the banking interest rates had been increased by 5.5 points. It is also stated that the payment of debts would be made without delay to build the trust and if the measures taken by the government would not be satisfying, additional measures would be taken and consultation of the IMF would be requested for this purpose. As a result of these commitments in July of 1979, Turkey got 256 million SDR financing from IMF.

The commitments in the letter of intent was submitted to IMF on 2nd of June 1980, which was prepared by Ismet Sezgin, the Finance Minister of the government of Süleymen Demirel minority government obtained a vote of confidence in the Parliament on 25 November 1979 were; the difference between the speed of inflation

and the speed of inflation of the countries which Turkey is in trade relations, would be recovered with devaluation, the increase of costs of public spending would be reflected in prices, the number of state officers would not be increased more than 3%, the increase in state officers salary would not be more than 47%. Also it was stated that an agreement on the issue of Central Bank credits and internal assets size would be made with IMF. Turkey, on the date of 18th June 1980, has signed a new arrangement which was 1.250 SDR in value for three years. The IMF arrangement supporting the 24 January Decisions continued until 1983. In year of 1985, the back then Prime Minister Turgut Özal had a meeting with IMF Director Jacques de Larosiere and stated that Turkey is not in need of any more support arrangements. Hence, Turkey had eluded its bindings to IMF for a period of 10 years. This situation continued until back then Prime Minister Tansu Çiller had a meeting with IMF Director Michel Camdessus (Ertuna, 2001, pp. 491-510; Turan, 2011, pp. 56-80; Eğilmez & Kumcu, 2013, pp. 1-34).

#### 24th January 1980 Dated Economic Stabilization Decisions

In the beginning of 1980, Süleymen Demirel who established the minority government has appointed Turgut Özal as the Finance Minister to lead the economy with the full authority. With the leadership of Özal, a stabilization program called the 24th January Decisions which have dominant neo-liberal quality been prepared. The monetarism approach representatives of the neo-liberal opinion are Friedrich Augustvon Hayek and Milton Friedman. In this approach, the only way to prevent inflation is to control the supply of money. The implementations that should be performed are reduction of State interference in economy, implementation of market economy by not interfering to the supply demand balance, and leaving higher funds in the hands of private sector by decreasing the taxes.

The Decisions have been implemented until 12th September by Süleyman Demirel minority government and until December 1983 by the military government. On 13th December 1983, when Motherland Party which defends more liberalization in economy came to power, the architecture of 24th January decisions Turgut Özal, as also having the political power, kept on implementing the program with additional measures. The decisions with its additional measures put in effect later, have paved the way for Turkish economy to have an important place in the world presently. The stabilization decisions implemented before and after 24th January have the qualifications of both the heterodox and orthodox stabilization programs.

The program has long and short term targets. Its difference from the previous programs was that the program was a program of economic development targeting structural changes in economy, other than implementation of short term targets. The programs implemented before 1980 were having short term targets and include decisions not having liberal feature. In short term, it targeted the resolution of foreign debt payments, reduction of inflation speed, and increasing the development speed by prompting idle capacity. The long term target was narrowing the public sector and restricting the interference to markets.

The targets of the Decisions were integration of Turkish economy to global economy, reduction of State interference in economy, utilization of market economy, and validation of pricing mechanism. In line with this philosophy, removal of interference to goods and factor prices, increase of the effect of free market powers, narrowing the public sector and giving weight to private entrepreneurs, the liberation of imports, giving incentives to exports and foreign capital, procurement of price competition in economy, restriction of interference to markets, cancellation of foreign currency controls, and integration of the economy to global economy were targeted.

Together with the Decisions, the liberalized policies were started to be implemented, so import-substitution industrialization which had been applied has leaved and export-oriented industrialization policy has been adopted. A series of measures to remove the barriers of international expansion of economy have started to be implemented (Karluk, 2010, pp. 1-3).

After the 24th January Decisions, Turkey started to implement export-oriented industrialization policy. In that manner, the comparative advantages (Karluk, 1981, pp. 3-15; Çarikçi, 1983, pp. 1-9) were reviewed and the sectors of textile, construction, and light industry were chosen as the locomotive sectors. As a result of the decisions, the exports increased and the share of industrial goods increased in exports (Dibooglu & Kibritcioglu, 2004). With the realistic exchange rate, real interest, and liberal foreign policies, the imports increased to 5.7 billion USD in 1983, from 2.9 billion USD in 1980 (Karluk, 2014, p. 619). The share of imports in national income reached to 16% in 1987 from 3.4% in 1979. The imports reached to 10 billion USD in 1987 from 2.2 billion USD in 1979 (Tokgöz, 2001, p. 193).

As a result of the increase in imports and foreign currency income, the payment balance deficit narrowed, the foreign currency bottleneck widened, foreign capital, workers foreign currency, and tourism income increased. The foreign financing enabled with the new credits provided by the international markets. After the 1981 liberation, since the imports increased in a high speed, the foreign trade deficit increased. The energy shortage resolved and the rate of capacity used in economy increased. The prices, especially in the year of 1980, have rised to three digits in republic history and decreased after 1981. In the period between 1981 and 1987, the prices continued on yearly average of 30%. The criminal measures over the gold and foreign currency ended, the stock market developed and after 24th of January, all the tools of the money market gained its place in the economy.

On 1st of July 1980, the interest rates are liberalized. However, in July 1983, the system re-organized and the banks are regulated. After August 1983, Central Bank has been given the duties of controlling the deposit interest rates and designation of base interest rates. On 1st of May 1981, daily foreign exchange rate implementation has been started to be applied, the subvention on fertilizers, energy, and transportation has been removed, and agricultural support purchases were restricted. The base prices of agricultural products decreased to reduce the inflation pressure. As a result of this, internal terms of trade developed against the agriculture sector and the income portion of the farmers decreased.

On 30th July 1980, Capital Market Law came into force. In 1981, the Capital Market was established. In 1982, permission was granted to open a foreign currency account, within the period of 1983-1984, the foreign trade and foreign currency implementations were liberalized. In 1985, Central Bank public bond tender started, the stock market opened in 1986, Central Bank opened Interbank money market and in 1987 open market activities started (Uludağ & Serin, 1987, p. 146; Ekzen, 1984, p. 180; Şenses, 1981, p. 417). Against these positive developments, the growth rate was not enough, the unemployment increased, the role of the state in economy could not be reduced, the social injustice grew, the distribution of income deformed, the implementation of extra budgetary fund surged, the tax income of the state has not increased in line with growth rate, the budget deficit firstly decreased but then increased as a result, and the public deficit increased.

After 1980, the primary measures designated under the IMF stabilization program which was put in effect in three years were: the reduction of money supply and public spending, the liberation of interest rates, high devaluation of Turkish Lira, reduction of budget deficit, giving the right to increase of prices of its products to State Owned Enterprises to satisfy the demand in their products, reduction of subvention, the reduction of price

control, and implementation of measures to speed up the foreign capital investments. Also providing support to the industries of exports and continues support to the exports (tax and easiness in use of loans) were other measures designated in the stabilization program.

After the 24th January Decisions, the measures that minimize the State's place in economy were continued to be taken. The cigarette monopoly has been ended, privatization activities of the SOEE have been started, the laws of expropriation of mines annulled. In this context, the Pricing and Auditing Committee ended its activities and SOEEs were given the right to designate their product prices. The incentives to foreign capital investment were given, convenience for the transfer of profit was enabled and support was given to the foreign construction services. Tax returns, loans with low interests, the customs exemptions for producer exporters, and the incentives system for different sectors and exports were supported. However, the CP implementation was cancelled.

The period of 1981-1988 can be named as the first stage of liberation program of Turkey. In these years, the incentive policies for exports, the direct, and foreign currency exports subvention tools were used (Hakan, 2000, p. 44). The second stage has started with the freedom of capital inflow. The regime of foreign currency has been liberalized with the 32 numbered Decision given in 1989 as well as the movement of capital. Some of the economists interpreted this situation as opening the capital movement item of the payment balance to international finance capital's speculations (Yeldan, 2003, p. 2; Boratav, 2010, pp. 1-31).

After the 1980 Decisions, even Turkish economy has entered into a structural change phase; the Decisions could not accomplish a perfect success in needed stabilization of the economy, so in 1988, the economy faced a new crisis. However, this crisis was different from the ones before the year 1970. In the beginning of 1988, although the prices increased, the production decreased, while the real investments decreased, a tendency of investment occurred in sectors not subject to international trade, while the real wages decreased and the interest rates increased. In addition, the public deficit increased, current account deficit balance of payments had a surplus.

In the period of 1986-1988, the revival in economy is followed by a slowdown, which caused the crisis. The pricing of public products below their costs, increased the public deficit and that caused inflation. As a result, flight from the Turkish Lira has started. In order to prevent this situation, at the end of the year 1987, a high increase of the prices of products of SOEE had been made. As a result of decrease in the internal demand, the exports increased. Because of the increased interest rates, the costs increased. In order to recover the deficit in public, the public investments were restricted. This has negatively affected the private sector production and investment. The environment negatively affected the financial markets. The demand of foreign currency increased and flight from the Turkish Lira has started. The high valuation of TL increased the short term capital (hot money) inflow to the country with the liberalized capital movement.

#### Situation After 24th January: The 4th February Decisions

The development and change that have been realized with the 24th January Decisions have continued the general elections in 1987. With the effect of the elections, the public deficit increased, the balance in financial markets disrupted, the interest rates, and the foreign exchange difference increased. The foreign currency reserves decreased and the foreign debt became unpayable.

In this environment, on 4th of February 1988, the government has taken several Decisions to prevent the crisis. The implementation of transfer of foreign currency to the Central Bank by banks has started and the deposits interest was liberalized. In those years, when the interest rates were liberalized, the interest rate was 65%.

The race of interest rates continued for two to three days and the interest rates reached to 120%. By interfering to the one-year-deposit interest rate, it has been restricted to 85% and the crisis has been recovered by not giving too much damage to the system. In a sense, the interest crisis was beneficial to the Turkish economy to settle some of its balances. In the Decisions, reduction of inflation to 10% in three years was targeted. After the Decisions, the economy stagnated and inflation increased. At the end of the year 1988, inflation reached to 70% from 50%, the velocity of growth rate decreased to 1% from 9%, conversion to TL from foreign currency started and the velocity of foreign currency entries from abroad got higher. The foreign currency's open position in banking sector has started in those days.

The indicators related to the economy before and after the Decisions are as follows: January 1st, 1988: one USD was equal to 1.018 TL; January 29th, 1988: one USD was equal to 1.113 TL; February 10th, 1988: one USD was equal to 1.143 TL; January 1988, the average interest was 40%, the bank liberalized interest rate was 120%, Istanbul Stock Exchange Index was 3.62, the foreign currency reserve on 5th of February 1988 was 1.5 billion USD. The raise of interest rates to prevent the escape of hot money from the country reduced the production in the country. The stagnation in economy increased because the decrease in growth of agricultural sector is caused by the drought. The industrial production was stimulated with the increase in consumption expenditure with the raise given to wages and salary in the rate of 200%. As a result of these, in 1990, the growth rate became the highest in last 20 years. However, the stabilization program has not been implemented. While these were happening in the economy, because of the February 4th Decisions, Mother Land Party lost lots of votes in local elections, and the MP's popularity declined.

The monetary policies eased off because of the 1991 early election, the political instability (Kibritçioğlu, 2001, pp. 174-182) and the break out of 1990 Gulf Crisis. The early general election caused the expansion of support purchasing which has been applied only to 199 products, the increase of prices and wages of public workers, so the public deficit increased. As a result, the PSBR and GDP rates increased. The 1990 Gulf War initiated the withdrawal of deposits from the banks which caused a new crisis in banking sector. The pressure on the Central Bank amplified with the increasing spending early election. These developments disrupted the balance in economy and prepared the environment for the increase of foreign currency exchange and interest rates.

After 1984, the spending on war against terrorism in Southeastern Anatolia negatively affected the budget balance. Turkey financed the budget deficits by successfully applying the balance policy between foreign exchange rate and interest rate. However, at the end of 1983, when the interest rates were tried to be decreased, the interest rate and foreign exchange rate balance disrupted and economy got closed to a very big crisis. In 1994, when two credit rating agencies decreased the credit rating of Turkey, seven billion USD of hot money outflowed from Turkey. In this environment, the government put a new Stabilization Program into force in April 1994 (Karluk, 2014, p. 526).

#### **April 5th 1994 Stabilization Decisions**

Following the January 24th Decisions, the high real interest rates, the disruption of public balance, and the instability in economy and political structure caused new crisis in economy. The necessity of implementation of a new Stabilization Program occurred because of the increased public deficits, insufficiency of tax incomes to pay the debt services, and State's financing of its cash deficit by internal borrowing. In year 1994, the economy came under the pressure of important internal debt. It was the first time in Turkey's history that State was borrowing

more from the internal market to pay its foreign debts. In that year, the foreign debts converted to internal debts and internal debts were increasing while payments of the foreign debts were made. In year 1995, 241.5 Trillion TL internal debt interest had to be paid, because of the policy of intense internal borrowing to prevent the raise in foreign currency exchange and to recover the budget deficit during the year 1994. The total internal debt extended to 656 trillion TL, the rate of internal debts reached to 18% GDP.

The increase in interest rates caused the short term inflow of foreign hot money to the country. The appreciation of TL restrained the exports but facilitated the imports. As a result of this, in year 1993, the international trade deficit became 14 billion USD, while the current account deficit reached to 6.3 USD. In year 1993, first in Republic history, State's internal debt and its interest payments exceeded the total tax income. While these adverse developments were occurring in economy, during the period when Istanbul Stock Exchange (ISE) decreased its interest rates to increase its index, on the day of 13th January 1994, Moody's and in March 1994 Standard and Poor's (S&P) decreased Turkey's credit scoring to BA2 and BBB so, Turkey became a "risk bearing country for investment" from "investible country". In fact, Moody's, by decreasing the credit scoring of Turkey, ignited the fuse of the crisis (Yeldan, 1998, pp. 397-414). The very first credit score that S&P gave to Turkey in 1991 was BBB+. With that score, Turkey had exported a Yankee Bond to US market and became one of the countries of investment for USA insurance companies (Kargi, 2014, pp. 351-370; Çalişkan, 2002, pp. 53-66).

Against the movement that has started with the decrease of credit scoring by S&P and Moody's, the government tried to break the pyramid scheme of people who brings hot money to Turkey by controlling the interest rates. In addition, in order to decrease the budget deficit, the government applied a 5% stoppage income tax to the security income arising out of securities of Treasury. The Treasury tried to break the pyramid scheme of people earning money from securities; however it has not been successful (Karluk, 2014, pp. 507-542). Since ISE was not deep enough to attract the speculative capital market, before the 5th of April, the money was directed into foreign currency rather than stock. The government consolidated its debts to Central Bank and excessively used the Central Bank's sources. As a result, the situation got heavier. Although the Central Bank to balance the exchange rate, supplied foreign currency to the market, it has not been successful and the fluctuation and ambiguity in foreign currency market continued. In this environment 5th April 1994, dated Stabilization Decisions were taken. The targets of the Decisions were: reducing the inflation, increasing the velocity of exports, and establishing a sustainable economic and social progress by paying attention to the social balance. On one hand, the Decisions targeted the economic stabilization; on the other hand, they targeted the structural reforms to enable the sustainability of the stabilization (DPT, 1994).

The developments that lead to the Decisions were explained as follows in the introduction section of the Decisions: Following the 24th January 1980 dated Economic Stabilization Decisions, especially from the year of 1990, the high increase of public deficit, insufficiency of tax incomes to pay the debt services, State's financing of its cash deficit with internal borrowing, the foreign currency reserves melting down with the State's directing to external debts and State's use of Central Bank resources to recover the deficit lead to the necessity of implementation of a new Stabilization Program.

After 1990, the ratio of PSBR/GNP passed over 10%. The deficit especially aroused out of public current and transfer expenditures. In addition, for financing, the internal and external borrowing has been used. The increase of total debts also increased the yearly payments of principal and interests. The fast growing public deficit caused an increase in borrowing and internal interest rates.

The Decisions were neither purely heterodox nor perfectly orthodox. In the Decisions, the exchange rate has been chosen as anchor. In fact, choosing the exchange rate as an anchor leads to the failure of the stabilization program since it decreased the strength of competition which worsens the payment balance. The Decisions are parallel to the stabilization programs that have been implemented in other countries back then and have similarities to the programs implemented in Israel in year 1985. The economic policies that have been implemented in Israel between 1980 and 1981 caused the current deficit and over valuation of the Israel's currency (Kesbiç & Çevik, 2007, p. 106) as they have been in Latin American countries (Bruno, 1991). This situation, with the movement of capital, leads to a crisis, and Israel had to implement devaluation. Following the devaluation, the inflation rate became 500% yearly. Even there had been some improvement in current accounts and several foreign supports given (foremost from USA), capital outflow from Israel occurred.

Following the Decisions, although a support has been given to the agricultural product prices, it could not meet the velocity of the inflation so the farmers were damaged. The shrinkage of economic demand combined with the net active tax collected from the income tax and corporate income tax payers, caused the restriction of production in industrial institutions and that triggered the job cuts. As a result of these developments, shrinkage occurred in the real sector. The real sector shrinkage exceeded the shrinkage occurred in years of 1944 and 1949 and recession occurred. The discomfort index, which is calculated by adding inflation and unemployment number, reached to 158% rate and set a record among OECD countries. In 1994, with the increased inflation and unemployment, the discomfort index which is used to measure the performance of the economy, increased to 65.7% in 1993. The index was 57.2% in 1990, 66.5 % in 1990, and 69.4 % in 1992. Compared by 10 industrial countries of the world, Turkey became the very last in the list. The average discomfort index of these 10 countries is 11.2% and Turkey's index number was 14 times worse (OECD, 1995).

Examining the period of 1923-1994, the year of 1994 was the year of recession. This phenomenon was affected by the unrestricted public spending and undermining of the enhancement of the public income. The deviation from the inflation target caused the evaporation of the essence of the Decisions. Even with all the suffering, the targeted inflation was not met, so disturbance in society aroused. IMF requested the targeted inflation to be met since inflation was anchor of the support arrangement. The deviation for this target prevented the realization of other targets.

The measures could not prevent the demand for foreign currency, the structure of banking sector disrupted and three banks (Marmara Bank, TYT Bank, and Impex Bank) bankrupted. The Ekspres Bank changed hand, the rush to banks has been prevented by giving unlimited State guarantee on savings deposits. The government, in order to try to decrease the interest rates, borrowed money with very high interest rates (the highest of Republic history). The three months due Treasury bonds were exported with 50% (yearly compound interest 406%) net income. In year 1994, economy downsized to 6.1% (Karluk, 2014, p. 546). The created income decreased to 132 billion USD (2.184 USD per person) in 1994 from 173 billion USD (2.883 USD per person) in 1993.

In summary, the 5th April Decisions were more successful in financial markets and public economy. TL earned stabilization with the increased demand, the Treasury recovered its debts by internal borrowing. The internal borrowing interests decreased, the SOEE's financial structure improved with price increases and the money markets started to operate over again. The Decisions, although partially reached their targets, could not provide the structural changes and stabilization in economy (Toprak, 1996, pp.174-193). The 1994 crisis was the worst historical crisis in Republic history. Turkey exited from this crisis, by increasing its interest rates to three digits numbers from 80% and by undertaking the risks of all bank deposits in the banking system.

The crisis brought Turkey in a situation again in need of IMF. After 1985, there was no need for the IMF sources, however in year 1994, a new IMF support arrangement had to be made. In 1994, with the 4,050 numbered Law, an additional budget of 100 trillion TL put into effect, the consolidated budget converted to transfer and current expenditure budget, the investment payments could not meet the amortizations, the public production investment decreased to minimum levels. The Decisions and arrangements were unsuccessful, so IMF declared Turkey as unsuccessful country in privatization (Türkan, 1996, pp. 230-236). Although the Decisions include extensive arrangements from short-term policy measures to structural reforms, with the effect of internal and external pressures, the letter of intent included government's aspirations. The 5th April Decisions which was tried to be implemented by back then Prime Minister Tansu Çiller, passed into history as a collection of unsuccessful measures, having populist predominance (Toprak, 1996, pp. 174-193).

#### The Conclusion

Even it is hard to prevent the effect of global crisis, in Turkish economy, since 1946, in order to prevent the crisis, importance was especially given to the payments balance because, in Turkey and other liberal economies, most of the crises were foreign currency based crises (Dornbusch, Goldfajn, & Valdes, 1995, pp. 219-293; Öztürk, 2015, p. 433). In order to establish a healthy payment balance, the macroeconomic policies and short term capital movements should be regarded. In developing countries such as Turkey, the crises are caused by external imbalances. Prevention of this effect could be realized by changing the economic structure. Without any structural economic changes, it is inevitable to prevent the persistence of crises.

The year 1980 was a year of structural economic changes in Turkish economy. After this year, the globalization concept in global economy affected the Turkish economy as well as economies of other countries. The countries adopted liberal policies and started to give importance to the extroverted industrialization and liberalization policies. Since then, these policies have been continuing. In Turkish economy, from year 1946 to present, there have been foreign currency and payments crises, also financial and real sector crises. The stabilization decisions were taken to prevent the 1958, 1970, and 1980 crises. As a result of the frequent crises experienced after the year 1980, the accelerating inflation has been in the economic agenda of Turkey for a long period of time. In times of crises, with a few exceptions, the stabilization programs supported by IMF have been implemented. In order to implement the structural transformation and to overcome the crises occurred before year 1980, 24th January 1980 Decisions were taken.

One of the important indicators to measure the success of the stabilization decisions is the fluctuations in national income. The ratio of GNE to GDP fluctuated widely in the years that the decisions were implemented (Table 1). In the years of 1980-2000, there was an increase in GNE/GDP but in some other years, sudden declines were observed. This situation created the environment for crises. Since the 1980 Decisions, until today, although the GNE/GDP increased, a stabilized economic growth has not been realized. In this period, although the production structure changed against the agricultural sector, the targeted sector structure of GNE/GDP has not been realized. However, after 1980, the exports increased and an alteration has been realized in structure of exports in favor of industrial products. By the imports regime that has been put in implementation in 1984, the customs and consumption tax on most of the products were decreased. After 1980 in Turkish economy, the external debt increased and 20 billion USD debt stock in 1980 reached to 49 billion USD in 1990, 73 billion USD in 1995, 115 billion USD in 2000 and the maturity structure disrupted (Öztürk & Özyakişir, 2005).

Table 1
The Development of GNE/GDP in Years (1980-1995)

Years	The value of GNE (billion \$)	The rate of growth (%)	
1980	50.870	-2.8	_
1985	63.989	4.3	
1990	84.592	9.4	
1991	84.887	0.3	
1992	90.323	6.4	
1993	97.677	8.1	
1994	91.733	-6.1	
1995	99.028	8.1	

Source: DIE (2015a; 2015b; 2015c; 2015d), Turkey Statistics Yearbook, several issues; DTM (2015), The Turkish Economy from 1923 to Present.

Table 2
The Development in External Debt Stock (1984-1995)

Years	Total external debt (billion USD)	Medium and long term (%)	Short term (%)
1984	20.65	17.47	3.18
1990	49.03	39.53	1.79
1995	73.27	57.57	15.58

Source: DIE (2015a; 2015b; 2015c; 2015d), Turkey Statistics Yearbook, several issues.

During the international expansion of the economy, in order to straighten the defected areas, a central interference could be needed. In words of Yenal (1999, p. 164): "We may think of environments that a central interference is needed in situations that the liberal market wisdom fails". After 1990s, as a result of public internal and external borrowings and melted foreign currency reserves, new stabilization decisions were needed to be taken. The crises occurred in 1997 in Asia, 1998 in Russia together with the earthquake in 1999 August, Turkey faced new crises in 2000 November and 2001 February. The major determinant of these crises was the liquidity crisis in banking sector (Eroğlu & Aydin, 2015, p. 466).

In London, in 2009, Recep Tayyip Erdoğan, the Prime Minister of that period, in his speech having the topic of "The Global Crisis and Role of Turkey" at The Royal Institute of International Affairs, Chatham House, stated that "Some got disturbed when I have told that this crisis has passed tangent to Turkey. I insist on the same words. 'Passed tangent' does not mean unaffected. There is a friction, ablation margin, however it least affects us". However, stabilization could not be realized in economy. In last seven years, no economic crisis has been experienced in Turkey. The target of growth has been stated in 2016-2018 Medium Term Program. However, the target of growth with structural reforms in an environment of macroeconomic stability and reduced current deficit and inflation has not been realized yet.

By the 24th January Decisions, the Turkish economy has changed its shell. A door to provide integration of Turkish economy to global economy has been opened with a new economic policy of free market perspective which is based on profit maximization and competitive price policy. If the 24th January Decisions were not taken, it would not be possible to complete the integration with Customs Union in 1996 and the integration with European Union would not have been realized. Turkey has accomplished the international expansion in 1980. However, based on the fundamental macroeconomic indicators, Turkey has not been able to realize the desired

stabilization, and not been successful in reaching the goals of the stabilization programs. As expressed by Rodrik (1990), in his words "a premature liberalization" was realized with 24th January Decisions.

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## Comparison of Development of Housing Construction in Regions of Slovakia and Czech Republic

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Cities and municipalities are involved in the economic development of the whole country. One of the priorities of mayors is the usefulness of spatial disproportions of area as well as the structure and development of housing construction. They are natural canters of public and commercial services. The aim of the article is to determine if the geographic location of the region influences the number of new apartments with planning permission and completed apartments with a completion approval by using the methods of mathematical statistics "Analysis of variance". Meaning of the geographical location of the region as a factor, which influences the construction of apartments as well as regional differences in selected Central European countries, is subject of the conclusions of the paper.

*Keywords:* region, analysis of variance, planning permission, completion approval, development of housing, Kruskal-Wallis test

#### **Development of Housing in Slovakia and Czech Republic**

Now, it is possible to observe the increase of the population who has problem with providing private housing in houses or apartments, in the countries of Central Europe. Housing is one of the basic human needs that should be met at the level corresponding to the overall level of socio-economic development of society. The quality of housing and its availability are often perceived as evaluation indicators of living standards of society. In conditions of market economy, responsibility for finding their own housing is transferred to the citizens. The availability of housing is directly proportional to the economic possibilities of the individual (Petráková, 2015a; 2015b). Basic subjects, which have an impact on housing development by its scope, are the state, municipalities, higher territorial units, private sector, non-governmental sector, and the citizens themselves (O'keefe, 2012; Petráková, 2015a; 2015b). Development of housing in Slovakia is reflected to:

- citizen, who has the primary responsibility to obtain their own housing in a market economy. He is the main user of the housing stock;
  - the private sector and non-governmental sector, for example, institutions of the financial market, investors,

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engineering and design organizations, construction companies, NGOs, and the population are involved mainly in the financing of housing development, land development and technical infrastructure, housing construction, management and renewal of housing stock, and providing other services related to housing;

- the scope of municipalities and higher territorial units, which are directed especially to the creation of spatial conditions for housing development within the territorial development of settlements. Under the current legislative framework, municipalities procure, among other things, concept of the development of individual areas of community life, co-operate in the formation of suitable living conditions in the village and provide, and approve programs of housing development of the village. The coordination and provision of land and technical facilities for the construction and the improving the management of public housing funds related to the above competencies of municipalities (Beck, Demirgue-Kunt, & Levine, 2005);
- the scope of law, which is focused especially on the coordination of support measures from the state and improving support tools for housing development, as well as the transformation of the legislative framework under the market economy conditions. The role of the state, in addition to the legislative framework, is an earmarking adequate fund for the development of housing in the state budget (CFO, 2013).

#### Development of Housing in Regions of Slovakia and Czech Republic in 2011-2014

Government housing policy deals with relations between subjects and processes related to meeting the needs of housing (Habánik, Hošták, & Kútik, 2013). Housing policy is also a combination of economic, social, legal, and technical context of housing, and it is directly related to the economic conditions of the country. The basic criterion for the housing policy success is to ensure long-term availability of housing for all social groups, because in the present phase of development of the society, only some are able to pay the cost of new construction of own resources (Mukwasi & Seymour, 2012).

For comparison in construction and particularly in numbers of started and completed apartments between countries, regions with similar geographic, demographic, social, and economic conditions were selected. And they are neighbouring regions, which are divided by the only state border, which can be seen in Figure 1. Basic survey characteristics are the number of started apartments (apartments with a planning permission) and the number of completed apartments (apartments with a completion approval) to the region. These data in the monitored period 2011-2014 are shown in Table 1.

The development of the number of apartments with a completion approval in selected regions of Slovakia shows that the total number of completed apartments is 22,731 for the monitored period 2011-2014, and the average number of completed apartments is 1,894 per year and region. The development of the number of apartments with a completion approval in selected regions of the Czech Republic shows that the total number of completed apartments is 27,529 for the monitored period 2011-2014, and the average number of completed apartments is 2,294 per year and region.

Comparison of the development of the number of apartments with a completion approval between the regions of the Slovakia and Czech Republic shows that, in the region of Czech Republic, 400 more apartments are annually completed than in the region in the Slovak Republic for the period 2011-2014. Comparison of the number of dwellings with planning permission between regions in the countries shows that, in the region of the Czech Republic, an average of 350 more apartments are started to be built than that of the region in the Slovak Republic, for the period 2011-2014. The positive is that the differences in residential construction will be slowly reduced.

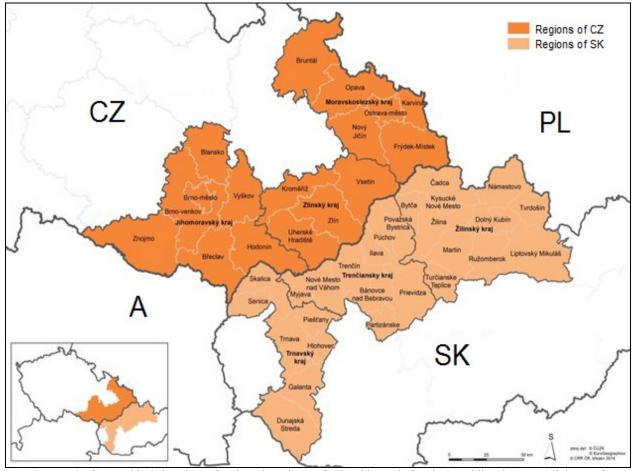


Figure 1. Geographical location of selected regions of Slovakia and Czech Republic. Source: Ministry of RegionalDevelopment of Czech Republic.

Table 1 Housing Construction in Selected Regions of Slovakia and Czech Republic

Selected regions of Slovakia and Czech Republic		Monitored period 2011-2014									
			2011		2012		2013		2014		Sum
una C	zeen republic	PP	CA	PP	CA	PP	CA	PP	CA	PP	CA
	Trnava	1,890	2,614	1,887	2,403	2,204	2,334	2,452	2,334	8,433	9,685
SR	Trenčín	1,229	1,227	1,496	1,469	1,701	1,490	1,396	1,643	5,822	5,829
	Žilina	1,849	1,908	1,805	1,673	1,525	1,682	1,999	1,954	7,178	7,217
	South-Moravian	3,380	3,608	3,008	3,770	2,807	3,516	3,650	3,242	12,845	14,136
CZ	Zlín	1,128	1,090	1,145	1,137	854	792	941	806	4,068	3,825
	Moravian-Silezian	2,711	2,523	2,074	2,698	2,062	2,404	1,931	1,943	8,778	9,568

*Notes.* PP—planning permission, CA—completion approval, SK—Slovakia, CZ—Czech Republic (Statistical Office of the Slovakia, 2016; Statistical Office of the Czech Republic, 2016).

Figure 2 shows that in the South Moravian Region, the highest average annual number of completed apartment is 3,534. In the Zlín Region, the average annual number of apartments is 957. The ratio of number of completed apartments between these regions is 3.5. This fact is even more interesting that this is a neighbouring

region in the Czech Republic. It may be explained by the geographic location of the South Moravian Region, which is attractive to young people, especially the proximity of the capitols of Austria and the Slovak Republic—Bratislava and Vienna. Other negative of the Zlín Region in the structure of housing construction is a linear downward trend in the number of started flats in the years of 2011-2014.



Figure 2. Development of the average number of planning permissions and completion approvals in selected regions of CZ and SK for the monitored period 2011-2014.

The number of apartments in selected regions of Slovakia, started, or completed, is steadily balanced slightly increasing linear trend in each region. On one hand, Trnava region has the highest number of apartments in selected regions. On the other hand, Trencin region, as the only region among the selected regions of Slovakia, has the highest annual increase of completed apartments each year.

#### Comparison of Development of Housing Construction in Selected Regions of Slovakia and Czech Republic With Using of Mathematical Statistics Method "Analysis of Variance"

By using statistical methods and tools, it was investigated that if the average (mean) number of apartments with a planning permission and with a completion approval in individual regions affects or does not affect the factor of geo-economic situation of the region. The quantitative method "analysis of variance" was used. For analysis of variance, parametric or non-parametric test was determined (Lajčin, Sláviková, & Frankovský, 2015; Betáková, Lorko, & Dvorský, 2014). In applying the method analysis of variance, analytics software STATGRAPHICS Centurion XVII was used, considering to the complexity of the numerical calculations of individual tests (Statgraphics Centurion XVII, 2016).

Table 2

Basic Statistical Characteristics of Housing

т с	BSC	Selected regions in Slovak and Czech Republic						
Type of apartment		Trnava region (TT)	Trenčín region (TN)	Žilina region (ZA)	South Moravian region (B)	Zlín region (Z)	Moravian-Silezian region (T)	
G.4	μ	2421	1457	1804	3534	956	2392	
CA	$\sigma^2$	133	172	148	221	182	322	
DD	μ	2108	1456	1795	3211	1017	2195	
PP	$\sigma^2$	273	197	198	377	143	350	

Notes. PP—planning permission, CA—completion approval.

For the calculation by parametric tests, two basic conditions had to be met—the resulting p-value of the homoscedasticity test (i.e. sameness of the variances of the apartments between monitored years) and from the test to verify the normality of groups of apartments according to its structure, it must be higher than chosen significance level 0.05. Data required for the analysis of variance are given in Table 2. These are the basic statistical characteristics of the number of apartments with the completion approval (BSC):

 $\mu$ —the average number of apartments in the relevant region for the monitored period 2011-2014;

 $\sigma$ —the standard deviation number of apartments in the relevant region for the monitored period 2011-2014.

#### Application of the Method "Analysis of Variance" Apartments With Completion Approval in Selected Regions in Slovakia and Czech Republic

Investment companies and non-governmental sector can decide the time and the completion approval procedures for the residential buildings due to the sale and purchase capacity of the region and the attractiveness of the area. Development of the number of apartments with completion approval due to the geo-economic situation and the competitiveness of regions can affect the factor. For the use of parametric test of average numbers of apartments with a completion approval in the individual regions of the Slovak Republic, following conditions are met:

- (1) Homoskedasticity was met. The resulting *p*-value by Cochran's test was 0.263.
- (2) Normality of the number of apartments with planning permission was met. In one group of companies, the *p*-value was less than a chosen significance level of 0.05. Kolmogorov-Smirnov test found following values: *p*-value of TT region is 0.851; *p*-value of TN region is 0.918; *p*-value of ZA region is 0.874; *p*-value of B region is 0.991; *p*-value of Z region is 0.878; *p*-value of T region is 0.941.

Table 3

Analysis of the Multiplicity Variance of Flats With AD by Using Parametric F-test

Variance by CA	The sum of squares	Df	Mean squares	F-ratio	<i>p</i> -value
Variance between regions of SR	1.62 E7	5	3.2427 E6		
Variance in the regions of SR	766,215	18	42,567.5	76.18	0.0011
Total variance	1.6979 E7	23		, 0.10	0.0011

Table 3 shows that the resultant *p*-value from analysis of variance of the number of completed apartments by the *F*-test is 0.0011. Value is less than a chosen significance level of 0.05. It can be confirmed that there are statistically significant differences between the variance of multiplicity of apartments and CA in individual selected regions of Slovakia and Czech Republic at 95.0% confidence level. The average values of the numbers of apartments with CA depend on the individual regions in Slovakia or Czech Republic.

The correctness of arguments is confirmed also by graphical analysis of the number of completed apartments in selected regions of SR and CZ by multipoint graph in Figure 3. The number of apartments with completion approval in Box-Whisker chart is in the scale of 1:1,000 apartments. It implies that the South Moravian Region has a significantly higher number of completed apartments with CA, followed by Trnava Region and Moravian-Silesian Region.

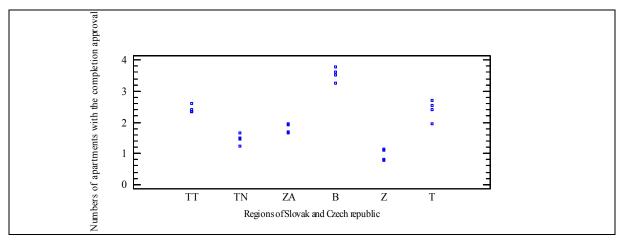


Figure 3. Comparison of regions with number of apartments with a completion approval using a scatter graph.

#### Application of the Method "Analysis of Variance" of Apartments With Planning Permission in Selected Regions in Slovakia and Czech Republic

For stable development in matters of housing structure and the strategy of its development, it is equally important to know the number of apartments with planning permission respectively, apartments which were started to be built. A comparison of the number of apartments which were started to be built, with the construction in selected regions of the Slovakia and Czech Republic, is the subject of the next section. For the use of parametric tests of average numbers of apartments with a completion approval in individual regions of Slovakia, the following conditions were not met:

- (1) Homoskedasticity was met. The resultant p-value by using Cochran's test was 0.652.
- (2) Normality of the number of apartments with planning permission was not met. In one group of companies, the *p*-value was less than a chosen significance level of 0.05. Kolmogorov-Smirnov test found following values: *p*-value of TT region is 0.044; *p*-value of TN region is 0.998; *p*-value of ZA region is 0.930; *p*-value of B region is 0.995; *p*-value of Z region is 0.908; *p*-value of T region is 0.595.

Non-parametric two-choice Kruskal-Wallis test of median number of apartments with planning permission by selected regions of Slovakia and Czech Republic was subsequently made.

The results of non-parametric Kruskal-Wallis test of the method "Analysis of variance" shown in table 4 show that the calculated *p*-value of the number of apartments with planning permission is less than 0.05. Based on these results, it can be said that there are statistically significant differences between the median frequency of apartments and completion approval in different regions of SR and CZ at 95.0% confidence level.

Table 4

Analysis of Variance of Numbers of Apartments With PP Using Kruskal-Wallis Test

	Selected regions in Slovak and Czech republic							
Kruskal-Wallis test	Trnava region (TT)	Trenčín region (TN)	Žilina region (ZA)	South Moravian region (B)	Zlín region (Z)	Moravian-Silezi an region (T)		
Numbers of groups	4	4	4	4	4	4		
The median number of apartments with PP	15.5	6.75	11	22.5	2.5	16.75		
<i>p</i> -value	0.0008							

The correctness of the arguments is also confirmed by graphical analysis of the number of completed apartments in selected regions of Slovakia and Czech Republic by using the graph of deviations from the mean frequency of apartments with PP in Figure 4. It implies that the variation of the number of buildings in regions CZ PP is significantly higher than the variation from the number of apartments in the regions of PP SK in the years 2011-2014.

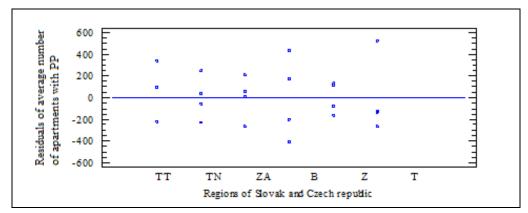


Figure 4. Comparison of deviations from the mean number of apartments with PP in selected regions of SR and CZ.

#### Conclusion

The results of comparison of the number of apartments between regions of the Czech Republic and Slovakia using the methods of mathematical statistics "Analysis of variance" make it clear that the differences between selected regions are significant. The differences between the Slovak and the Czech Republic are among the more than quarter of a century, since the split of the common state, is notable not only in economic, demographic, and cultural spheres, but also in terms of construction. This fact is boosted also in the construction and impacts are particularly felt by people living in east regions of Europe. They feel in the quality of housing, life, employment, as well as other social aspects. It can be seen that the differences in construction, started, or completed apartments are between countries, mainly variance of their annual frequency. Given the calculated basic statistical characteristics such as standard deviation, in the regions of Slovakia, the construction is more consistent than in the regions of the Czech Republic. One of the aims of the program INNTEREG V-A between CZ and SR is the continuity and development of the regions in the construction in the number of completed apartments and gradually reducing the differences in construction between regions. This is not possible without communication at all levels of government and public administration, along with investors and non-governmental sector, especially in terms of financing. To improve the facts and suggestion of preventive measures in the field of housing construction in cities and villages, an extension of competence is necessary despite the lack of funds for their performance, because at present it remains that funding from the European structural and investment funds are the primary means for financing the development of towns and villages, not only in the Slovak Republic, but also in the Czech Republic.

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#### State Policy on the Environment in Vietnamese Handicraft Villages

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Handicraft villages play an important role in promoting social and economic development in rural areas as well as Vietnam's economy. Nowadays, Vietnam's handicrafts have a foothold in the world market, and are exported over 163 countries and territories (Tuan, 2010). However, the production activities of the handicraft village have a lot of shortcomings, especially the problem of environmental pollution (Chi, 2010). Therefore, government policy plays a very important role to minimize environmental pollution villages, contributing to improving environmental quality and public health. This paper focuses on: 1). Current status of state policy environment in handicraft villages shows the achievements and limitations of the policy, from which reviews state policy in environments in handicraft villages (through fieldwork in the handicraft villages); and 2). Solution to improve state policy on environmental protection in handicraft villages in Vietnam.

Keywords: craft village, state policy, environmental policy

#### Introduction

Craft village handicrafts play an important role in the economic development of the local society and Vietnamese economy. Now, there are about 3,000 villages, including the village handicrafts accounted for nearly 40%, attract about 13 million workers and 1.4 million households engaged in manufacturing. Vietnam's rural population accounts for over 70% of the villages (Huong, 2010). That has seen really important role in attracting more jobs, maintaining stable lives, and reating higher income levels from two to four times agricultural laborers. More particularly, arts and crafts are group created huge value-added, effective high socio-economic. Although the crafts villages have a positive contribution to exports, the restructuring of the rural economy, as well as many social and economic benefits others, however, the crafts village today still have many difficulties, not to promote their potential. To develop handicraft villages in Vietnam in terms of international economic integration, businesses and individual households can not be effectively implemented for production and business activities in villages required high community. Moreover, the village is vulnerable subjects, and should be protected in this integration process. Therefore, government policies (The Ministry of Agriculture and Rural Development, 2007) have an important role for the overall development of villages and handicraft villages in particular and the improvement of state policy on the development of handicraft villages of Vietnam is essential and practical significance. Moreover, the production activities of the handicraft village have a lot of shortcomings, especially the problem of environmental pollution. Therefore, government policy

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plays a very important role to minimize environmental pollution villages, contributing to improving environmental quality and public health.

Overall objective of this article is to improve public policy on environment for developing Vietnamese handicrafts village. Specific objectives: (1) Assessment of the status of state policy on environment for the development of handicraft villages in Vietnam. Thereby, it indicates the achievements, limitations, and their causes; and (2) Recommend perspective, solutions to improve environmental policies to develop handicraft village Vietnam.

#### **Research Methods**

The content on research focused mainly on evaluating and improving the content of the policy of the state (topic does not studied in depth the policy process), and also paid attention to the conditions for a system of policies promoting the beneficial effects for the development of handicraft villages in Vietnam. Many policies affect the development of craft villages such as: policy on planned villages, products in villages; policy on investment and credit; policy on science and technology; policy on human resources; and policy on trade, in which environmental policies are studied in detail.

Space and object surveys: surveying handicrafts villages in the provinces/cities mainly in the North. Surveying some sectors/products such as handicrafts typical: (1) ceramic art; (2) art wood; (3) lacquer; (4) rattan; (5) silk; (6) embroidery; (7) carved stone; and (8) metal casting. The survey (for production facilities) was conducted for businesses operating in the village handicrafts and was selected by random form. The number of surveys is full of information and used in the study was 106 (n = 106).

Study period: focusing on the state policy on the development of handicraft villages in Vietnam in the period from 2000 to present and forecasts to 2020.

#### Research Methodology

- Data collection method: The topic used a combination of methods to collect secondary data and primary research methods of quantitative and qualitative research methods to get the information.
- Processing methods, data analysis: This topic has used statistical techniques, econometrics, and SPSS software applications to process data collected.

#### **Research Results**

Policy on investment in infrastructure and processing environment are specified through documents such as: The Decree No. 80/2006/ND dated 9/8/2006 of the government expressed regulations and guidelines for implementation of some articles of the Law on Environmental Protection. Decision No. 277/2006/QD-TTg dated 11/12/2006 of the Prime Minister approved the "National target program on clean water and rural sanitation in the 2006-2010 period". Decision No. 13/2009/QD-TTg dated 21/01/2009 of the Prime Minister expressed the use of investment credit capital for development investment to continue to implement the program on solidification of canals, roads development rural, infrastructure for aquaculture, and infrastructure in rural villages in the period of 2009-2015. Joint Circular No. 31/2009/BCT-BTNMT TTLT of Industry and Trade Ministry and the Ministry of Natural Resources and Environment to guide the coordination between the Department of Trade and Department of Natural Resources and Environment to implement state management of environmental protection in the areas of trade. Decision 1216 /QD-TTg dated 05/9/2012 approved the "Strategic national environmental protection until 2020 and vision to 2030" (The Government, 2011)...

#### Based on Recognizable Content, the Text of the Policy

Some basic content about environment handicraft villages is focused on studies and surveys as shown in Table 1:

Table 1
Review the Knowledge Content of Policy on Environment

Contents		Percentage of firms interested or know the contents (%)		
	Yes	No		
1. Financial support and technology transfer waste treatment, solve environmental pollution villages	70.75	29.25		
2. Support application of new technologies, new materials, pollution control technology	65.09	34.91		
3. Support investment, infrastructure construction and environmental remediation villages	72.64	27.36		
4. Funding support for science and technology in order to reduce environmental pollution	70.19	29.81		
5. Technological innovation and application of techniques to minimize environmental pollution	74.91	25.09		
6. Communication and education, raise awareness about the environment in the village	83.02	16.98		

Source: Result of survey.

In general, enterprises have known and understood the contents related to environmental policy for handicrafts villages but it is not high (proportion of about 72%).

#### **Based on the Criteria for Evaluating Policies**

Based on the criteria for evaluating policies, environmental policies are assessed as follows (Table 2):

Table 2

Evaluating Policy on Environment

				Statistics			
		Transparency of policy	Relevant of policy	Consistency of policy	Stability of policy	Effectiveness of policy	Efficiency of policy
N	Valid	106	106	106	106	106	106
Mean		3.78	3.81	3.22	2.83	2.82	2.85
Std. De	eviation	0.926	0.782	0.926	0.878	0.924	0.766
Variano	ce	0.857	0.612	0.857	0.771	0.853	0.587

Source: Result of survey.

Transparency of policies: enterprises agree the transparency of government policy on the environment to develop handicrafts villages in nowaday (rate "agree" accounted for 44.3% and "totally agree" accounted for 21.7%). The average of evaluation point is 3.78. That suggests this is the achievement of public policy that should be promoted in the coming period.

Relevance of the policy: the compatibility of policy methods can be judged by the extent to which policy can adapt to the change of market, technology, knowledge, social, political conditions, and environment. State policy of village environment is considered appropriate in the current period (average evaluation score 3.81).

Consistency of the policy: percentage of enterprises evaluates level of "neutral" and "agree" on the policy consistency of high percentage (35.8%). The assessment "disagree" on the consistency of policies is 19.8%. This is a relatively high proportion of "disagree" compared with other criteria. Average rating of 3.22 points shows that enterprises evaluate the state policy on environment in current is handicrafts village, which is consistency (over 70%). So, this is the criterion that the state should pay attention, complete more in the future to enhance the role of the policy.

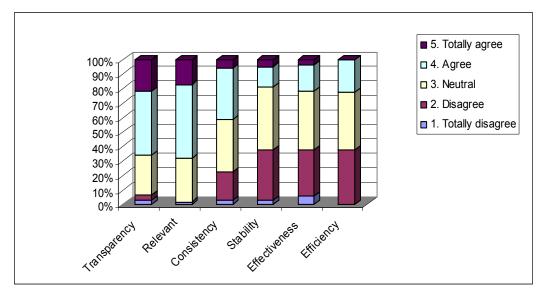


Figure 1. Chart evaluating policy on environment.

Other criteria assessed at below average as:

- Stability of policies: the proportion of enterprises evaluating the stability of the state policy on the environment in the village handicrafts is not high (average score 2.83). This shows that instability is a limitation of current government policies.
- Effectiveness of the policy: enterprises evaluate the effectiveness of government policies on the environment in craft villages is 2.82.
- Efficiency of the policy: the average score is 2.85, the level of evaluation criteria is "disagree" accounted high with 37.7%; "neutral" accounted for 39.6%.

#### **Based on the Satisfication of Policy**

By evaluating the recognition content of policy and the participation of enterprises on policy, the general level of satisfaction for environmental policy is shown in detail in Table 3:

Table 3

Evaluating the Satisfication of Policy on Environment

Contents	Frequency	Percent	S	Statistics
1. Completely dissatisfied	1	0.9	Mean	2.7
2. Dissatisfied	44	41.5	Median	3
3. Neutral	46	43.4	Mode	3
4. Satisfied	15	14.2	Std. Deviation	0.716
5. Completely satisfied	0	0	Variance	0.513
Tong	106	100		

Source: Result of survey.

The general assessment of the level of satisfaction of environmental policy in Table 3 shows that the level of satisfaction of this policy is assessed at low level, with an average score of 2.7 (Mean 2.7). The percentage of "completely dissatisfied", "dissatisfied", or "normal" policy occupies quite high, about 85%; the number of enterprises that evaluating "satisfied" is low rate (approximately 14.2%). This suggests that policies on environment are not appreciated.

#### **Discussion and Conclusion**

General assessments of environmental policy on the development of Vietnamese handicrafts villages are as followings:

- Positive, progressive: First, the formulation and promulgation and enforcement of the legal documents, policies have created a legal framework for village activities and development. Second, the policy department in different areas has many practical solutions for the development of villages in protecting environment such as investment, credit, science and technology, human resources... Third, in the survey results, a number of respondent appreciated through each different criterion of policies.
- The limitations and weaknesses: First, the state's policy for villages is missing or incomplete. Second, the documents specified, the relevant procedural guidelines have not materialized forms; policy documents lack convincing, there are clearances. Third, a number of village development policies in different fields are problematic gaps. Fourth, some criteria have many limitations, not highly evaluated through surveys.
- The cause of the limitations and weaknesses includes policy itself and the conditions to ensure. The cause of the policy itself such as: support for scientific research and technological application of new technologies for the production of handicrafts villages are limited; the management, direction, and administration of environmental protection work in the village are inadequate; the system of legal documents on environmental protection for villages is lacking, inconsistent, and overlapping. Writing system, although is relatively slow, but progress is issued. The cause of the conditions includes: the staff build and implement organizational policies, the apparatus constructed and organized policy implementation, the resources for the formulation and implementation of policies, sanctions and measures to control the formulation, and implementation of policies.

So, the solutions to improve the policy on environment for the development of Vietnamese handicraft villages should focus on the following:

- Investment in infrastructure: Support development of the transport system in the village; support the development of communication systems; and support construction of water supply and drainage to protect environment in villages.
- Building, perfecting mechanisms, and policies to improve the efficiency of the state management of the environment: Needing a specialized department is responsible for inspecting the implementation of environmental protection, there are provisions sanctioned for businesses and households that produce violations of environmental protection laws.
- Organizing the long-term training focus for managers, technicians' environmental protection from the commune to the central level. Agencies and departments related to environmental pollution treatment villages coordinated implementation.
- Selecting technological and environmental equipment for the village to increase investment in science and technology development to environmental protection. Technological and environmental processing equipment advanced in the world should be models of environmental remediation for the villages that are located near populated areas from the state budget. On the application of technology, the ability to operate the equipment and funds to buy the materials need match the workers' earnings. For production facilities scattered, encouraging the adoption of technologies locally treated waste gas and waste water; applying the technology is easy to use and operate accordance with the level of knowledge of the people, the priority utilization and reuse of waste; and application of new materials in production.

• The other solution to ensure conditions to improve state policy on the development of Vietnamese handicrafts villages such as: (1) Solution of the policy makers and policy implementation: building a team of consultants, professional strategic thinking in the sector, the sector of economic life—society, from middle local level, agencies, and units; working arrangements in accordance with the qualifications, competence, and quality of staff; attracting intellectual resources in the formulation and implementation of policies; retraining and restructuring of staff policy towards improving quality, ensuring consistency, inheritance, and development; expanding co-operation and exchange of experience with a team of consultants strategic countries in the region and internationally; (2) Solutions to organize system construction and implementation of policies: creating active collaboration of the authorities from central to local levels; there should be coordination between the units and the organization of the state; needing the active participation of members in policy formulation; (3) Solutions to invest resources to construction and implement policy: aside adequate funds for the construction, implementation, and policy evaluation; increasing resources for the formulation and implementation of policies such as the cost of building infrastructure for the implementation of the policy; procurement of equipment, supplies, technical equipment, and other material costs; and (4) The sanctions and other measures.

In summary, on the basis of the situation of handicraft village in Vietnam, the article has selected the criteria for evaluating development policies handicrafts villages including: transparency of policy, relevant of policy, stability/sustainability of policy, consistency of policy, effectiveness of policy, and efficiency of policy. Also, the topic also evaluates envionmental policy based policy evaluation criteria and indicates achievements, limitations, and causes. Based on the status of the policy, the topic proposes solutions in order to improve envionmental policy in the development of Vietnamese handicraft villages, while providing the necessary conditions to improve the policy system.

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## Asymptotic Inefficiency of Incomplete Asset Markets and Symmetric Event Trees

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Demonstrating theoretically the possibility that the financial market, albeit incomplete, has equilibrium and that this equilibrium is efficient and has been an important topic at the frontier of the research on general equilibrium for financial markets. The paper examines the asymptotic properties of incomplete financial markets taking into accounting the asset structure. The paper deals with a case in which a structure of securities relates to the asymptotic inefficiency.

Keywords: asymptotic inefficiency, incomplete market, general equilibrium with financial assets, event tree

#### Introduction

It seems that the efficient equilibrium in incomplete markets is a contradiction in itself. But it is not so. In fact, in certain contexts, it can be shown that even incomplete financial market may result in equilibrium superior than if the same market has more assets. Superior in the sense is that the utilities of the involved agents are higher than the utilities of the same agents in the case with more assets. This paper proposes to make a critical survey of the literature on general equilibrium with incomplete financial markets that discuss in which condition it is possible to demonstrate the asymptotic properties. In particular, it examines whether each equilibrium that ensues with additions of securities is or is not constrained Pareto optimum (CPO). The constrained optimality analysis runs into the difficulty that it is hard to proceed sensibly without tackling the difficult problem of the determination of the asset structure. With incomplete markets, the asset structures matter. The paper offers and solves an example where a structure of Arrow securities relates to the asymptotic inefficiency.

For this, the paper is organized into three sections, besides the introduction. The first one, a research contest one, discusses the idea of asymptotic inefficiency. The next section, discussion one, argues that the fact that symmetrical two-stage trees generate asymptotic inefficiency it has already been demonstrated in the literature (Mas-Collell, Whinston, & Green, 1995, p. 712). Nevertheless, the example identifies a particular asset structure that generates this kind of inefficiency in the context. Since in this example, the financial market without securities can be better in terms of welfare, then the condition of efficiency in a restricted set of feasible

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choices can be achieved here. This weakly notion of optimality is the CPO. Finally, the conclusion section shows the importance of this result to the literature of general equilibrium in incomplete markets, arguing that even if still incomplete market can present optimal welfare properties when considering certain date-event trees for models with two individuals and Arrow securities. A gap is shown in the literature in this direction.

#### **Research Contest**

#### **Definitions**

The main difficulty with the approach is finding a suitable definition of a feasible allocation. Therefore, the present task is to characterize the set of all consumption allocation that can be achieved using existing markets and to investigate whether or not Radner equilibrium (Radner, 1972) is CPO, i.e., Pareto optimal relative to this set. Therefore, it needs a precise description of the constrained feasible set and of the corresponding notion of CPO. There are some proposed solutions. Mas-Collell et al. (1995, p. 711) discussed the definition of this set in the context where there is a single commodity per state. Hart (1975) confined his attention to a subset of the set of all feasible consumption allocations, the subset of competitive equilibria achieved with the same endowment streams. These streams are restricted so that it is possible to move from the original endowment streams to the new endowment streams by redistributing date 1 endowments and reallocating date 1 securities. It is called weakly optimal whether one of these feasible consumptions is not Pareto-dominated by another feasible consumption allocation.

Hart (1975) offered a famous example of the suboptimality of equilibrium in an exchange economy with incomplete markets that last for two periods, where there are two consumers and where there is no uncertainty. Two goods are available in each period. The model assumes that both consumers have the same expectation, and that these expectations turn out to be correct. Inside two Edgeworth boxes, he identified, in each one, the endowments points and analyses four equilibrium points. None of them will be Pareto optimal, however, he showed that one of them is optimal in a weaker sense, that is, Pareto optimal is relative to all allocations that can be achieved by using the existing markets. So in this pioneer essay, Hart (1975) showed by formal model equilibria in incomplete market that even in this weaker sense it is not generally optimal since it may be Pareto-dominated by another, both within the set of feasible allocation. In other words, when markets are incomplete, equilibrium may be Pareto-dominated by another allocation that can be achieved using the same markets. It often occurs in incomplete financial markets however the market structure is complicated.

## **Asymptotic Inefficiency**

The same author asserts that there is no reason to expect an equilibrium in incomplete market to be even weakly optimal, unless restrictions are imposed in consumers' utility function and endowments. However, the main result obtained by Hart (1975) is what can be deduced from his analysis of the consequences of opening new markets in an incomplete market context. He considered what happens if a new security becomes available at date 1 or date 2. Although the intuition tells that this ought to improve the situation in some sense, Hart (1975) found an example where this is not the case. Each consumer is worse off after the new market has been opened. The author works with two consumers and two specific consumers' utility functions. He arrived at a result that if it applies to an exchange economy situation where there are no transaction costs.

The optimality analysis of equilibria in the incomplete markets economy leads to curious results. In a model in which the set of possible estates of the world is finite, an expanding set of security will, at some finite

stage, already comprise a complete set. Of course, in this case, it can be sure that a pattern of asymptotic efficiency or asymptotic convergence to an equilibrium situation is occurring that is Pareto optimum when the market is completed. However, in a security market in which uncertainty is described by a countable infinite set of possible states of nature, it is possible that the pattern is the asymptotic inefficiency. If the set of possible states of the world is infinite, the security markets are incomplete remain incomplete at the time. In this case, regardless of the number of securities offered in the market, some wealth patterns cannot be realized as the return on a portfolio of available securities, and equilibrium allocations usually will not be Pareto optimal however it adds more securities. Therefore, there may be a gap between equilibrium and Pareto optimality. It is natural to suppose that this gap would be small if the set of available securities was nearly complete, and would disappear entirely when the number of security is sufficiently large. Notwithstanding, this supposition is wrong in many cases. In fact, all feasible allocation may remain bounded away from Pareto allocations as the number of securities grows. In this case, it has asymptotic inefficiency.

Asymptotic inefficiency far from representing a pathological situation is a typical situation. In the literature, Green and Spear (1987) provided the first example of this phenomenon. Zame (1988) was the first author that identifies a condition in a sequence of securities that is necessary and sufficient for asymptotic efficiency. However, the condition mentioned by him is very strict: every Arrow security should be uniformly approximated by the return on a finite portfolio of the given securities. In fact, most sequence of securities fails these conditions and asymptotic inefficiency is the typical situation. Zame (1990) offered a simple explanation for this recurrent phenomenon in incomplete markets: the requirement that future consumption patterns are non-negative places constraints on the set of portfolios that can be traded. If liabilities of a portfolio were so great that they exceed endowments, satisfying them would violate the requirement that consumption is non-negative and the portfolio cannot is traded. If such portfolios are required in order to implement Pareto optimal trades, feasible security market allocations may be inefficient and remain inefficient even as the set of available securities expands. Then the asymptotic inefficiency is demonstrated to be a typical case in incomplete financial markets.

Nevertheless, what is this phenomenon? This result clearly reflects the structure of assets that operates in these incomplete markets. However, what is that asset structure? Unfortunately for a non-mathematical economist, most of the mathematical proofs that follow in the literature are based on the use of differential topology. Magill and Shafer (1991, p. 1538) examined this question in terms of individual risk and aggregate risk. If there is no aggregate risk, if both agents face individual risk and if the agents have distinct preferences for the two goods, then a risk-sharing equilibrium cannot be obtained through a system of futures markets. If the asset structure generates risk then in equilibrium, the prices in the two states are linearly independent and the equilibrium exists. If the aggregate risk goes to zero, the prices become more and more collinear, so the agents have to trade more progressively to achieve a given transfer of income. In the limit, no equilibrium exists. In fact, it has absence of equilibria since the spot prices are not sufficiently variable across the states to permit the proper functioning of a system of futures markets. It is reasonable to imagine that the lack of equilibrium is associated with inefficiency. However, the paper's concern is with efficiency analysis between two or more possible equilibria. In general, a similar result can be demonstrated in this context: the asset

<sup>&</sup>lt;sup>1</sup> See Zame (1990). Zame argues that the possibility of default allows that some liabilities may be unsatisfied and this enlarge the set of portfolios that can actually de trade. For him this enlargement is oftentimes in precisely the right directions to lead to efficiency in the markets.

structure in the case of asymptotic inefficiency is such that it must generate no aggregate risk or certainty. Nevertheless, this result is just a particular case, since it has also asymptotic inefficiency for assets structure with aggregate risk.

Debreu (1959) was the first who proposed the interesting special case that occurs when the set of date-event consumption node can be represented as a tree. The event tree reflects the structure of assets traded in the financial market. Zame (1988) identified a condition that is necessary and sufficient for asymptotic efficiency: every Arrow security should be uniformly approximated by the return on a finite portfolio of the given securities. This condition must correspond to a sequence of securities that would be related to specific individual event trees. It is not known a priori how these specific trees would be, but it has been argued here that their combined effect should produce a situation in which there is aggregate risk, since in this case the equilibrium exists and the agents could get better off trading with assets. This is the case of asymptotic efficiency; a rare situation for incomplete markets. It is known that in incomplete markets, the structure of assets that produce asymptotic inefficiency must relate to combinations of individual event tree that would result in the absence of risk in the aggregate. What types of individual trees would be theirs since individual trees can be combined to eliminate the risk? A clear event tree that is candidate is the symmetrical ones. Imagining a game in which at least one of the participants always wins. In this case, there are individual risks, any participant may lose, but there is no collective risk, because someone wins. The purpose of the central theorem of this paper is to show a kind of asset structure applied to a symmetric event tree that produces no risk in the aggregated, if offers a specific and curious example of a kind of asset structure in a symmetric event tree that generates asymptotic inefficiency.

#### **Discussion**

It is argued that it is possible for the number of assets to increase while at the same time everybody becomes worse off at the new incomplete financial market equilibrium. Thus, a common case occurs when it has no aggregate risk. Symmetrical event trees naturally eliminate aggregate risk. Therefore, this is the case considered. Now, it will show a possible asset structure that produces this result through a simple example with just a two-consumer. Following treatment that appears in several essays in the literature on general equilibrium in financial markets, it considers a pure exchange model with simple date-event tree that contains only two periods. In an economy with this simple tree in which t = 0, t = 1, and t = 2, whether this date-event tree is symmetric, in the sense that it defines bellow, it will find one structure of assets that produces asymptotic inefficiency. Hence, it assumes that there are two goods  $1 \in \{1, 2\}$  (named goods 1 and 2) in each state. For each  $i \in \{1, 2\}$  and  $s \in \{1, 2, 3, 4\}$ , let  $\omega_s^i \in \mathbb{R}^2_{++}$  be the initial endowment of consumer i at state s. The existence of asymptotic inefficiency depends crucially on the characteristics of event trees associated with the problem. In the case of symmetric trees, it claims the existence of a specific structure of assets (not the only possible) that eliminates the aggregate risk. For this, it is constructed an economy that ends (at t = 2) with four states. It should explicitly assume that this economy has three dates t = 0, 1, 2. At t = 0, all four states are indistinguishable. At t = 1, the first two states s = 1, 2 and the second two states s = 3, 4 become two distinguishable sets. At t = 2, the uncertainty is completely removed. According to the conventional notation,  $T_0$  $= \{1, 2, 3, 4\}, T_1 = \{[1, 2], [3, 4]\}, \text{ and } T_2 = \{[1], [2], [3], [4]\}.$  Regarding the symmetric tree, in the first two states, the economy behaves according to any normal date-event tree; but in the other four states, the roles of two consumers are reversed.

This is just a matter of fixing up the necessary notation for all four states (Figures 1 and 2). For two goods  $l \in \{1, 2\}$ , two consumers  $i \in \{1, 2\}$ , and four states in t = 2,  $s \in \{1, 2, 3, 4\}$ . Figures 1 and 2 show the corresponding four date-event trees. The symmetrical two stage data event tree can be constructed in terms of the individual endowments at t = 2, so it has a formal definition.

Definition 1, taking into account the endowments of consumers at t = 2, defines symmetrical two stage data-event tree as an event-tree where, for  $\omega_{(ls)i}$ ,  $\omega_{(11)1} = \omega_{(13)2}$ ,  $\omega_{(21)1} = \omega_{(23)2}$ ,  $\omega_{(12)1} = \omega_{(14)2}$ , and  $\omega_{(22)1} = \omega_{(24)2}$ ;  $\omega_{(13)1} = \omega_{(11)2}$ ,  $\omega_{(23)1} = \omega_{(21)2}$ ,  $\omega_{(14)1} = \omega_{(12)2}$ , and  $\omega_{(24)1} = \omega_{(22)2}$ .

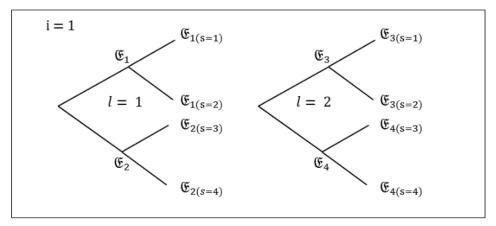


Figure 1. Four data-event trees. Consumer 1. Goods 1 and 2.

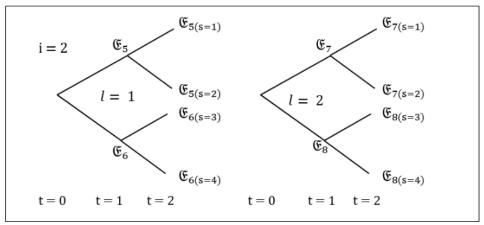


Figure 2. Four data-event trees. Consumer 2. Goods 1 and 2.

Therefore, the endowment on the node  $\mathfrak{E}_{6(s=3)}$  equals the endowment on the node  $\mathfrak{E}_{1(s=1)}$ ; the endowment on the node  $\mathfrak{E}_{8(s=4)}$  equals the endowment on the node  $\mathfrak{E}_{3(s=1)}$ ; the endowment on the node  $\mathfrak{E}_{8(s=4)}$  equals the endowment on the node  $\mathfrak{E}_{3(s=2)}$ . Moreover, the endowment on the node  $\mathfrak{E}_{2(s=3)}$  equals the endowment on the node  $\mathfrak{E}_{3(s=2)}$ . Moreover, the endowment on the node  $\mathfrak{E}_{2(s=3)}$  equals the endowment on the node  $\mathfrak{E}_{7(s=1)}$ ; the endowment on the node  $\mathfrak{E}_{3(s=2)}$  equals the endowment on the node  $\mathfrak{E}_{3(s=2)}$ ; the endowment on the node  $\mathfrak{E}_{3(s=2)}$  equals the endowment on the node  $\mathfrak{E}_{3(s=2)}$ . These assumptions imply that there is no aggregate uncertainty when considering both individuals. The only uncertainty on the endowment for goods 1 and 2 is simply a swapping between the two consumers across the two states, and on aggregate, there is no uncertainty on this endowment. Then for a simple economy with only two periods and three stages in the event tree, it

proposes a type asset structure that produces the absence of aggregate uncertainty. First, it needs to find an asset structure to symmetric date-event trees even simpler, with just a single period and two final states of nature. Therefore, it has another formal definition:

Definition 2, taking into account the endowments of consumers at t = 1, defines symmetrical one stage data-event tree as an event-tree where, for  $\omega_{(ls)i}$ ,  $\omega_{(11)1} = \omega_{(12)2}$ , and  $\omega_{(12)1} = \omega_{(11)2}$ , for contingent commodity 1, and  $\omega_{(21)1} = \omega_{(22)1}$ ,  $\omega_{(21)2} = \omega_{(22)2}$  for contingent commodity 2.

It can explain the meaning of this new definition using four diagrams for the two consumers and two contingent commodities. Let 1 be the good in question and let s be the state of nature, and i represents the consumer. As showed in Figure 3, for i = 1, it has in node  $\mathfrak{E}_1$ , i = 1, and s = 1; in node  $\mathfrak{E}_2$ , i = 1 and i = 1; and in node  $\mathfrak{E}_3$ , i = 1 and i = 1; and in node  $\mathfrak{E}_4$ , i = 1 and i = 1. Hence, it has four initial endowments  $\mathfrak{A}_{(ls)i}$ :  $\mathfrak{A}_{(11)1}$ ,  $\mathfrak{A}_{(12)1}$ ,  $\mathfrak{A}_{(21)1}$ , and  $\mathfrak{A}_{(22)1}$ .

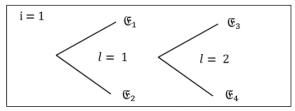


Figure 3. One stage event trees. Consumer 1. Goods 1 and 2.

In Figure 4, for i = 2, it has in node  $\mathfrak{E}_5$ , l = 1, and s = 1; in node  $\mathfrak{E}_6$ , l = 1 and s = 2; in node  $\mathfrak{E}_7$ , l = 2 and s = 1; and in node  $\mathfrak{E}_8$ , l = 2 and s = 2. Hence, it has four initial endowments  $\omega_{(ls)i}$ :  $\omega_{(11)2}$ ,  $\omega_{(12)2}$ ,  $\omega_{(21)2}$ , and  $\omega_{(22)2}$ .

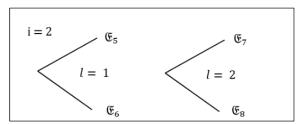


Figure 4. One stage event trees. Consumer 2. Goods 1 and 2.

It assumes that  $\mathfrak{E}_1 = \mathfrak{E}_6$ ,  $\mathfrak{E}_2 = \mathfrak{E}_5$ , that is the event-tree that is symmetrical to the first good, in this case, the uncertainty on the endowment for commodity 1 is simply a swapping between the two consumers across the two states; and it assumes that  $\mathfrak{E}_3 = \mathfrak{E}_4$ ,  $\mathfrak{E}_7 = \mathfrak{E}_8$ , i.e. there is no uncertainty on the endowment for commodity 2. Naturally, these assumptions imply that there is no aggregate uncertainty. Since there is no aggregate uncertainty concerning the situation of both individuals in the state t = 1, even for the good 1 given the symmetry of the event tree, it has a fixed endowment for each good  $x_i$  and a total endowment of these goods expressed in fixed vector  $\overline{\omega} = (x_I, x_2)$ . So let the total endowment vector be  $\overline{\omega}$ . The only doubt is about the initial distribution of  $x_{Ii}$  between two consumers (remembering that there is no uncertainly on the endowment for good 2).

It shall show that in this one-stage tree, a specific type of asset structure result in uncertainty is in the aggregate. For that, it considers Arrow securities contingent first good commodities. It has, therefore, two Arrow securities, one for each consumer. These assets promise to pay the difference between the endowment associated with the state s and the endowment ascribed to the convex combination:  $z_{si}^{**} = [\alpha \omega_{(11)i} + (1 - \omega_{(11)i})]$ 

 $\alpha)\omega_{(12)i}$ ] –  $\omega_{(1s)i}$ . This is simply the deviation of the initial endowment of consumer i for good 1 in state s from the convex combination. The Arrow securities ensures that consumers receive at the end the endowment of convex combination associated with good 1 regardless of what is the state of nature s.

Noting that  $z_{1i}^{**} + z_{2i}^{**} = \left[\alpha\omega_{(11)i} + (1-\alpha)\omega_{(12)i}\right] - \omega_{(11)i} + \left[\alpha\omega_{(11)i} + (1-\alpha)\omega_{(12)i}\right] - \omega_{(12)i} = (2\alpha - 1)\left(\omega_{(11)i} - \omega_{(12)i}\right)$ . Taking into account that for symmetric date-event tree  $\omega_{(11)1} = \omega_{(12)2}$ ,  $\omega_{(12)1} = \omega_{(11)2}$ , and so  $\omega_{(12)i} = \omega_{(11)j}$ ,  $i \neq j$ , it has  $z_{1i}^{**} + z_{2i}^{**} = (2\alpha - 1)\left(\omega_{(11)i} - \omega_{(11)j}\right)$ . If both consumers have the same endowment regarding good 1 on state 1,  $\omega_{(11)j} = \omega_{(11)i}$  and  $z_{1i}^{**} + z_{2i}^{**} = 0$  for  $i = \{1, 2\}$ . Moreover, it has  $z_{s1}^{**} + z_{s2}^{**} = 0$  for each  $s \in \{1, 2\}$ , since  $z_{s1}^{**} + z_{s2}^{**} = \left[\alpha\omega_{(11)1} + (1-\alpha)\omega_{(12)1}\right] - \omega_{(1s)1} + \left[\alpha\omega_{(11)2} + (1-\alpha)\omega_{(12)2}\right] - \omega_{(1s)2} = \omega_{(12)1} + \omega_{(12)2} - \omega_{(1s)1} - \omega_{(1s)2}$  because  $\omega_{(11)1} = \omega_{122}$ , and  $\omega_{121} = \omega_{121}$ , that is evidently null if s = 2, and for s = 1, it is zero because again, it uses  $\omega(11)1 = \omega_{122}$  and  $\omega_{121} = \omega_{121}$ .

It knows from literature that the symmetrical one-stage event tree generates asymptotic inefficiency for this assets structure.<sup>2</sup> Now it is demonstrated that both Arrow securities are consistent with this phenomenon. Therefore, with them the sum of the utilities at the market equilibrium with Arrow security is smaller than the sum of the utilities at market equilibrium without this security. For symmetrical one-stage event tree, it argues that, in the simple case with only two states of nature, introducing two assets reduces the sum of utilities to each consumer and to both consumers jointly considered, i.e., produces asymptotic inefficiency.

It now considers the case of a date-event tree for two periods and four states of nature like those of Figures 1 and 2 (two goods). Therefore, it now turns to the case with four states of nature. For two periods' date-event tree, it should also specify the asset structure to be introduced as follows: At t = 0, there is no asset transaction allowed. At t = 1 and event  $\{1, 2\}$ , the Arrow securities for the first two states s = 1, 2 are traded. At t = 1 and event  $\{1, 2\}$ , the Arrow securities for the second two states, s = 3, 4 are traded. Define  $(z_{si}^{**}): z_{31}^{**} = z_{12}^{**}, z_{41}^{**} =$  $z_{22}^{**}, z_{32}^{**} = z_{11}^{**}, z_{42}^{**} = z_{21}^{**}$ , suppose that in the symmetrical two stages tree, there is only a single Arrow security that allows the transfer of wealth between two pairs of nodes in t = 1: from  $\mathfrak{E}_1$  and  $\mathfrak{E}_2$  to  $\mathfrak{E}_3$  and  $\mathfrak{E}_4$ , for consumer 1, and from  $\mathfrak{E}_5$  and  $\mathfrak{E}_6$  to  $\mathfrak{E}_7$  and  $\mathfrak{E}_8$ , for consumer 2. Suppose now that four new securities are introduced, one transfers the wealth from  $\mathfrak{E}_{1(s=1)}$  to  $\mathfrak{E}_{1(s=2)}$  and from  $\mathfrak{E}_{5(s=1)}$  to  $\mathfrak{E}_{5(s=2)}$ , other security transfers from  $\mathfrak{E}_{3(s=1)}$  to  $\mathfrak{E}_{3(s=2)}$  and from  $\mathfrak{E}_{7(s=1)}$  to  $\mathfrak{E}_{7(s=2)}$ , another security transfers the wealth from  $\mathfrak{E}_{2(s=3)}$  to  $\mathfrak{E}_{2(s=4)}$  and from  $\mathfrak{E}_{6(s=3)}$  to  $\mathfrak{E}_{6(s=4)}$ . Finally, another security transfers wealth from  $\mathfrak{E}_{4(s=3)}$  to  $\mathfrak{E}_{4(s=4)}$  and from  $\mathfrak{E}_{8(s=3)}$  to  $\mathfrak{E}_{8(s=4)}$ . The asset structure in which there is a single asset allowing a transfer of wealth from the first two states to the other two yields equilibrium that is better for every consumer than the equilibrium obtained if it adds four new assets, one allowing a transfer of wealth between states 1 and 2, other doing the same between states 3 and 4, another transferring wealth between states 5 and 6, and finally other transferring wealth between states 7 and 8. For symmetric two stages date-event tree, if the four Arrow securities are available for trade at t = 1, then it knows that for each of the two symmetrical branches on t = 1, each one of these four new securities worsens the utility level of each consumer in the respective branch of the tree in t = 2. Therefore, the eight nodes to introduce four new assets do not improve the welfare of each of the two consumers. So both consumers get worse off after the introduction of the four Arrow securities at t = 1. Therefore, also for two stages symmetric date-event tree, it has asymptotic inefficiency.

<sup>&</sup>lt;sup>2</sup> See Mas-Collell et al. (1995). Exercise 19.F.3.

## Conclusion

For incomplete markets, the Radner equilibrium not necessarily is a Pareto optimum. In the case of symmetrical trees, the equilibrium with more securities, although a Radner equilibrium, may be inferiored in terms of welfare. It is known that a complete financial market effectively reaches a Radner equilibrium with a Pareto optimum propriety; which means, among other things, the absence of bubbles. Notwithstanding, the result obtained here for the case of symmetric trees shows that some kinds of weakly efficiency could be found in incomplete market. Since the market is asymptotic inefficient, the equilibrium associated with one additional asset (in this case an Arrow security), with it exists, it is Pareto dominated by the previous equilibrium. So the equilibrium achieved by incomplete market is constrained Pareto optimum: the optimality refers to a set of allocations that can be achieved by more than one security. Noting that it does not analyze what happened when it expands the set of securities, i.e., the behavior of equilibrium allocations as the number of assets tends to infinity. Of course, when it completed the financial market, the equilibrium allocations converge to Pareto optimum allocation. Here, it discusses not the proof of financial equilibrium in incomplete markets, but the demonstration of welfare property of each equilibrium as the markets receive a new asset without ever completing, a different context. It remains difficult in demonstrating the equilibrium on financial markets still incomplete. Even when it proved the existence of equilibrium in incomplete financial markets, Paretian efficiency of this equilibrium is not supported, but rather by means of the assumption that the market is really complete. However, in some cases, equilibrium and even efficiency properties can be achieved even for incomplete financial markets. This is the case when you have particular event-trees, such as in the setting here examined for symmetric date-event trees. In short, for two or more agents, the occurrence of symmetrical date-event trees could generate the kind of certainty on aggregate that produces constrained optimum equilibrium, even if the market is incomplete. In short, it may be that the efficient equilibrium exists even for incomplete financial markets, when considering more than one agent, since the event tree has characteristics suitable to this. Of course, postulating the existence of exotic event-trees itself maybe a strong hypothesis, but it is worth investigating different types of trees (trees not just symmetrical as defined in this paper) among market participants for examining the optimal properties of the market. In this paper, it showed the important result that, for certain kinds of trees, the market with most assets produces in an inferior result in welfare, which leaves open the possibility that a Radner equilibrium that is efficiency in some sense, is reached even in incomplete markets. Therefore, it opens a broad avenue of new lines of inquiry to explore the possibility that equilibria that maximize the consumers' welfare in the financial market are achieved while the market is still incomplete (assuming that the market will never be completed). Since in the particular case where the distributional effects of trade are so biased to form symmetrical trees, it is established that with Arrow securities, it has asymptotic inefficiency.

When the date-event trees are symmetrical in the sense defined here, although the number of assets grows, everyone will get worse off in the new equilibrium. It is true that in incomplete markets, in general the Radner equilibrium is Pareto suboptimal, but in some situations, more assets may produce a less desirable outcome for those involved. Therefore, it can be demonstrated (for peculiar date-event trees) that in models of incomplete markets, the equilibrium could have optimum welfare properties. Zame (1988) demonstrated the conditions that must be met for the asymptotic convergence. Since then, it is known that the vast majority of incomplete markets present asymptotic inefficiency, but lacking, in the literature, a more detailed account of the type of

asset structure and corresponding event trees of the agents that produce certainty on aggregate and therefore asymptotic inefficiency. There still lacks a concrete case worked in detail to demonstrate the association between the absence of aggregate risk and asymptotic inefficiency without the use of an esoterically sophisticated tool as differential topology. A gap is shown in the literature in this direction.

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# Small and Medium Enterprises Environment—Case of Albania

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Small and Medium Enterprises (SMEs) play an important role in all economies and are key generators of employment, earnings, and economic growth stimulators. In Albania, small and medium enterprises represent 99.6 percent of all registered business entities and are the main source in providing employment. The aim of this study is to give a short description on the situation of the small and medium enterprises in Albania, giving more focus on the problem faced and the role of the Albanian government on this process. A descriptive analysis is carried out using secondary sources. This study will be a reference for any future study that will be focused on the identification and assessment of factors affecting the SME's performance and the examination of relationship between financial institutions and SMEs growth.

Keywords: role, SMEs growth, Albania

#### Introduction

Albania has entered a new phase of economic reforms for a better future and the prosperity of the country. The country's development is linked to the strengthening and enhancement of the private sector, which is one of the strongest pillars for ensuring the successful integration of Albania into the European Union.

Small and medium enterprises and financial institutions are vital contributors to the overall performance of an economy. SMEs play a crucial role in developing the economy and in creating employment. They not only provide employment and income opportunities to a large number of people, but also are at the forefront of technological innovations and export diversification. Similarly, financial institutions play an indispensable role in firm's growth and thus industry productivity and economic growth.

They provide a sound medium of exchange and facilitate trading; encourage mobilization of resources through savings; allocate resources to activities with the highest returns, monitor investments, and exert corporate governance; and spread risks by offering a diversity of financial instruments. Furthermore, they provide financial assistance to fulfill the varied needs of enterprises.

According to an OECD study on countries that belong to this group, SME's employees are more than half of the work force, meanwhile in European Union countries, they make up 99 percent of all enterprises. Furthermore, 99 percent of these enterprises in EU countries are micro-firms with less than 10 employees. In

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Albania, small and medium enterprises represent 99.6 percent of all registered business entities. In 2008, the SME sector provided 72.9 percent of the GDP and employed 71.4 percent of all active work forces. The SME's activities in Albania are focused in the local market and very few work in the export sector. The number of SMEs in Albania that have established joint ventures with foreign partners is minimal.

The term "SMEs" covers a wide range of definitions and measures, varying from country to country and between the sources reporting SME statistics. Although there is no universally agreed definition of SME, some of the commonly used criteria are the number of employees, value of assets, value of sales, and size of capital or turnover. However, the most common basis of defining SMEs is the number of employees (Nugent & Yhee, 2001).

This study is focused on the description of the SME environment in Albania and their role in economic activity.

#### **Definition of SME**

There is no international definition related to SME. Different country, economic sectors, and authors have usually given different definitions to small and medium enterprises. The most common criteria for the identification of an SME are: the number of employees, turnover level, balance sheet assets, and paid-up capital.

European Commission defines SMEs as enterprises which employ fewer than 250 persons and whose annual turnover does not exceed 43 million euro as shown in Table 1 (Commission Recommendation, 2003).

Table 1
SME Definition of the European Commission

Enterprises	No. of employees	Annual turnover	Annual balance sheet
Micro	1-9 employees	Up to 2,000,000 EUR	Up to 2,000,000 EUR
Small	10-49 employees	Up to 10,000,000 EUR	Up to 10,000,00 EUR
Medium	50-249 employees	Up to 50,000,000 EUR	Up to 43,000,000 EUR

In Albania, the identification of SME is regulated with the law No. 10,042, date 22.12.2008, article 4 "Amendment of the law No. 8,957, date 17.10.2002 for Small and Medium Enterprises". According to this law, the definition of SMEs is based on the number of the employees and the anual turnover as presented in Table 2:

Table 2 SME Definition According to the Albania's Legislation

Enterprises	No. of employees	Annual turnover
Micro	1-9 employees	Up to 10,000,000 ALL
Small	10-49 employees	10,000,001-50,000,000 ALL
Medium	50-249 employees	50,000,001-250,000,000 ALL

Source: Albania Legislation.

## **Environment of SME and Business in Albania**

According to "The global competitiveness report 2013-2014", Albania ranked in the 95th of 148 countries/economies. Albania has lost six places in the ranking since last year. Albania is classified in the group of countries that are in the second stage in development of competitiveness (also it is called "stage of economic efficiency incentives"). From 12 pillars taken in analyzed by GCR (Global Competitive Review), Albania ranked better in the health and primary education pillar (5.9 points), followed by macroeconomic environment (4.4 points), goods market efficiency pillar (4.1 points), and job market efficiency (4.3 points).

Referring to the three dimensions of the development (basic requirements, efficiency promoters, and factors of innovation and sophistication), Albania recorded the highest score in the first one with (4.2 points and ranked 94th. But, overall ranking of Albania has declined in all three dimensions and in most of the indicators and sub indicators.

The most problematic factors for doing business according to the report are: access to finance, tax rates, corruption, and tax regulation.

In the regional rankings, Montenegro is in the first place. Albania is ready equal with Bosnia and Herzegovina, leaving behind Serbia with sixpositions as depicted in Figure 1. After many years steady progress, Albania has shown decline in the ranking only last two years, from 2012 to 2013, which can be influenced from the impact of external factors (global economic crisis). One the one hand, increasing competitiveness of the economy in the recent years is due to the measures and reforms taken from the governments; on the other hand, in order to be more competitive, it required an emphasis on the innovation factors, technology developement, further improvement of the infrastructure, and consolidation of the institutions.

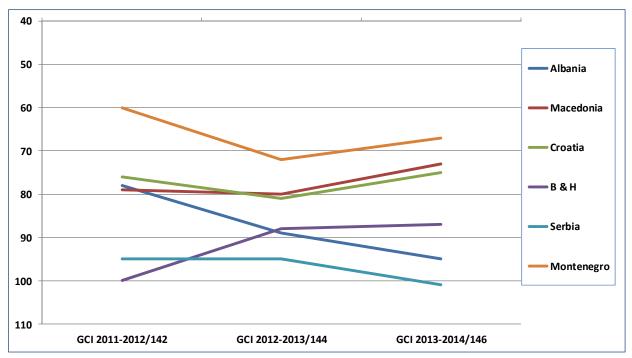


Figure 1. Western Balkan countries ranking according to the Competitiveness Report. Source: Doing Business database 2013.

#### The Economic Freedom Index

According to "The Economic Freedom Index 2014", which covers 10 freedoms—from property rights to entrepreneurship—among the 178 countries surveyed worldwide, Albania scored 66.9 points, ranked in the 54th place in world and in 25th place among 43 European countries. Albania is classified in the category of countries with moderate economic freedom over the global average (60.3).

Dimensions with the highest ranking of economic freedom remain "fiscal freedom" (92.7 points), followed by "commercial freedom" (87.5) and "monetary freedom" (80.0). Dimensions with lower ranking are the "property rights" (30.0) and "freedom from the corruption" (30.4). The report notes that significant structural

reforms have included trade liberalization, privatization, and modernization of the regulatory environment. The judiciary remains subject of the political interference and deep institutional reforms to eradicate corruption and to increase the independence of the judiciary remains critical to ensure greater economic freedom in Albania.

#### **Ease of Doing Business**

According to the World Bank "Doing Business 2013-2014", Albania is ranked in the 90th place out of 189 countries analyzed as depicted in Figure 2.

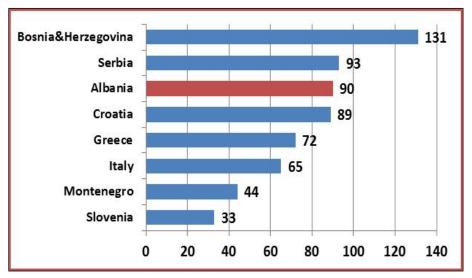


Figure 2. Doing business in the region. Source: Doing Business database 2013.

### **Economic Activity and the Dynamism of the Albanian SME**

In Albania, small and medium enterprises represent 99.6 percent of all registered business entities. In 2008, the SME sector provided 72.9 percent of the GDP and employed 71.4 percent of all active work forces.

The distinctive characteristic of SME's development in Albania is that services and trades sectors are dominated by micro-enterprises, while industry and construction sectors are dominated by medium enterprises.

Reffering to the information published from the Albania Statistical Institute, the number of active enterprises in the end of 2014 is 112,537. In comparison with the year of 2013, this number has increased with 1,454 active enterprises. The number of new enterprises in 2014 is 17,377 while in 2013 it was 12,131 enterprises. In 2014, enterprise birth rate is 15.4% from 10.9% in 2013.

Based on the structure of active enerprenuership in the year 2014, it is noticed that SMEs are mostly dominated by enterprises with one to four employed which constitutes about 90% of the total number of enterprises as shown in Figure 3. Most of them (69%) have only one self-employer/employee. Large enterprises with 50 and more employed represent in number (1.3%) of total active enterprises, but their contribution on employment is very sensitive (50%).

From the sectional perspective, for the year 2014, the SME sector was composed by producers of services in the level of 84.9% (trade; transport and storage; accommodation and food services activities; information and communication; and other services) and only 15.1% from the producers of goods (agriculture, forestry and fishing; industry; and construction) (This information is depicted in Figure 4.). The service provider's domination is a common situation in all the regions.

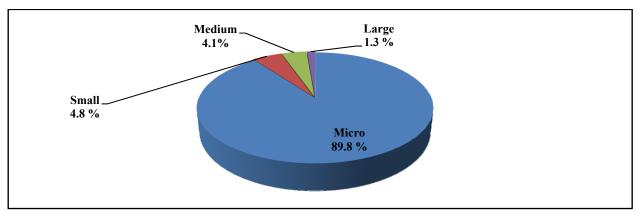


Figure 3. SMEs by size. Source: Business Register-INSTAT 2014.

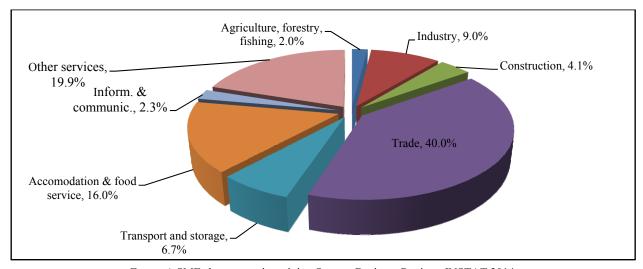


Figure 4. SMEs by economic activity. Source: Business Register-INSTAT 2014.

# **Coclusions**

Competitiveness of economy is affected by factors at enterprise level as well as overall environment on which the companies operate. The improvement of business environment and the minimization of informality in the business enterprise, coupled with strengthening of the financial sector, could be important elements in enhancing the competitiveness of the economy and provided a strong incentive for strengthening the SME's development.

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