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OF SLOVENIA AND MACEDONIA**

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**THE PRODUCTIVITY OF FIRMS IN TRANSITION: THE CASE
OF SLOVENIA AND MACEDONIA**

Abstract

In the paper we investigate how the chosen privatisation method affects the productivity of firms in the period after privatisation in two countries whose firms operated in a similar decentralised economy before privatisation based on the self-management of employees in socially-owned firms. In this context, the choice for internal privatisation model might be seen as the logical continuation of developing firm as an internal organisation. In both countries, artificially created external owners with wrong incentives represent big problem also five years after privatisation has been completed. On the other hand, Slovenia and Macedonia represent two countries that followed different reforming path in transition period. Despite their common ruts, the studied economies operated in varying stable environment. The analysis showed that in the case of Macedonia the average factor productivity was falling in the whole period compared to the year 1994. Moreover, the differences between firms that chose internal or external privatisation method became smaller. In the case of Slovenian firms the analysis did not point to any significant differences in total factor productivity between different group of firms or different years under study. It is clearly evident that the corporate governance issue remains one of the key problems in both countries, even after privatisation.

Journal of Economic Literature Classification Numbers: C23, D24, P52

1. INTRODUCTION

Internal ownership emerged as a parallel way of privatisation in many transitional countries. In some countries like Poland and Hungary, internally-owned firms have developed in a spontaneous process that began with decentralised socialist reforms. Internal ownership was enforced as a prevailing method of privatisation in Russia where they had no significant experience with a decentralised economy under communism. Analysts recognise this as a key reason for the Russian economy's slow transformation together with the low utilisation of production capacities, property theft, cash-flow exploitation for personal purposes and the development of mafia and clan management (Frydman *et al.*, 1996, Brown, Earle, 2000, Kuznetsov, Muravyev, 2001)².

Unlike Russia and other countries of the former Soviet Union, the Yugoslav socialist system experimented with different forms of a decentralised economy, based on the self-management of employees in socially-owned firms. After the 1960s, the Yugoslavs allowed considerable enterprise autonomy and decentralised decision-making accompanied by export incentives for firms, great reliance on Western technology and the establishment of significant joint-venture partnerships with Western firms. In the area of enterprise policies and regulations, one could observe a sudden convergence of the centrally planned and decentralised systems³. A study of productivity in the 1975-1979 period showed that the problems of Yugoslav self-

² Other empirical studies of firm behaviour in transition countries mostly stress the advantages of external, especially foreign, over internal ownership (Estrin, 2001).

³ For more on this, see Prasnikar, Svejnar (1988).

managed firms might stem more from the misallocation of resources than productive inefficiency (Prasnikar, Svejnar, Klinedinst, 1992).

The possibility to take advantage of the internal organisation⁴ based on the already achieved market orientation of firms after the disintegration of former Yugoslavia has stimulated policy-makers in the newly emerging states to offer various models of internal privatisation as possible ways of transforming social capital. In Slovenia and Macedonia, two new states emerging after the disintegration of former Yugoslavia and which relatively successfully avoided war and took their first steps towards a market economy and private property at the beginning of the nineties, internal buy-outs of firms became the most widely used method of privatisation.⁵ In Slovenia, most firms chose internal buy-out as the method of privatisation. However, the privatisation legislation compulsorily prescribed the combination of voucher and buy-out privatisation. Besides internal, external ownership was also formed represented by authorised investment and state funds as the most important groups of

⁴ Bajt stressed that employees were the true economic owners of Yugoslav firms. Social property was in a legal sense the property of everyone and no one. In an economic sense, the property and its operating results (*usus fructus*) was managed and disposed of by the employees (Bajt, 1992).

⁵ Employees in some other states of former Yugoslavia also enjoyed a favourable position in the privatisation process. In the Federal Republic of Yugoslavia, the Act on Ownership Transformation (1997) permitted firms to distribute for free 60% of the shares to employees, former employees and pensioners (Babic, 2001). In Croatia, the Privatisation Law passed in 1992 and revised two years later offered special discounts to employees and retired workers. The data on ownership structures in 2000 reveal that 36% of firms' shares are on average owned by internal owners (Cuckovic, 2001). In Bosnia and Herzegovina, the privatisation process was designed separately in both entities of the Federation of BiH and Republika Srpska. In both, the focus was mostly on voucher privatisation. With few exceptions, workers received no special treatment. (Prasnikar et al, 2001)

external owners.⁶ In Macedonia, the prevailing internal ownership resulted from experimenting with different privatisation models after no strategic buyers for the majority of big and middle-sized firms were found. If the policy-makers wanted to get rid of the responsibility for their operation, they were forced to carry out internal buy-outs of firms.

In the paper we investigate how the chosen internal buy-out approach as the prevalent privatisation method affects the productivity of firms in the post-privatisation period. Our study contributes to the existing literature on firms' performances in transition in at least three ways. First, in the paper the productivity of internally- and externally-owned firms is compared in the two countries whose firms operated in a similar decentralised economy before privatisation. In those circumstances, the choice of an internal privatisation model might have depended on the advantages of the evolutionary development and formation of the firm as an internal organisation. A firm that successfully operated in a competitive environment before privatisation might have chosen the internal buy-out method of privatisation to avoid any shocks caused by privatisation to external owners. Moreover, the decision for external ownership has not automatically been followed by a firm's more efficient operation. Stiglitz (1999) argued that the long agency chains implicit in mass privatisation are unlikely to stimulate appropriate corporate governance. Our analysis of the 130 biggest Slovenian firms in the 1994-1998 period confirms exactly this

⁶ The 1992 Privatisation Law allocated 20 percent of a firm's shares to insiders (workers), 20 percent to the Development Fund that auctioned the shares off to authorised investment funds, 10 percent to the National Pension Fund, and 10 percent to the Restitution Fund. In addition, in each enterprise the workers' council or board of directors (if one existed) was empowered to allocate the remaining 40% of company shares for sale to insiders (workers) or outsiders (through a public tender). Based on the decision on the allocation of this remaining 40 percent of shares, firms can be classified as being privatised to insiders (the internal method) or outsiders (the external method). Externally owned firms are also the firms that chose some other form of privatisation that led to prevalent external ownership, like for example the sale of a firm or part of it to foreigners.

aspect of privatisation. Dispersed ownership and the erroneous incentives of external owners, authorised investment funds and state funds, introduced artificially by the Privatisation Law still represent problems in Slovenian firms five years after privatisation has been completed. (Gregorič, Prasnikar, Ribnikar, 2000). A similar problem, external owners with the wrong incentives, is evident in the case of subsidiary firms in Macedonia. Those “spin-off” firms are mostly owned by “parent” firms that were privatised internally. The extremely rich database of Macedonian firms allowed us to analyse the productivity of these firms relative to other groups of firms owned by other external and internal groups of owners.

Secondly, Macedonia and Slovenia have applied different reform policies in the post-privatisation period. Slovenia is one country to have successfully introduced Type I reforms (macroeconomic stabilisation, price liberalisation, reduction of direct subsidies, break-up of SOEs and the mono-bank system, adequate foreign trade and competition policies), but is still late in implementing Type II reforms including the establishment and enforcement of a market-oriented legal system and accompanying institutions and further (in-depth) development of a commercial banking sector and capital and labour market regulations. After the Privatisation Law was passed, Slovenia established a system of privatisation based on firms’ initiatives and the transparent operation of regulatory institutions (Privatisation Agency, Development Fund). Although some reforms were carried out too slowly, Slovenia in the past decade has successfully led a policy of establishing the necessary conditions for a small open economy’s development. On the contrary, the Macedonian transition path in the nineties could be described as a zigzag development. First, it took some time for the country to get over the shock of disintegration of former Yugoslavia. Then an extensive programme of stabilisation together with the World Bank and the IMF was

prepared. In the meanwhile, the Macedonian government introduced several market reforms but they were not carried out consistently. For example, in the studied 1994-1999 period the strategy of privatisation was changed several times leading to a lack of transparency and poor examination of the process. Some firms were split up, some simply disappeared and many others operated at a loss. Commercial banks that should have started the process of getting rid of bad loans simply continued the “unhealthy” policy of giving loans to firms in trouble. Thus, banks remained the most important source of soft budget constraints (Drummond, 2000). Macedonia also became a very important trade network for supplying Kosovo and Serbia, mostly based on the development of an informal economy and war profiteering. NATO’s attacks on Serbia in 1999 significantly weakened the Macedonian economy. Our paper examines the productivity of firms in the two countries, which carried out pro-reform policies with different levels of success. Despite their common roots, the privatised firms in both countries operated in varying stable environments.

Thirdly, it is often argued that foreign firms possess more technological know-how and expertise and that makes them more efficient compared to domestic firms (e.g. Djankov and Hoekman, 1999, Estrin 2001). Slovenia and Macedonia have had relatively low levels of foreign direct investment in the post-privatisation period compared to other transition countries.⁷ The main reasons cited for this in Slovenia have been the small potential market and insufficient policy of attracting foreign capital. In order to protect its exchange rate, the Bank of Slovenia introduced stringent

⁷ In Slovenia foreign direct investment in 1994 amounted to USD 131 million, USD 183 million in 1995, USD 188 million in 1996 and USD 340 million in 1997, the highest value in the whole transition period. In 1998, it dropped to USD 250 million and USD 144 million in 1999. In the same period, FDI in Macedonia amounted to USD 19.1 million in 1994, USD 8.4 million in 1995, USD 7.2 million in 1996, USD 30.9 million in 1997, USD 112.3 million in 1998 and USD 35.6 million in 1999.

capital controls which virtually wiped off all the remaining foreign capital (Rojec *et al.*, 2000). In Macedonia, the small potential market, unfriendly and unstable environment as well as the lack of good firms suitable for acquisition have been listed as the main reasons for the modest extent of foreign direct investment (Markovska, 2001). In both countries, the transformation of ownership represents the main part of existing foreign investments. The transformation of joint ventures established under the previous system and the selling off firms to foreign investors in the privatisation process are the most important determinants of foreign investment in Slovenia. IBM Slovenia was established through the splitting up of the joint venture between Intertrade ITS (a firm privatised by the Slovenian privatisation law) and IBM (USA). On the other side, Kirkwood (USA) became the prevalent owner in Kolektor Idrija when it bought Kautt & Bux (Germany) during its bankruptcy. Kautt & Bux and Kolektor had established a joint-venture firm in the previous system. Danfos Črnomelj and Sava-Tires were established when the big Slovenian firms Gorenje Velenje and Sava Kranj sold off part of their production to foreign buyers in the process of privatisation.

In Macedonia, foreign direct investment has mostly involved acquisitions of firms that have competitive advantages by world standards (paper for cigarettes, gypsum – Radika Debar, gas – Tehnogas), produce highly-demanded products (breweries, cement and tobacco factories) or have developed successful co-operation with foreign partners under the previous system (shoe-making, textiles, transport) (Markovska, 2001). In our paper the differences in the efficiency of foreign- versus domestic-owned firms will be focused on. As the Slovenian sample embraces only big and medium-sized firms (with more than 200 employees), there are not many foreign-owned firms listed in the data. They were put into the group of prevalent external ownership when we analysed firm groups according to prevalent ownership criteria

and in the group of other firms when we used a more detailed ownership structure. In the Macedonian sample, we kept firms with prevalent foreign ownership as a separate group enabling us to study the difference in the efficiency of this group compared to other groups of firms.

In the next section the main steps involved in the pro-reform development of both countries are described. Data are presented in the third section, while the fourth section presents the results of empirical testing. At the end, we set out our conclusions and the policy implications supported by the study.

1. PRO-REFORM DEVELOPMENT IN SLOVENIA AND MACEDONIA IN THE NINETIES

2.1. Slovenian transition⁸

The Slovenian transition of the 1990s was characterised by a gradual approach to a market economy (Mencinger, 2000). The most important reforms were stabilisation of the economy, liberalisation of trade and increased market competition. Price stabilisation was primarily achieved through restrictive monetary and fiscal policies that brought inflation down from 21.5% per month in October 1991, when Slovenia launched its new currency, to an annual rate of about 6%-7% in the late nineties. The country adopted a policy of a dirty (managed) flexible exchange rate. Although the proximate target for the exchange rate had not been declared, the Bank of

⁸ Due to space limitations, we provide only a brief account of the key features of the Slovenian transition. For a more detailed account, see e.g., EBRD (2000).

Slovenia decided to issue its own short-term bills in order to sterilise the effect on money circulation caused by foreign exchange purchases. This policy stayed in effect until 1999. Real appreciation of the tolar, the Slovenian national currency, was less intense thereby relieving the worsening situation in the trade sector. Slovenia minimised or even abolished duties on imported industrial products (Pavlic, 1996) that, together with small business sector development led to higher competitiveness in the home market. (Bartlett, Prasnikar, 1994) All of these factors, plus the tightening of budget constraints, improved the competitive position of Slovenian enterprises. Foreign capital and foreign direct investment did not play any significant role in Slovenia in the nineties.

At the micro level, in 1993 the government rehabilitated the commercial bank sector with losses being written off against capital, and the non-performing loans of the two largest banks being replaced by long-term bonds of the Agency for Bank Rehabilitation. As a result, the two banks came under state ownership, their operating costs started to fall, profitability increased and the regulatory conditions set by the Bank of Slovenia were met. The two banks are now ready for privatisation.⁹

As in many other transition economies, interest rates were kept high by the central bank's policy, limited competition in the banking sector and low domestic savings, while problems of asymmetrical information between bankers and managers contributed to credit rationing at the level of firms.¹⁰ In this context, it is worth noting that since its inception the Bank of Slovenia has been strict in enforcing regulations,

⁹ As of January 2001 there were thirty-three banks operating in Slovenia. Except for the two largest banks, all of them were in private hands. Twelve banks had foreign shareholders and in seven of them the share of foreign capital exceeded 20 percent. The market share of the 5 largest banks was about 60 percent. Not all of the banks had equal operating licenses, with the limitations on banking operations reflecting their capitalisation and other factors.

¹⁰ See e.g. Bole's analysis (1999) based on the theoretical framework of Stiglitz and Weiss (1981).

thus forcing commercial banks to be more careful in screening credit applications by firms. The result of these factors and the fact that banks are mainly faced with short-term deposits on the liability side was the limited financing of firms by domestic banks throughout the 1990s. In 1994, for instance, Slovenian commercial bank loans amounted to 23.2% of GDP, while by 1996 they had dropped to a mere 14.5% of GDP.¹¹

The part played by the newly established Ljubljana Stock Exchange in supplying and allocating capital was also limited. With very few issues of securities, the primary capital market almost did not exist, while the secondary market lacked liquidity. Share prices have been falling recently. Due to the fact that external financing is bounded, the investment activity of the firms mostly depends on the ability to generate internal funds (Domadenik, Prasnikar, Svejnar, 2001).

The corporate ownership and governance issues we explore in this paper were strongly influenced by the 1993 Privatisation Law. As already stated, former socially-owned enterprises were privatised using a combination of voucher and buy-out methods. As shown by Gregoric, Prasnikar, Ribnikar (2000), the ownership structure in privatised Slovenian firms still reflects the chosen privatisation model and is dispersed among authorised investment funds, state funds, other non-financial enterprises, employees, former employees and retired people. Only recently, a consolidation of ownership has begun via intensive processes of mergers and acquisitions by domestic firms.

In terms of wage setting, Slovenia has had a layered system of agreements

¹¹ For comparison, in 1994 the ratio of bank loans to GDP reached 95% in the Czech Republic, 63% in Hungary, 33% in Poland, and 13% in Russia. By 1996, the corresponding percentages were 75, 27, 20, and 13. The range of ratios observed in developed market economies is between 120% and 130% (see Meyendorff and Snyder, 1997).

since 1990 that permit wages to vary between firms and defy government attempts to reign in real wage growth. In August 1990 an “umbrella” general collective agreement was signed between the Slovenian Chamber of Commerce and Industry (representing all employers) and the Trade Union Organisation (representing all workers). This agreement set initial wages for each category of workers and was supplemented by industry-specific agreements that effectively converted the initial wages in the umbrella agreement into minimum wages at the level of industries. Moreover, at the firm level the union and management bargained in the context of the firm’s annual plan to further adjust the industry-level wages. The multi-layer bargaining structure resulted in wage dispersion, rapid wage growth and attempts by the government to limit these tendencies.¹²

Slovenia’s economic performance during the 1990s was relatively successful. Mirroring the situation in the other transition economies, Slovenia experienced a period of economic decline in 1990-92. Thereafter, growth resumed with GDP increasing by 2.8% in 1993, 5.3% in 1994, 4.1% in 1995 and 3.5% in 1996. In the 1997-2000 period, Slovenia saw average growth of GDP above 4%. After experiencing hyperinflation when still part of Yugoslavia in the late 1980s and early 1990s, Slovenia imposed macro-stabilisation measures and consistently reduced inflation to one of the lowest levels observed in the transition economies. Hence, while retail prices increased by 207.3% in 1992, the increases gradually fell to 21.0% in 1993 and

¹² Wages grew faster than productivity in 1993 and 1994. Due to this, in 1994 the government started considering the acceptability of an Israeli-type social agreement that would limit wage increases and link them to productivity growth. However, the agreement was not strictly followed, real wages continued to grow and exceed productivity in 1995, especially in the 1996 election year. In July 1997, a new collective agreement was signed for the non-government (business) sector, but no social agreement was reached that year. Paradoxically, this ‘breakdown in negotiations’ prevented the government agencies and firms increasing their wages and, in 1997 and 1998, real wages growth finally fell behind productivity increases. In 1999 the growth of real wages again grew faster than productivity growth.

13.5% in 1994. In subsequent years, inflation was successfully brought down to less than 10%, reaching its lowest point of 6.0% in 1998. Any further reductions in inflation in recent years have been unsuccessful mainly as a consequence of increasing wage pressure, introduction of VAT in 1999, and unfavourable oil price shocks. Currently, exports constitute almost 60% of GDP, with the main trading partners being EU countries. While losing about 40% of the market in former Yugoslavia after declaring its independence, Slovenia's re-direction of exports to the European market has been relatively smooth. For the same reason, the transition process was also milder with respect to unemployment which was never higher than 10% according to labour surveys and calculated on the basis of the ILO's definition (7.2% in 2000). However, the number of registered unemployed persons rose dramatically, starting at 2% in 1989 and reaching its peak in December 1997 (14%). In July 2001, the official unemployment rate based on a broader definition of unemployment reached 12%.

2.2. Macedonian transition

Unlike Slovenia, Macedonia experienced a zigzag development that partly resulted from non-harmonised market reforms and their indecisive implementation. Additional difficulties involved the unfavourable foreign political and economic circumstances that faced Macedonia after declaring its independence (difficulties with name recognition, UN sanctions against Serbia, the Kosovo crisis). The last decade can be split into four phases: 1) Phase of independence and preparation of deep market reforms (1991-1993); 2) Reforms aspirations (1994-1999); 3) Kosovo crisis (1999); and 4) The period after the Kosovo crisis (1999 - 2000).

By declaring its independence and through the dissolution of former Yugoslavia

Macedonia lost more than 60% of its markets and inherited high inflation that reached 86% per month in April 1992 in the period of achieving monetary independence. In May 1993 the Macedonian central bank carried out monetary reform, when its independence together with instruments for more efficient market supervision over money supply (abolition of “easy” loans) and open market operations came into effect. At the end of 1993 the Macedonian government with the help of the IMF and the World Bank began to carry out an extensive stabilisation programme. That programme was based on restrictive monetary policy, strict fiscal discipline, a policy of a managed floating exchange rate (the Macedonian denar was tied to the German mark) and wage control. At the same time, reforms were carried out of the fiscal system, deregulation of trade exchange and foreign investments, price liberalisation, reforms of banking sector and important structural reforms (privatisation of socially-owned firms, SME development, restructuring of firms with high debts, reform of infrastructural firms). Those reforms were carried out gradually.¹³ The biggest problems emerged with transformation of the banking sector, where commercial banks failed to switch their operations away from giving loans to firms already in debt, increasing the current account deficit (USD 222 million in 1995 and USD 309 million in 1996) and the high unemployment rate (36% in 1997). Despite that, some promising results were achieved in the 1996-1999 period: inflation dropped to 2.6% in 1996 and even deflation occurred in 1998 and 1999, the fall in GDP stopped and started to rise after 1996¹⁴ and the budget deficit dramatically dropped, turning into a

¹³ For example, reform of foreign trade was accomplished under new laws on foreign trade and duties in 1996. Since 2000, foreign investors have had the same status as domestic ones, and in some areas they have more favourable treatment, enjoying some tax and duty holidays (for more on the reforms, see Markovska, 2001).

¹⁴ 1.2% growth of GDP in 1996, 1.4% in 1997, 2.9% in 1998 and 2.7% in 1999 is mostly due to construction, communication and trade industry development, especially because of the SME sector's growth. The growth of industry production was negative in the whole period studied.

budget surplus in 1999. The state was able to repay its external debt although it faced problems in financing the increasing current account deficits. The Kosovo crisis (April-August 1999) significantly worsened the Macedonian trade balance. Exports and imports of goods and services dramatically fell as did flows on the capital account. After the crisis, a new impulse for the economy was created with the help of the international community. These positive processes were again interrupted in 2001 when the Macedonian crisis broke out.

Realisation of market reforms faced difficulties that can be outlined as the process of privatising socially-owned firms (Slaveski, 1997). Of all former Yugoslav republics, Macedonia persisted the most with ownership transformation on the basis of the Law on Social Capital introduced by the Yugoslav government (also called Markovic's privatisation law after the prime minister of that government). The Law emphasised the sale of shares to employees under a special buy-out scheme and at a big discount. The share of private capital in Macedonia accounted for 17.6% of the total capital of socially-owned firms in 1991, while the Yugoslav average in that year was 2.2% (Markovska, 2001). Markovic's Law on Social Capital was repealed in August 1991. In June 1993 the new Law on the Transformation of Firms with Social Capital was adopted. The Law enforced case-by-case privatisation and introduced several methods of ownership transformation: employee (internal) buy-out (EBO), sale of a firm or part of it, leveraged management buy-out/ buy-in (MBO/MBI), the issue of shares for additional investment, debt/equity swaps, leasing, sale of assets and privatisation of a firm in bankruptcy. The EBO method was mainly designed for small firms' privatisation, largely carried out in 1994 and 1995. The sale of firms to external or foreign owners was planned to be the prevalent method for privatising big and medium-sized firms.

Since the privatisation process had failed to attract much attention of foreign investors, the Macedonian government introduced the process of “accelerated privatisation” in 1995¹⁵. Most medium-sized and big firms were privatised in 1995 using internal buy-out (especially management buy-out –MBO) as the prevalent method under special buy-out conditions (payment for shares within 5 years with a 2-year grace period before the first instalment). Thus, internal buy-outs became the most widely used method of ownership transformation in Macedonia. The prevalent external ownership mostly came about in three different ways. First, the privatisation law automatically acknowledged the ownership of firms domiciled in former Yugoslav republics over their business units in Macedonia. Second, firms with huge losses were mostly privatised by debt-to-equity swaps of banks and the state and the leasing out of assets. Third, some firms were sold off to foreign investors. In order to accelerate buy-outs by foreign investors, direct sale as a new method of privatisation was introduced in 1999. Firms were able to negotiate their sale directly with a strategic partner if it considered it would be better not to publicly disclose the negotiations. In 2000 this privatisation model was once again retired because its use was considered non-transparent. A very common method of privatisation in Macedonian reality was the establishment of “spin-off” or subsidiary firms. However, those firms, among other things, also provided re-employment possibilities for unemployed workers. Since their owners, the ‘parent’ firms, chose either the prevalent internal or external method of privatisation it is extremely difficult to classify the resulting subsidiary firms in one group or another.

¹⁵ This privatisation was mainly enforced by the World Bank that conditioned the use of FESAC (Financial and Enterprise Sector Adjustment Credit) on the accelerated accomplishment of the privatisation of big- and medium-sized firms. Loans were approved to the Macedonian government in 1995 for restructuring 23 firms with the highest debts and for banking sector restructuring.

3. THE DATA

The Slovenian sample encompassed 126 enterprises in the 1996-1998 period that were privatised between 1993 and 1995. They are large- and medium-sized Slovenian firms for which data on ownership changes are available in the observed period. In 1998, those firms generated 15 percent of the total income and employed 16 percent of all employees of Slovenian firms registered at the Slovenian Agency for Payments.

A list, description and yearly summary statistics of the variables are found in Table 1. Variables are measured in constant prices from 1996. As is evident from the figures, the typical firm cut the number of its employees from 550 in 1996 to 520 in 1998. Capital stock (tangible assets in constant prices from 1996) rose by 2.3% per year on average. The typical firm had average value added of SIT 1.51 billion in 1996 and SIT 1.7 billion in 1998 in constant 1996 prices. Average value added per worker grew from SIT 4.98 million in 1996 to SIT 5.68 million in 1998 (average growth of 4.5% per year), while the average capital-to-labour ratio rose by 2.5% per year.

The average ownership share of internal owners (employees, managers, retired employees) dropped insignificantly in the period under study from almost 38% in 1996 to 37.04% in 1998. The average share of employees fell from 24.86% to 22.87%, while the managers' share rose on average from 1.81% to 2.78%. In the same period, the average share of state funds went from 23.85% to 17.82%, but on the other side the investment funds' share increased from 14% to 17.88% on average. Other non-financial firms, including foreign owners, also significantly increased their share in the

typical firm from 10.74% to 17.31%¹⁶, whereas the average ownership share of banks remained the same (1.3%).

In Table 2 firms are divided according to the method of privatisation of the prevalent externally and internally privatised firms. This classification enabled us to compare Slovenian firms directly with the Macedonian sample. However, this dataset starts earlier, in 1994, so by using internal versus external classification we are able to study a longer period. Although some firms in the sample were privatised in 1995, we assume that all firms knew at least two years in advance which method of privatisation they would use. In order not to lose observation for the year when a firm was not officially private, we extrapolated backwards the privatisation outcome (internal or external privatisation).

As evidenced in Table 2, firms that chose the prevalent external privatisation method were on average bigger than those applying the internal privatisation method. The values of tangible assets for representative firms of those two groups confirm the fact that firms chose external privatisation if the capital value was too big to privatise internally (Prasnikar, Svejnar, 1998). The average value added per worker grew by an average of 2.4% in the first, externally privatised group of enterprises and by 2.6% per year in the second group. Similarly, the average capital-to-labour ratio rose by 1.2% in the first and by 2% per year in the second group.

The summary statistics of the Macedonian data are presented in Table 3. The group of enterprises which was the basis for our statistical analysis consisted of 1,167 enterprises, for which we had their financial statement data for most years in the

¹⁶ The main reason for increased average level of shares owned by non-financial firms lies in the process of acquisitions. Investment funds increased their shares through a portfolio widening strategy in big- and middle-sized firms in order to control them. State funds presumably follow the strategy of ownership concentration in some specific firms and this led to a smaller average share in the ownership structure of the firms studied (Gregoric, Prasnikar, Ribnikar, 2000; Pahor, Ferligoj, Prasnikar 2000).

period 1994-1999. The group includes firms from all industries of the Macedonian economy that were subject to privatisation, except for agriculture.

Unfortunately, due to inconsistencies in the data we have to exclude many enterprises. Thirty-six dropped out of the sample because they were liquidated early in the privatisation process. Around 200 enterprises had missing data in one or more of the relevant years. We further downsized the sample by about 500 firms that had no consistent data series for the period analysed (negative or zero values of fixed capital, equity, value added, employment...). Moreover, Macedonia had undergone a process of enterprise restructuring which led to the creation of new smaller enterprises (“spin-offs”) out of bigger, non-efficient and usually loss-making companies with the result that no consistent data series could be extracted for this group of restructured enterprises.

The final sample for our analysis consists of 370 companies. Firms are divided into several groups according to privatisation method chosen:

1. Employee buyouts (EMPLBUY) are presented through 91 enterprises in the sample. As seen from Table 3, on average those firms are small and exclusively purchased by their employees, and this outcome was intentional;
2. 187 enterprises ended up as being majority owned by the existing management and employees (INT-other). They were in most cases the only bidders in response to the tender involved, otherwise open to all investors. Those firms on average belong among the bigger firms in the Macedonian economy according to value of their tangible assets, number of employees or value added.
3. 16 firms were acquired by foreign investors (FOREIGN). By size, this group is similar to the previous one, but the typical firm reported higher value added per worker with a lower capital-to-labour ratio.

4. 36 enterprises are owned by companies domiciled in former Yugoslav republics (EX-YU). The representative firm in this group employed only 10 workers in 1999, but reported a relatively high value of tangible assets. In terms of value added per worker and the capital-to-labour ratio, the typical firm in this group outperformed those of all other groups.
5. 8 enterprises are owned by other outside buyers, mainly banks, and other firms that received their shares through debt-to-equity swaps. The typical firm reported a high capital-to-labour ratio. The figures reveal a unique trend of increasing value added per employee throughout the period studied compared to other groups of firms.
6. 22 enterprises are subsidiaries of some other privatised enterprises. Those firms were smaller compared to the average values of other groups in our sample.

The first two groups of firms represent firms with prevalent internal ownership, while the next three groups are firms with prevalent external ownership. As already mentioned in Section 2, firms from the last group cannot be classified as either prevalent internally- or externally-owned firms. Consequently, we put them together with group 5¹⁷ to form the group of firms referred to as OTHERS.

Companies in our sample represent 34.2% of all privatised companies in Macedonia that submitted financial statements to the Payment Operations Service in 1999. They employed 65.5% of all employees in this group of companies and their fixed assets account for 36.4% of all long-term assets of privatised companies in 1999.

I. RESULTS

¹⁷ In group 5 we only have 8 firms and it does not make sense to keep it as a separate group as it is irrelevant to test any hypotheses on such a small sample.

We estimate a standard log-linearised Cobb-Douglas production function augmented with ownership variables, or

$$y_{it} = \beta_0 + \beta_1 l_{it} + \beta_2 k_{it} + \beta_3 \text{OWNER1}_{it} + \beta_4 \text{OWNER2}_{it} + \beta_5 \text{OWNER3}_{it} + \beta_6 (\text{YEAR}_t) + \beta_7 (\text{IND}_i) + \beta_i + \beta_{it}$$

(1)

where Y stands for log real value added, l stands for log employment, k stands for log of real capital (proxied by the book value of fixed capital). Subscript i refers to firm i and t refers to year. In order to control for heterogeneity across different ownership structure, we augmented the standard production function with variables that measure the influence of different ownership groups in firms (OWNER1, OWNER2 and OWNER3) on productivity. The specification (1) allows us to either test the differences between insider, outsider and mixed owned firms or an even more detailed structure could be used. YEAR is the vector of annual dummy variables, IND is the vector of industry dummy variables, derived as a first-digit NACE code, and $(\beta_i + \beta_{it})$ residuals.

Tables 4 and 5 report the basic estimation of productivity for Slovenian enterprises using the detailed ownership structure in the 1996-1998 period, comparing different groups of firms according to their ownership structure. We introduced ownership variables that measure the share of external owners (privatisation funds-FUNDS, other firms-FIRMS and others-MISCEL), while the control group of owners

is represented by internal owners (workers, managers and retired workers). Tables 6, 7 and 8 are based on the majority ownership principle (internal versus external ownership) in order to compare them with Macedonian estimates where we only have data on the majority owners. Tables 9-11 deal with the estimations of the productivity of Macedonian firms. It is deemed that the majority ownership principle holds for the whole period even if a firm was privatised later in the observed period. We expect that a firm knew in advance what pattern of privatisation it would select. This is important in the Macedonian case where the lion's share of privatisation was finished in 1994 and 1995.

We report four estimating techniques in Table 4, the results being based on simple OLS estimations, then the fixed effects, between effects and the random effects estimator. The Hausman test rejects random effects in favour of fixed effects indicating possible misspecification of conventional random-effects model. The test implies that in the survey important individual effects are present and correlated with the explanatory variables. What is striking not only in this case, but also in other fixed effects estimations of total factor productivity for Slovenian enterprises, is the low estimated value of coefficients for capital and labour. This is often the case in production function estimations because of fixed assets and labour under-utilisation¹⁸. However, in the Slovenian case there probably is an additional reason for this. If the fixed effects model yields unbiased estimates on the assumption of a correct model specification, some unobserved time-invariant firm-level factors, not captured by regression analysis, explained the heterogeneity of the dependent variable across firms. In the case of production function estimates, the quality of management could play a significant role in efficiency variations between firms. Calculated differences or

¹⁸ See Jeferson, Rawski, Li, Yuxin (2000).

deviations from group means on which the fixed effects method is based have very low values for most of the studied firms in the period because selected variables (labour, capital and value added) for one firm over the years did not change much. Hence, the basic variations are in fact between firms and probably resulted from a fixed, unobservable, firm-level characteristic, managerial “know-how”, and acts as a “permanent” factor of differences between firms. The result is not surprising if we recall that the Slovenian economic transition to capitalism was driven on by the most successful managers who gained their knowledge during market socialism. Since the Communist Party abolished limits on the process of hiring managers in the 80s, capable managers accomplished the market restructuring of those firms faster than others. We thus decided to add between-effects estimations to our tables because the differences among firms in managerial “know-how” could be an important factor in explaining the different efficiency levels between firms in the period studied. Firms that operated in extraction, mining and the manufacturing of food, textile and leather products’ industries and were 100% owned by internal owners (workers, managers and retired workers) served as the control group.

The data in Table 4 do not confirm the dominant behaviour of external owners. If a firm primarily owned by internal owners changed its ownership to 100% external (investment and state funds, other firms and others) in the studied period, average productivity would even fall according to the OLS estimation.

In Table 5 we report estimates from a model that allows the coefficients for labour and fixed assets to vary across the four types of ownership. As in Table 4, firms owned by insiders serve as a base. Labour and fixed asset coefficients multiplied by different ownership variables enabled us to test if there are any differences in the partial elasticity of value added with respect to labour and capital compared to the

control group. Except for the unconvincing case of miscellaneous firms, there is no sign of the increased total factor productivity of firms with external owners compared to the base group of firms during the observed period.

However, we can ignore changes in ownership in the period studied and test the differences in productivity between two groups of firms which chose either the prevalent external or internal model of privatisation.¹⁹ The results, reported in Tables 6-8, are similar to those in the previous paragraph. The dummy variable that measures the selection of the external privatisation method (EXT) is not significant in any model, as seen in Table 6. Experimenting with interaction did not yield any better results. Pooled OLS and fixed effects models in Table 7 reported higher total productivity for those firms that chose the external privatisation method compared to the control group of internally privatised firms in the studied period. But the high estimated partial elasticity of value added with respect to labour and capital for externally privatised firms in the fixed effects model is questionable because the low estimations of elasticity for the control group probably resulted from the low variability of data within one firm. In the case of pooled OLS, the differences between the studied groups became much lower. Total productivity analysis, based on yearly data and presented in Table 8, reports the significantly higher efficiency of externally privatised firms only at the beginning of the period under study. After that, the differences between the groups are no longer significant.

On the basis of our analysis the hypothesis of statistically significant differences in productivity between those firms that chose internal versus those firms that chose the external privatisation method was not confirmed consistently by the

¹⁹ This simplification is not questionable because the ownership structure of privatised Slovenian firms in 2000 still reflected the privatisation model chosen, as reported in Gregorič, Prasnikar, Ribnikar (2000).

various estimating methods. Moreover, we could not accept the hypothesis that there were significant differences between firms with different ownership structures.

As we already mentioned, Tables 9-11 present the estimated productivity of Macedonian firms. The firms are divided according to their prevalent privatisation method in several groups, as discussed in the previous section. The random-effects estimates again appear to be significantly biased with high probability. On the other hand, the fixed effects estimates eliminate the dummy variable by definition, so we cannot infer any possible effects of different privatisation methods on average productivity. The pooled OLS estimation reports that firms privatised to other internal owners, foreign owners and owners from former Yugoslavia had higher average productivity than the control group of firms (EMPLBUY – employee buy-out privatisation method). Especially those firms owned by the last two groups (FOREIGN and EXYU) exhibited much higher productivity compared to other groups. Surprisingly, year dummy variables are negative and statistically significant in the pooled OLS, fixed and random effects models, meaning that average productivity in Macedonian firms fell throughout the studied period.

The fixed effects model in Table 10 does not reveal any statistically significant differences in total productivity between firms with a different privatisation method in the period under study. The differences are significant in the case of the OLS model. According to that, foreign-owned firms increased their total factor productivity compared to the control group, while those firms owned by ex-Yugoslav firms decreased it. The more detailed analysis of total productivity, based on year-by-year estimations and reported in Table 11, shows that firms privatised internally had very similar total factor productivity throughout the period. Foreign-owned firms at the beginning of the period were more efficient than the control group, but the differences

are not significant in the later years. Firms owned by ex-Yugoslav firms lost in efficiency at the beginning of the period but substantially increased it in the last two years compared to all other groups of firms. However, coefficients on the interactions are not significant in all cases.

I. CONCLUSIONS

Productivity analyses of Macedonian and Slovenian privatised firms in the post-privatisation period can be summed up in two conclusions. First, Macedonian firms operated in a very turbulent environment characterised by inconsistent economic policy measures and unfriendly foreign circumstances throughout the period under study. Average factor productivity was falling in the whole period compared to the base year of 1994. Moreover, differences in productivity between firms that chose the external or internal privatisation methods became smaller, although some positive trends might be present (firms owned by ex-Yugoslav firms). Slovenian firms operated in a more stable business environment. The analysis did not point to any significant differences in total factor productivity between different groups of firms or different years under study. Second, the corporate governance issue remains one of the key problems in Slovenian and Macedonian firms, even after privatisation.

One reason for the insignificant differences in productivity between firms with prevalent internal or external privatisation methods in Slovenia might originate from the “deformed” ownership structure. That is the outcome of the privatisation process and may be characterised by dispersed ownership where usually the three biggest owners (investment and state funds, other firms etc) do not hold the majority of shares (Gregoric, Prasnikar, Ribnikar, 2000). Therefore, the corporate governance

problem exists in both internally- and externally-owned firms. Authorised investment and state funds with agreements on selling shares and their price limit the operation of the secondary capital market. The sale price of shares jumps the moment signals indicating important ownership share purchases are sent. An efficient and liquid capital market is needed to allow the formation of an adequate ownership structure. However, it is difficult to predict who might be adequate owners of Slovenian firms. Complete opening up of the financial market in Slovenia, the transformation of privatisation investment funds into open-end funds, investment companies and financial holdings and the withdrawal of state funds from Slovenian companies are necessary conditions for this.

Macedonia's privatisation is usually characterised by non-transparency and inconsistency, which was also observable in our dataset. For various reasons we had to eliminate many observations. Massive organisational modifications meant many firms simply disappeared, some firms were split into smaller firms, while others failed to meet any basic logical criteria throughout the studied period. The enthusiasm of change based on internal privatisation ruled the economy. In those circumstances, the stripping of assets was the expected outcome. Putting more emphasis on external ownership and the policy of attracting foreign capital to partially mitigate those problems was a very wise move of policy-makers at the end of the nineties. No doubt, they will have to continue with that policy after circumstances in the country are normalised.

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APPENDIX

**Table 1: Means of selected variables and ownership structure, by year
for Slovenia**

Variable
VA
KA
L
KA/L
VA/L
OWNERSHIP STRUCTURE
FUNDS
FIRMS
INT_OWN
MISCEL

**Table 2: Means of selected variables, by year and type of ownership for
Slovenia**

External privatisation method
VA
KA
L
KA/L
VA/L
Internal privatisation method
VA
KA
L
KA/L
VA/L

Table 3: Means of selected variables, by year and type of ownership for Macedonia

Employee buy-out
VA
KA
L
KA/L
VA/L
Other internal privatisation methods
VA
KA
L
KA/L
VA/L
Privatised by foreigners
VA
KA
L
KA/L
VA/L
Privatised by ex-Yugoslav firms
VA
KA
L
KA/L
VA/L

Table 3 (continued)

	199	1995	19	19
	N	Mean	N	M
Privatised as subsidiary firms				
VA	22	6.60E+06	22	7.
KA	22	1.67E+07	22	1.
L	22	53.7	22	54
KA/L	22	4.047E+	22	3.
VA/L	22	2.465E+	22	2.
Other external privatisation methods				
VA	8	-5.31E+07	8	2.
KA	8	2.83E+08	8	2.
L	8	496.8	8	28
KA/L	8	7.764E+	8	9.
VA/L	8	-2.133E+04	8	1.65

Table 4: Effects of ownership on average productivity of Slovenian firms (detailed ownership)

LN(capital)
LN(labour)
FUNDS
FIRMS
MISCEL
Manufacturing
Electricity, gas, water supply
Trade
Other_ind
1997
1998
Constant
Adj.R2
N
Note:
a) ***, **, * statistically significant values at 1%, 5% and 10% on a two-tail test, respectively.
b) Firms serving as the base (constant) (a) operated in extraction, mining and manufacturing of food, textile and leather products industries and (b) were 100% owned by internal owners.
c) Hausman: Tests Chi2-value FE vs RE:44.08***

**Table 5: Effects of ownership on marginal productivity of Slovenian firms
(detailed ownership)**

	Pooled OLS	Fixed	Between	Random	
	Coef.	SE	Coef.	SE	Coef
Ln(capital)	0.272**	0.107	0.279	0.209	0.27
Ln(labour)	0.655***	0.165	-0.108	0.196	0.76
FUNDS	-0.009	0.023	-0.037	0.038	-
FIRMS	-0.035**	0.017	-0.037	0.033	-
MISCEL	-0.091***	0.020	-0.051	0.046	-
					0.09
					0***
LnkaFUNDS	0.000	0.002	-8E-04	0.003	0.00
LnIFUNDS	0.000	0.003	0.008**	0.004	-
LnkaFIRMS	0.002*	0.002	0.002	0.003	0.00
LnIFIRMS	-0.002	0.002	0.000	0.003	-
LnkaMISC	0.008***	0.002	8E-04	0.004	0.00
LnIMISC	-0.005**	0.003	0.006*	0.003	-
Manufacturing	0.270***	0.065	(dropped)	0.220**	0.10
Electricity, gas, water supply	0.108	0.089	(dropped)	0.025	0.14
					9
Trade	0.063	0.067	(dropped)	-0.003	0.11
Other_ind	0.189*	0.093	(dropped)	0.105	0.15
1997	0.005	0.052	-0.002**	0.025	-
1998	-0.020	0.052	-0.054	0.027	0.53
Constant	6.232***	1.221	10.312***	2.697	5.74
					3***
Adj.R2	0.846	within	0.1996	within	0.00
		between	0.8109	between	0.88
		overall	0.7837	overall	0.72
N	345		345		345

Note:

a) *****, **, *** statistically significant values at 1%, 5% and 10% on a two-tail test, respectively.

b) Firms serving as the base (constant) (a) operated in extraction, mining and manufacturing of food, textile and leather products industries and (b) were 100% owned by internal owners.

c) Hausman: Tests Chi2-value FE vs RE:45.3***

Table 6: Effects of ownership on average productivity of Slovenian firms (majority-owned firms)

LN(capital)
LN(labour)
EXT
Manufacturing
Electricity, gas, water supply
Trade
Other_ind
1995
1996
1997
1998
Constant
Adj.R2
N
Note:
a) ***, **, * statistically significant values at 1%, 5% and 10% on a two-tail test, respectively.
b) Firms serving as the base (constant) (a) operated in extraction, mining and manufacturing of food, textile and leather products industries and (b) were privatised by the internal method.
c) Hausman: Tests Chi2-value FE vs RE:47.7***

Table 7: Effects of ownership on marginal productivity of Slovenian firms (majority-owned firms)

LN(capital)
LN(labour)
EXT
LnkaEXT
LnIEXT
Manufacturing
Electricity, gas, water supply
Trade
Other_ind
1995
1996
1997
1998
Constant
Adj.R2
N
Note:
a) ***, **, * statistically significant values at 1%, 5% and 10% on a two-tail test, respectively.
b) Firms serving as the base (constant) (a) operated in extraction, mining and manufacturing of food, textile and leather products industries and (b) were privatised by the internal method.

c) Hausman: Tests Chi2-value FE vs RE:89.21***			
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Table 8: Effects of ownership on marginal productivity, by year for Slovenia (majority-owned firms)

LN(capital)
LN(labour)
EXT
LnkaEXT
LnEXT
Manufacturing
Electricity, gas, water supply
Trade
Other_ind
Constant
Adj.R2
N
Note:
a) ***, **, * statistically significant values at 1%, 5% and 10% on a two-tail test, respectively.

Table 9: Effects of ownership on average productivity of Macedonian firms (majority- owned firms)

LN(capital)
LN(labour)
INT-other
FOREIGN
EX-YU
EXT-oth
Manufacturing
Electricity, gas, water supply
Trade
Other_ind
1995
1996
1997
1998
1999
Constant
Adj.R2
N
Note:
a) ***, **, * statistically significant values at 1%, 5% and 10% on a two-tail test, respectively.

b) Firms serving as the base (constant) (a) operated in extraction, mining and manufacturing of food, textile and leather products industries and (b) were privatised by the EBO method.	
c) Hausman: Tests Chi2-value FE vs RE:12.55*	

Table 10: Effects of ownership on marginal productivity of Macedonian firms (majority-owned firms)

	Pooled	Fixed	Between	Random		
	Coef.	SE	Coef.	SE	Coef.	SE
LN(capital)	0.022	0.024	0.281***	0.074	0.008	0.052
LN(labour)	0.932***	0.037	0.941***	0.113	0.960***	0.081
INT-other	-3.188** *	0.408	(dropped)	-2.984***	0.856	-1.751**
FOREIGN	-6.556** *	1.196	(dropped)	-6.687**	2.671	-3.638**
EX-YU	-0.934*	0.523	(dropped)	-0.405	1.124	-0.60
EXT-oth	-1.056**	0.507	(dropped)	-0.918	1.088	0.439
LNKA*INT	0.268***	0.031	-0.066	0.087	0.252***	0.065
LNL*INT	-0.253**	0.045	-0.258**	0.140	-0.243**	0.098
LNKA*FOR	0.482***	0.093	-0.033	0.171	0.474**	0.210
LNL*FOR	-0.327**	0.159	-0.411*	0.334	-0.292	0.353
LNKA*EXYU	0.153***	0.039	0.092	0.113	0.139*	0.085
LNL*EXYU	-0.292** *	0.072	-0.222	0.183	-0.460***	0.155
LNKA*EXT-	0.169***	0.041	-0.222*	0.159	0.162*	0.088
LNL*EXT-oth	-0.409** *	0.064	-0.091	0.200	-0.426***	0.137
Manufacturing	-0.035	0.042	(dropped)	-0.026	0.089	-0.02
Electricity, gas, water supply	-0.125**	0.057	(dropped)	-0.132	0.121	-0.075
Trade	-0.150** *	0.048	(dropped)	-0.137	0.100	-0.135
Other_ind	0.028	0.048	(dropped)	0.023	0.101	0.034
1995	-0.048	0.050	-0.047	0.031	-0.836	0.844

1996
1997
1998
1999
Constant
Adj.R2
N
Note:
a) ***, **, * statistically significant values at 1%, 5% and 10% on a two-tail test, respectively.
b) Firms serving as the base (constant) (a) operated in extraction, mining and manufacturing of food, textile and leather products industries and (b) were privatised by the EBO method.
c) Hausman: Tests Chi2-value FE vs RE:26.39*

Table 11: Effects of ownership on marginal productivity, by year for Macedonia (majority-owned firms)

LN(capital)
LN(labour)
INT-other
FOREIGN
EX-YU
EXT-oth
LNKA*INT
LNL*INT
LNKA*FOREIGN
LNL*FOREIGN
LNKA*EXYU
LNL*EXYU
LNKA*EXT-oth
LNL*EXT-oth
Manufacturing
Electricity, gas, water supply
Trade
Other_ind
Constant
Adj.R2
N
Note:
a) ***, **, * statistically significant values at 1%, 5% and 10% on a two-tail test, respectively.
b) Firms serving as the base (constant) (a) operated in extraction, mining and manufacturing of food, textile and leather products industries and (b) were privatised by the EBO method.

