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Velimir Bole

Disinflation and Labor Market Distortions: Lessons from Slovenia

The wiiw Balkan Observatory

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This study has been developed in the framework of research networks initiated and monitored by wiiw under the premises of the GDN–SEE partnership.

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DISINFLATION AND LABOR MARKET DISTORTIONS: LESSONS FROM SLOVENIA[1]

Velimir Bole[2]

1. Introduction

Considerable appreciation of the exchange rate and constant increases in the relative prices of services characterized the first decade of restructuring in the more developed transition economies. The appearance of both phenomena was mostly independent of the exchange rate regime and monetary policy of the particular economy.[3]

Empirical evidence has been accumulated to explain both "stylized facts" in the context of sectoral differences in productivity gains.[4] The well-known Balassa-Samuelson arguments have been discussed a great deal. Because the tradables producing sectors are much more capital intensive with considerably faster productivity growth, increasing wages in the services or nontradables producing sectors (when catching up to wages in the tradables producing sectors), enhanced the pressure of the unit labor costs on the prices of services (nontradables).[5] The crucial argument for the faster growth of the prices of services (and appreciation in the exchange rate) is, therefore, labor market equalization of wages in the services producing sectors to wages in the tradable segment as well as a rapid increase in productivity in the restructured (new) tradable goods producing sectors.

Such an explanation of massive real appreciation has straightforward implications for the possible ways the exchange rate channel of the monetary policy transmission mechanism is used in curbing inflation. In the economy, facing considerable net foreign financial inflows, fixing or (pure) floating of the exchange rate makes imported products relatively cheaper and the growth of wages in the export (tradable) segment of the economy slower, while both also enable anchoring the costs of intermediate inputs and wages in the nontradable (services) sector.

The argument goes even further. That is, as exchange rate could be used efficiently in controlling the prices of tradables and nontradables, and because money demand is unstable and the appropriate dynamics (and volume) of money is difficult to determine, money targeting is an inappropriate strategy for price stabilization in more developed transition

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[1] Paper prepared under the GDN-SEE project "Long-term Development in Southeast Europe".

[2] Economic Institute at School of Law, Presenova 21, Ljubljana, Slovenia.

[3] See, for example, Halpern and Wyplosz(1997).

[4] See, for example, Begg et al.(1999).

[5] Tradables producing sectors will be referred as the tradable segment (of the economy); nontradable segment will similarly stand for nontradables producing sectors.

economies; especially, if such economies face considerable net financial inflows from abroad.[6]

Slovenia is significant empirical "outlier" for the transitional stylized fact of permanent (and considerable) real appreciation in the exchange rate.[7] In this paper, empirical evidence is presented to explain this outlying by uncovering the provenance of both of the aforementioned phenomena in the first phase of transition in Slovenia. Because empirical evidence on the dynamics and structure of wages does not satisfactorily substantiate the crucial role of the high productivity driven process in the tradable segment, sector specific market structure evolution is analysed as a possible important factor behind the increase in relative prices of services and the real appreciation in the exchange rate. Also, the corresponding opportunity costs and efficiency of the exchange rate vis-a-vis money based disinflation are evaluated. The Slovenian case could be especially instructive; as it does not adequately fit the described stylized fact, while nevertheless had similar inflation and better (more sustainable) current account and fiscal performance than other more developed economies in transition, at least in the first ten years of transition.[8]

The remainder of the paper is organized as follows. The scale and dynamics of wages in different sectors is documented in the second chapter; empirical evidence is presented to confront the hypothesis that a rapid increase in productivity in the "new" restructured tradable sector led the process that resulted in the increase of relative prices in services and nontradables. Therefore, the interplay of wages in the tradable sector vis-a-vis wages in the services and nontradables producing sectors, is illustrated in special detail. A possible alternative explanation for the (relative) wage and price increase mechanism in the nontradable segment is given in the third chapter of the paper. Sectoral market structure evolution in the first years of transition is documented in that chapter. The possible scale of distortions and opportunity costs of different ways of stabilizing the economy are tackled in the last chapter. Simulations of the simple VAR model are used to untangle possible distortionary effects of the exchange rate and money-based stabilization. A statistical annex and a short summary of the basic findings with a few lessons from the Slovenian episode are given at the end of the paper.

2. Do wages in the nontradable segment catch up to wages in the tradable segment?

Relative wages in services and nontradables producing sectors. Any explanation (of Balassa Samuelson provenance) of the relative prices of services in transition economies encompasses two basic propositions. First, that relative acceleration of wages in service sectors (nontradable segment) is the crucial force behind the increasing relative prices of

[6] Early in transition, the usual advice was to peg the exchange rate (if the fiscal fundamentals were in place). See, Begg et al. (1999a) or Sachs(1996).
[7] See, for example, Begg et al. (1999).
[8] Although its average wage was already in the "danger zone". See, for example, Begg et al. (1999) or Halpern and Wyplosz (1997).

services (nontradables). And second, wages in the labor intensive services producing sectors (nontradables producing sectors) catch up to (productivity driven) wages in the highly capital intensive tradable segment. This second basic proposition is used in the case of the classic argument for "exogenous" productivity driven increase of wages in the tradable segment as well as in the transition variant of "endogenous" productivity increase in the "new" restructured tradable segment. In the later case, real appreciation diverted labor away from the inefficient state sector, while productivity growth in the "new" tradable segment is necessary for tradable producing enterprises to stay in business, facing strong real appreciation in the exchange rate.[9] Empirical evidence on the dynamics of wages in Slovenia does not support either of these two propositions.[10]

In Figure 1, the path of relative wages is illustrated for the nontradable segment, for the sector of market services and the sector of non-market services; average wages are presented in terms of the average wage in the tradable segment during the same period.[11]

Obviously relative wages in the nontradable segment and in the sector of market services have similar dynamics. In the first two years of transition (in 1992 and 1993), in both sectors, average wages increased faster than wages in manufacturing. So, relative wages in both sectors considerably increased in the first years of transition. The episode of more rapidly increasing wages in the sector of market services lasted about 3 years, while wages in nontradables producing sectors led for only 2 years. After 1994, when economic activity in manufacturing started to pick up, relative wages began decreasing in both sectors. Until 2000, relative (average) wages in both sectors decreased by over 10% in comparison with their corresponding peak values, so that they already fell considerably below their starting values in 1991.

In the sectors of non-market services relative wages were higher and more volatile than in the nontradable and the market services segment. But still, in the first period (ending in 1997), average wages in the non-market services producing sectors grew faster than wages in the tradable segment.

Heuristically speaking, such dynamics of relative wages could be interpreted along lines contrary to the argument of the Balassa-Samuelson effect; wages in the market services and in the nontradables producing sectors were overtaking those in the tradable segment in the first two or three years of transition, that is, in the period of intensive restructuring in the tradable sector (which included heavy job dismissals[12]), while after restructuring in manufacturing began producing results, wages in the tradables producing sectors started closing the gap with wages in the segment of market services and nontradables!

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[9] On "reversed" Balassa Samuelson effect see Grafe and Wyplosz (1999).

[10] In this paper, the term (gross) average wage denotes income received by a person as paid employment for working, full time, part time or overtime; it also includes income from supplements for annual leave, paid leave up to 7 days, national holidays, sick pay of up to 30 days and job training.

[11] The tradable segment is identified with manufacturing; in the nontradable segment, all industries from A to K (of standard classification) except D are included; the segment of market services includes industries from G to K, while the segment of non-market services encompasses sectors from L to O.

[12] See, for example, Bole (1999).

Size and dynamics of wages by professional skill levels. Before seriously tackling the supposition that the wage "spill over" effect worked its way from the nontradable segment (and segment of services) to the tradable segment, and not the other way around, it is necessary to isolate (eliminate) the possible effect of changes in the structure of labor, in the period studied. To be precise, sectoral different changes in the mix of labor could generate dynamics of the relative wages similar to the actual one.

To eliminate possible effects of sectoral specific changes of the labor structure, in Figures 2 and 3, the structure of wages by level of professional skills is illustrated for tradable segment, and for market and non-market services. In Figure 2, wages for different levels of professional skills are given for the beginning of transition (1991), and for the latest period for which data is available (1999).[13] Wages for different skills are given in terms of GDP per capita. In Figure 3, graphs of relative wages for different levels of skills are given for the whole period. Wages for different skill levels in the market and non-market producing services are given relative to wages in the tradable segment (for the same level of skill). Because the dynamics of the wage structure in all nontradables producing sectors was similar to that of only market-services producing sectors, wages in all nontradables producing sectors are not presented.[14]

Already in the first year of transition, wages in the market services segment were considerably higher than wages in the tradable segment for all levels of professional skills except for unskilled workers. The differences were especially pronounced for wages of the two highest levels of professional skills (university degree and non-university degree).

For the highest levels of professional skills, the segmentation of the labor market prevented market equalization of wages; for lower levels of skills the demonstration effect was strong. Strong trade unions enforced its realization; wages in the tradable segment would have to increase, chasing wages in the services (all nontradables) producing sectors. So, in the first years of transition, the tradable segment (mostly manufacturing) had to increase wages although it faced heavy restructuring (firing workers and cutting costs). Because trade unions targeted predominantly wages, and not employment (at least in the first years of transition), the reversed process of curbing wages in the services (nontradables) producing sectors was not effective as long as enterprises from the services (nontradables) producing sectors, faced a market structure which made it possible for them to mark up costs in prices high enough to cover increased costs.

How effective was the spillover of wages in the segment of market services (and in the whole nontradable segment) into wages in the tradable segment is illustrated in Figure 2 by the graph of average wages for different levels of professional skills for 1999. Differences between sectoral wages (for the same level of professional skills) dropped. Relative wages of the tradable segment increased; wages in the tradable segment took the lead for both the highest and the lowest level of skills.

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[13] Figures are calculated using data from different volumes of the Statistical Yearbook.

[14] Corresponding figures are available from the author, upon request.

The graphs in the Figure 3, illustrate the path of relative wages in non-market and market services producing sectors in comparison with wages in the tradable segment for different levels of professional skills. The graphs reveal possible uniformity of relative wage dynamics across levels of skills, as well as the timing of the relative wage turning point, that is when wages in the services sector started to fall relative to wages in the tradable segment.

The dynamics of relative wages for most levels of skills was similar. Except for the three lowest levels of skills, wages in the market services producing sectors started to fall (relative to wages in tradable segment) at the latest in 1994, that is four years after transition took place. At restructuring (cutting over- employment), enterprises from the tradable segment predominantly dismissed workers with lower levels of professional skills. That explains why wages (of the market services producing sectors) for the three lowest levels of professional skills, started to fall last (relative to corresponding tradable segment wages).

We already stressed that average wages in the non-market services producing sectors (relative to wages in manufacturing) attained their maximum in 1997, and that the level of the relative wages has not changed significantly since that time. The dynamics for wages in non-market services producing sectors (relative to wages in the tradable segment) were almost the same for most levels of professional skills. Nevertheless, relative wages for levels of professional skills do not reveal any clear change (turning point) in the trend dynamics in 1997. The common dynamic for the relative wages for most professional skills levels was either a pattern of slow falls, or volatility around constant value. Only for one level of professional skills (secondary professional degree), did wages in the non-market services producing sectors systematically increase relative to wages in the tradable segment.

Crucial characteristics of the aggregate dynamics of wages in the tradables producing sectors (relative to both segments of services) were corroborated also by the dynamics of wages for different segments of labor quality (levels of professional skills). It therefore seems, that empirical evidence is not compatible with the proposition that in the first decade of transition, wages in (at least) market services (nontradables) producing sectors were chasing (higher productivity driven) wages in the tradable segment; in the tradables producing sectors, wages for most levels of professional skills were actually lower than wages of market services (nontradable segment) for almost the whole period in the first decade of transition, although differences started to decline after 1994. Because, at the very end of nineties, wages in the tradable segment for some levels of professional skills overtook those in the services sectors, it seems that only at the end of the first decade of transition were conditions fulfilled which made the Balassa Samuelson effect possible.

3. Market structure in the period of transition

Initial market structure. In the first years of transition, the market structure for (market) services (and all nontradables) was considerably different from that for tradables. Three main reasons accounted for the difference.

In comparison with similarly developed market economies, when restructuring started in transition economies, tradables producing sectors were considerably more developed than the

sectors producing market services; the share of the tradable segment in overall value added was much higher, and the market structure more competitive. The services market structure would be far less competitive (relative to the market structure of market for tradables) in the first period of transition, because of inherited underdevelopment (in relative terms) or even a nonexistent market services producing sectors, even in the case of an ideal privatization process.

Empirical evidence for Slovenia clearly demonstrates the superiority of tradables producing sectors at the beginning of transition. Some activities from the segment of market services almost did not exist (for example, rental, real estate, or pension funding), while the size of others (for example, banking, insurance and even retail trade) was significantly smaller than in similarly developed market economies. When Slovenia was part of the larger (Yugoslav) economy, the segment of sectors producing non-market services was, in relative terms, smaller than (the already small) segment of sectors producing market services, while both were minor in comparison with tradables producing sectors (mostly manufacturing).[15] Before the start of transition (before 1990), the share of market services in gross value added was less than 30%, while the value added share in non-market services slightly exceeded 10%; in similarly developed economies (with similar GDP per capita), respective figures were more than 25% higher for the same year.[16] When restructuring of the economy began, the share of services jumped significantly, while afterwards they still increased, but much more slowly. In Figure 4, increases in the services producing sectors is illustrated by corresponding shares in total value added.

Differences in relative development, especially the size of sectors (measured by corresponding share in the value added), were not the only reason for differences in market structure. Because custom barriers were already significantly reduced in the first years of transition, the market for tradable goods was almost from the start, exposed to foreign competition; the structure of those markets therefore depended on the size of initial devaluation relative to the level of average labor costs in the tradables producing sectors. In the case of appropriate initial devaluation (relative to the level of wages), tradables producing enterprises faced a market with perfect competitive structure from the very start of transition. More precisely, the market structure was competitive as soon as the initial overshooting in devaluation evaporated. That is, the significant initial overshooting in devaluation would make it possible for domestic producers to use their market power in order to increase their prices over marginal costs if, of course, the structure of the "domestic" part of the market was noncompetitive (as in the case of high concentration of domestic suppliers).

And finally, after the collapse of the large internal market of the former Yugoslavia, at least in some segments of the nontradables market (for example, tourism, construction, agriculture, etc.), competition from enterprises from other parts of Yugoslavia was drastically reduced, almost overnight, in the first years of Slovenian transition due to the war in other parts of

[15] At the end of eighties, exports of manufacturing in hard currency already attained around 30% of GDP (see, for example, Statistical Yearbook of Republic of Slovenia, 1994).

[16] In Portugal, for example, share of non-market services in gross value-added was around 14%, and of the market services around 44%, in 1990 (see, Eurostat Yearbook, The Statistical Guide to Europe).

Yugoslavia.

Evidence of the changes in market structure - price cost margin. It seems that considerable differences in the market structure dynamics between basic segments of the economy would have to strongly influence the dynamics of relative prices in Slovenia. Therefore, the size of those differences has to be identified and estimated. In Figures 5 and 6, the transition (evolution) of the market structure for tradables, market services, and total nontradables is illustrated.

In Figure 5, the price cost margin is presented for all three segments for the first decade of transition. That price cost margin can be used, as an indicator of the market structure, is well known. Its basic idea is to approximate how much price overshoots marginal costs. The price cost margin is broadly utilized because its value can be directly observed from accounting data.[17] In Figure 5, the price cost margin for analysed segments of activities is quantified as a value of total production, less material costs, less labor compensation, divided by the value of total production. So defined price cost margin would have to approximate the profitability of the analysed segments of activities. Data on national income accounts for the standard international classification of activities are used in estimating the price cost margin indicator.[18]

Two observations are obvious from Figure 5. The first is that the level of price cost margin in the tradable segment was much lower than in services (nontradables) producing sectors. Price cost margin in the services (and nontradables) producing sectors, was more than twice as high as in the tradables producing sectors in the first decade of transition. However, even if price cost margin is used as the undisputed measure of the market structure, any conclusion that competition in markets for tradables was considerably higher ("twice as high") than in markets for services (nontradables), would have to be used only tentatively. Additional empirical evidence is necessary to corroborate this proposition. The second observation from Figure 5 relates to the specific U-shaped path of price cost margin for tradable segment and bell-shaped for services and nontradables producing sectors of the economy. Immediately after launching the transition restructuring, a severe drop in profitability occurred in all three segments (around 25%). After transition depression, the price cost margin was steadily and strongly increasing in all three segments, however the dynamics was not the same. At the end of examined period, the price cost margin levelled off in the services and nontradables producing sectors.

Clear-cut interpretation of sustainable increasing of price cost margin after 1995 is not possible. To be more precise, the long-term dynamics of price cost margin in countries in transition was influenced by two main factors, which worked in opposite directions.

Restructuring of enterprises and rebuilding the economy's institutional infrastructure, increased productivity and (ceteris paribus), therefore, also the price cost margin.

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[17] See, for example, Hall (1988), Domovitz et al. (1988) or Cheung et al. (1999).
[18] In calculating the indicator, data from several volumes of the Statistical Yearbook of the Republic of Slovenia were used.

Development of the market structure worked in the opposite direction. Restructuring enterprises increased their numbers while decreasing their size considerably - old enterprises were fragmented (see Table 1). Rebuilding the economy's institutional infrastructure (legal system), and deregulating the economy further increased the number of new enterprises entering the services (nontradables) as well as tradables producing sectors, while cutting custom duties and other import barriers increasingly opened the economy to foreign competition. All these changes influenced market structure, increased competition. In all analysed segments, these improvements in the market structure (increasing competition) had (ceteris paribus) just the opposite effect on profitability, as did transition driven increases in productivity of enterprises. Figure 5 clearly shows that increasing productivity (graphs of all three segments are increasing) had larger effects than diminishing market power of enterprises (more competitive market structure).

Much more revealing than the dynamics of price cost margins for these three sectors are the differences in the dynamics between them. Differences in the dynamics of price cost margin are illustrated by the graph of relative price cost margin in services and nontradables producing sectors. In Figure 6, price cost margin are shown in units of price cost margin in the tradable segment. At the beginning of transition, profitability in the nontradable and services segment increased relative to the tradables producing sectors, and then levelled off until 1995. In the latter half of the nineties, the price cost margin in the services and nontradables producing sectors was steadily decreasing by about 7% per year (relative to price cost margin in tradables producing sectors).

As is obvious from previous discussion, graphs of the relative price cost margin for the services and nontradables producing sectors show the cumulative effects of changes in market structure and productivity in terms of the corresponding effects on the tradable segment. Strong decreases in the relative price cost margin after 1995, documents that increases in productivity in the service sectors was slower than in the tradable segment, and (or) that improving competition in the services segment was faster than in tradables producing sectors. Differences in the dynamics of relative prices and wages (among analysed segments) depended on possible sectoral differences in the intensity of increasing competition as well as on possible sectoral differences in productivity growth rates (between services and tradables producing sectors). In what follows, we will analytically disentangle the relative importance of both effects.

Evidence on the changes of market structure - new entry Another piece of evidence of the considerable differences in the market structure between services (nontradables) and tradables producing sectors relates to the flow of new enterprises entering corresponding markets. The ease, with which new enterprises enter the market, has long been well known as a key dimension of market structure.[19] It is fruitful to use dynamic formulation of barriers to entry, to interpret entry differences as an indicator of differences in the market structure between sectors. This connects the rate at which new competitive supplies are generated by elevating price above the minimum unit costs.[20] In Table 1, the rate of growth of enterprises (net new entrants) is given for tradables, nontradables and services producing sectors. Figures are

[19] Adam Smith already noted this dimension of the market structure.
[20] See, for example, Scherer (1994).

presented for two non-overlapping periods, because the methodology of collecting and publishing data was changed after 1994. For the period 1991-1994, for every segment, the rate of growth of enterprises is defined by a change in the number of enterprises per unit of enterprises in the base year (1990). Two segments of enterprises are examined: enterprises with more than 5 and less than 60 employees, and enterprises with more than 60 employees. For the period from 1995 to 2000, the growth rate of new enterprises is defined similarly, only the definition of segments of enterprises is changed; segments of enterprises with more than 5 and less than 50 employees, and enterprises with over 50 employees were analysed.[21] Estimated values for the "rate of entry" are given in Table 1. In the same Table, the number employed in studied segments of the economy is also given.

Figures in the Table show that in the first period of transition, the number of smaller enterprises increased dramatically, particularly in the services and nontradables producing sectors. But in all three segments, the increase in the number of smaller enterprises was caused mostly by the fragmentation of larger enterprises; figures in the second row show that the number of larger enterprises (with more than 60 employees) significantly dropped. Particularly in the tradables producing sectors, many of the earlier larger enterprises were not only fragmented, but also actually closed, as illustrated by the sharp drop in employment in that segment in Table 1. Only in the service sectors, did employment increase in the first five years of transition. The decrease in the average size of enterprises, the sharp increase in the number of smaller enterprises and, in the case of services, the increase in employment all indicate, that until 1995, competition in the markets for services and nontradables would have to increase significantly. Even more, figures in the table also indicate, that competition in the service and nontradables markets, would have to increase more than on the market for tradables, as the increase in the number of smaller enterprises and the drop in the number of bigger enterprises were considerably more intense in the services and nontradables producing sectors. It is still a question, however, as to what was the effect of enormous increase in a product differentiation caused by this considerable increase in new enterprises, especially in the service sector; since, as we know, that industry, in the case of variety of differentiated products which are imperfect substitutes, can be better characterized as less competitive (monopolistically competitive) rather than perfectly competitive.

In the second half of the nineties, from 1995 to 2000, the dynamics of the entry of new enterprises slowed, especially in the service and nontradables sectors. The process of fragmentation stopped completely as the number of large enterprises also started to grow, and the number employed in the nontradables and services producing sectors increased significantly.

Evidence on the changes of the market structure - model. The previous discussion shows that it is necessary to disentangle the effects of the increase in productivity from those of the increase in market competition for services (nontradables) and tradables producing sectors, in

[21] Change in the methodology of collecting data did not permit a study comparing enterprises from the same interval. For both periods, data comes from the Statistical Yearbook of the Republic of Slovenia.

order to explain the relative dynamics of the prices of services (nontradables). An analytical model is used to estimate both effects.

Specification of the model uses the idea of market power models (which rest on the model of Solow residuals); however, we suggest some necessary modifications for modelling an economy in transition.[22] Let ΘF(K,N) be a production function of a firm producing output Q, using capital K and labor N, while Θ denotes "neutral transition progress" (as the rate of growth of transition progress).

Specification of neutral transition progress is used because (general) effects of restructuring the economy and rebuilding the institutional infrastructure did not depend on the specific technology of a firm – the "business environment" was improved for all firms simultaneously.

In the model, a firm chooses inputs to maximize profit. On the labor market, a firm gets labor at wage w, and capital at a (shadow) price r. A firm chooses capital stock in advance of realization of demand. Demand for the firm's output is stochastic. Marginal costs of a firm are

$$c = (w\,\Delta N + r\,\Delta K)/(\Delta Q - \theta Q)$$

Rewriting the relation for marginal costs, it becomes a relation between the rate of growth of the output and the rates of growth of inputs:

$$\Delta Q/Q = (wN/cQ)\,\Delta N/N + (rK/cQ)\,\Delta K/K + \theta$$

Let us denote the price of products produced by analysed firm by p, share of labor inputs in the value of product by n (n=wN/pQ), share of nominal capital formation in the nominal product by i and price cost margin by μ (μ = p/c). Then marginal costs relation becomes

(1) $$\Delta Q/Q = \mu\, n\, \Delta N/N + \mu\, i\Delta K/K + \theta$$

This is the basic relation for empirical study of the market power of enterprises. The last relation obviously enables analysing market power (μ) through relation between actual growth in the output, growth of employment and the rate of neutral transition progress.

To use relation (1) in actual empirical work, it is necessary to make some additional assumptions about variables used in the model. There are two basic reasons for qualifications: first, the availability of measurable variables for theoretical concepts in the relation (1) and, second, the small number of degrees of freedom (only ten yearly observations are available).

[22] On models of market power see Hall (1988) or Domowitz et al. (1988).

In Slovenia, standard national income accounts data by SIC activities are prepared on yearly basis. Components are given in the current prices, only value added component is available also in the fixed prices. To estimate relation (1) it si necessary to have data on the real growth of output (dependent variable). However, it is possible to circumvent this data problem by using real value added growth rate instead of output growth rate[23].

Although in the first years of transition there was a huge reshuffling of enterprises, main restructuring on the micro level was made in the size of employment, organizational structure and governance, while net changes in the capital stock were probably small. However, there is no available date (of acceptable quality) on the stock of capital to corroborate this supposition. In the case capital term (in relation (1)) is "small" (relative to labor term) estimation of the relation (1) would be straightforward. All data necessary to quantify variable standing for labor term are available[24].But, because there is no piece of empirical evidence of satisfactory quality to (empirically) corroborate supposition about "small capital term" (at least, in the first years of transition) in relation (1), (two stage) method of instruments is used, to estimate competition parameter μ.

In tradables and services producing sectors, different indicators of the size of capital increment (e.g. amortization, new investments) relative to nominal output indicate linear increasing in time[25]. Therefore, time trend is used in the estimated version of relation (1), to encompass effects of unknown "capital term" and "neutral transitional progress". Time variable presents number of transition years from 1991 onward. Because of introducing time trend, and probable correlation of the "labor term" and the error term, unbiasedness of the estimated competition parameter μ at "labor term" is attained by using two instruments for the "labor term": growth rate of registered unemployed and growth rate of retired. Both instruments are correlated with employment and independent of output or capital growth[26].

Model is estimated for tradable and service segment. All data, used for estimation the model, are from different copies of Statistical Yearbook (national income account and employment statistics). Estimates of competition parameter μ for tradable and services segment are given in the Table 2; corresponding t statistics are given in brackets.

In the services producing sectors estimated value of competition parameter is significantly greater than 1, while corresponding t statistics for manufacturing is only 1.3. Estimated values therefore corroborate that in the first decade of transition in the services segment producers had significant market power, while those in the tradables producing sectors did not (competition parameter is not significantly greater than 1).

The estimated model enables quantification of the market power effect, but not also the productivity effect (neutral transition progress). Estimated parameter of time trend in the

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[23] See Hall(1988).

[24]Data are from national income accounts and employment statistics in Statistical Yearbook of the Republic of Slovenia.

[25] Corresponding results are available from he author upon request.

[26] Stock of retired and (registered) unemployed were crucial buffers for dismissed in the time of transition restructuring of enterprises (see, for example, Bole(1999)).

tradable segment is significantly greater than that in the services segment. But only in the case, the "capital term " in relation (1) is "small", the difference would show that neutral transition progress was more rapid in the tradables producing sectors. Because evidence on the size of growth rate of capital stock (actually, on the rate of growth of capital services) is not available, and therefore size of the "capital term" is not known, the time trend parameter cannot be used analytically.

Market structure and the role of trade unions. The less competitive structure of the market (relative to tradable segment) enabled enterprises in the sectors of market services to increase prices over marginal costs more than enterprises in the tradables producing sectors, and so they reaped correspondingly higher (monopoly) profits. Higher (expected) profits decreased employers resistance to wage pressures. Enterprises in the service producing sectors were, therefore, able to pay systematically higher wages (than in tradables producing sectors) to attract and retain workers they needed.

In the services producing sectors trade unions were strong (unionization was high) but decentralized[27]; in addition, in their utility function, the amount of the average wage was a predominant variable and employment a minor one. High unionization, decentralization and the predominant role of wages in the utility function, were the common characteristics of most trade unions in Slovenia. The trade union utility function characteristics had two important consequences: trade unions pressure was targeted almost exclusively to higher wages, while decentralization of trade unions contributed to segmentation of the labor market, especially for higher levels of skills. Both characteristics prevented high unemployment would significantly effect wage dynamics, especially for workers with higher level of skills.

As previously mentioned, at the beginning of transition in Slovenia not only sectors of market services but also sectors of non-market services were small relative to the tradable segment (in comparison with similarly developed market economies). In the first decade of transition, normalization of the services producing sectors increased employment by 16%, while in the tradable segment, employment decreased by 35% (see Table 1). Because of noncompetitive structure of the market for market services and characteristics in the behavior of trade unions, increasing (normalization) of the services producing sectors pushed wages (costs) and prices up to attract the best workers.

4. Disinflation and segments of the economy

In the context of a standard Balassa Samuelson argument, wages in the nontradables producing sectors are chasing wages in the tradable segment. The mechanism of increasing wages in the nontradable segment, in that view, therefore works from the increase in productivity in the tradable segment, to consequently to increase wages in the tradables producing sectors and finally, by chasing wages in the tradable segment, to increase wages in nontradables producing sectors. Increased wages in nontradable segment consequently push up the prices of nontradables. Changes in the dynamics of the exchange rate therefore influence (with similar efficiency) wages

[27] See Calmfors (1993), on the possible effects of strong but decentralized trade unions.

(and prices) in tradables and services (all nontradables) producing sectors. Furthermore such a mechanism also provides a theoretical background for nondistortionary exchange rate anchoring of inflation: that is, the exchange rate can anchor prices in all three segments with (approximately) the same efficiency.

In the previous two chapters, empirical evidence is presented for Slovenia, which does not support the view that (productivity driven) growth of wages in tradable segment pulled wages (and prices) in the services (nontradables) producing sectors upward, at least in the first decade of transition. The question therefore is, what does such a difference in the mechanism of increasing wages mean for the stabilization of prices, especially for exchange rate based anchoring of inflation?

Possible effects of differences in the mechanism of wage growth on the role of the exchange rate and money in stabilizing prices are analysed in the context of simple VAR model. Effects of studied inflation anchors are analysed on two desegregates of retail prices, for prices of goods and prices of services, and with two possible policy instruments, money and the exchange rate.

The first desegregate of prices encompasses all goods, except fuels and lubricants, entering the retail price basket. Services in the retail price basket could be divided into two groups, "more competitive" and "less noncompetitive." In the first group there are services for which the market is "more competitive": craft, personal, transport, catering and financial services; the second group includes services which are sold on the "less competitive" market (at least, to a degree, these prices are under the influence of government, local or central); this group includes housing, community, cultural, social care and communication services. The group of "more competitive" services presents the second desegregate of retail prices studied by the VAR model. The price index for both desegregates is calculated using relative weights of products from the retail price basket.[28]

Because there were not enough pieces of information (the period was too short) to estimate the overall model, the VAR model is constructed separately for the goods and services producing sectors. In the first model, prices of goods (excluding fuels), and in the second, prices of "more competitive services" are analysed. Prices of "less competitive services" had been significantly regulated until mid 1995; since the period of five years (to 2000) is too short for a VAR analysis, model results for this (smaller) group of services are not presented.[29] For the whole of the nineties, the government determined prices of gasoline and some other oil products.[30] Therefore, the variable of fuel (and lubricants) is not modelled as an endogenous variable in a separate model.

The model for every segment of sectors includes money, exchange rate, average wage and price index as endogenous variables, and the price of fuels as exogenous variables. A dummy variable for the introduction of VAT was also added in both models. The price index and average wage were different in every model. In the goods version of the model, the price variable refers to

[28] All data, necessary for construction of price series, were collected from different volumes of the Monthly Statistical Review, Statistical Office of the Republic of Slovenia.
[29] For some preliminary results on modelling this group of services, see in Bole(2001).
[30] From mid 2000 prices of gasoline were automatically pegged to the Platt´s prices on the world market.

goods (excluding fuels) and the wage variable to average wage in the nontradable segment; in the services version of the model, price index for "more competitive services" stands for the price variable and the average wage in the non tradables producing sectors for the wage variable.[31]

Money variable is defined as a ratio of M1 and real GDP. Exchange rate stands for Bank of Slovenia's exchange rate for the German mark.[32] Both wage variables are constructed from monthly average wages for SIC sectors; figures on the sectoral unemployment are used for weights.[33]

Both models, for goods as well as the services segment, are estimated for the period from 1993/I to 2000/IV. Models are estimated using quarterly data.

Estimated models are presented in Tables 3 and 4. The final version of the model for the "goods" segment is illustrated in Table 3, while the version of the model for "services" is given in Table 4. Standard statistics are added to estimated coefficients of the model: t-statistics, adjusted $R^{2,}$ DW, significance of RESET stability test and values of the Akaike criteria.

The small number of observations makes questionable the estimation of a possible alternative VAR model with higher order of autoregression (p=2) or estimation of the model with the possible error correction specification. Both possible alternatives are nevertheless addressed at least to a certain degree. The value of Akaike criteria is calculated also for p=2, and parsimonious version of the model (the smallest order of autoregression) is confirmed as acceptable for both models. All variables in the models figure in terms of differences of logarithm; transformed variables passed the unit root test.

The very structure of the estimated models already documents some effects of differences in the mechanism of price and wage growth on the role of policy instruments in disinflating the economy in Slovenia. The most obvious observation refers to the price of fuels. That is, only in the services sector could the higher price of fuels be directly marked up in increased prices, while in the goods segment, potential endogenization of fuel prices was controlled by wages (see, structure of both models in Tables 3 and 4). That could explain, for example, why huge increases in oil prices in the year 2000 and in the first half of 2001 (when gasoline prices were pegged to Platt`s prices), did not have observable effects on the prices of goods (excluding fuels) but considerable effects on the prices of services. That is to say, market power, made it possible for producers of services (and not of goods) to directly endogenize external price shocks (oil price increases).

Effects of money, exchange rate and wages on prices are illustrated by the impulse response functions simulated by the estimated models. In Figure 7, responses of inflation on impulses to wages are given for the prices of goods and services. On the graphs, responses to the one standard deviation impulses are presented, together with 2 standard errors confidence intervals. Impulses to wages have significant effects on the prices of goods (tradables) and services. But

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[31] In the following discussion of the model results, the term "services " will refer to "more competitive services," and "goods," to goods not including fuels and lubricants.

[32] Data are from the Monthly Bulletin of the Bank of Slovenia.

[33] Data are from monthly Rapid Reports - Labour Market, Statistical Office of the Republic of Slovenia.

effects on prices of services are much stronger and last longer (effects are significant in the first three quarters) relative to the effects on the prices of goods, which are significant only in one quarter.[34] Less competitive market structure for services, analysed in previous chapters, offers an explanation for the difference. Strong and decentralized trade unions (targeting predominantly raises in wages) were more efficient at increasing wages in the segment of services, because the less competitive market structure enabled employers in that segment to pass on higher costs as higher prices (decreased the employers resistance to wage increase).

For both studied segments of the economy, responses (to exchange rate and money) are presented together, to illustrate the relative magnitude of effects. However, graphs for wages are separated from those for prices. In Figure 8, the effects of money on prices and wages are studied, while in Figure 9 corresponding exchange rate effects are presented.

Effects of money impulses are similar for both price desegregates. For both, money effects attain peak value in the period of the first three quarters, and after one year almost disappeared. In both cases, the peak effect is around 14% of the standard deviation of the corresponding variable. Money effects on wages are also similar for both segments, but wage effects for the goods segment are greater. In the quarter of the greatest effect on wages, the response of wages in the goods segment attained almost 34% of the standard deviation of wages; the peak response of wages in the services segment was only around 21% of the standard deviation of wages (in the services segment).

Responses to exchange rate impulses are illustrated in the Figure 9. While effects of money on the segment of goods are pretty close to those on the segment of services, effects of the exchange rate differ a great deal, although the timing of the responses is similar. Response of wages in the goods sectors in the peak quarter is almost three times greater than in the services sector (measured in terms of the standard deviation of corresponding wages). Differences in the responses of prices to exchange rate impulses are not so drastic, but still response of prices of goods in the peak quarter is more than 60% higher than corresponding response to the prices of services. Empirical evidence therefore corroborates that exchange rate policy is much more efficient at curbing wages and prices in the goods segment than in the services segment.

5. Policy lessons and conclusions

Empirical evidence from the performance of the Slovenian economy in the first decade of transition can be summarized by the following observations.

In transition, sectors of the economy significantly differed in evolution of the corresponding market structure. Especially great were differences in the market structure between tradables producing sectors and services (or all nontradables) producing sectors. There were two important reasons for these differences: the underdevelopment (the relative size in terms of the value added

[34] Variance decomposition is not presented in the paper; it shows, that wages contribute to total variability of prices- over 40% for services and 30% for goods. Corresponding results are available from the author upon request.

share) of the services segment before transition, and foreign competition on the market for tradables.

The less competitive structure of the market (relative to tradable segment) enabled enterprises in the sectors of market services to increase prices over marginal costs more than enterprises in the tradables producing sectors. Higher (expected) profits decreased employers resistance to wage pressures, in the services producing sectors.

From the beginning of transition, services producing sectors were increasing employment while tradables producing sectors were cutting back. Strong (highly unionized) but decentralized trade unions bargained, more or less systematically, only for higher wages (and not for employment). Their behavior prevented the effect which (the threat of) high unemployment would have had on wage dynamics, especially for workers with higher level of skills. So, noncompetitive market structure in the case of market services producing sectors and increasing of the size of the market and non-market services producing sectors (normalization), pushed wages higher (and therefore prices) to attract the best workers. Wages in the services (non tradables) producing sectors were, therefore, not chasing productivity driven wages in the tradable producing sectors; actually, the reversed process took place. So, explanations of Balassa-Samuelson provenance do not fit to dynamics of the relative service prices in Slovenia.

As a result, several policy lessons can be drawn from the experience of the Slovenian economy in transition.

The mechanism of wage increases (and less competitive market structure) in the services sectors significantly diminishes potential effects of the exchange rate anchoring of the prices of services (and nontradables). The exchange rate anchoring of prices is therefore distortionary, that is, prices of tradables are curbed, while the prices of services (nontradables) are not. Because of distortionary price effects, sustainability of the exchange rate anchoring in the period of transition is questionable; at least, as long as the market structure is not normalized in all segments of the economy. Money anchoring has a much stronger and much more uniform price effect across sectors.

In an open economy in transition, facing high foreign financial net inflows, pure floating of the exchange rate would have the same damaging and distortional effects on prices. Due to these very effects, net foreign financial inflows would be prolonged, and real appreciation of the exchange rate increased.

In transition economies, from the very start of restructuring, competition policy has to be the crucial component for a sustainable policy of disinflation.

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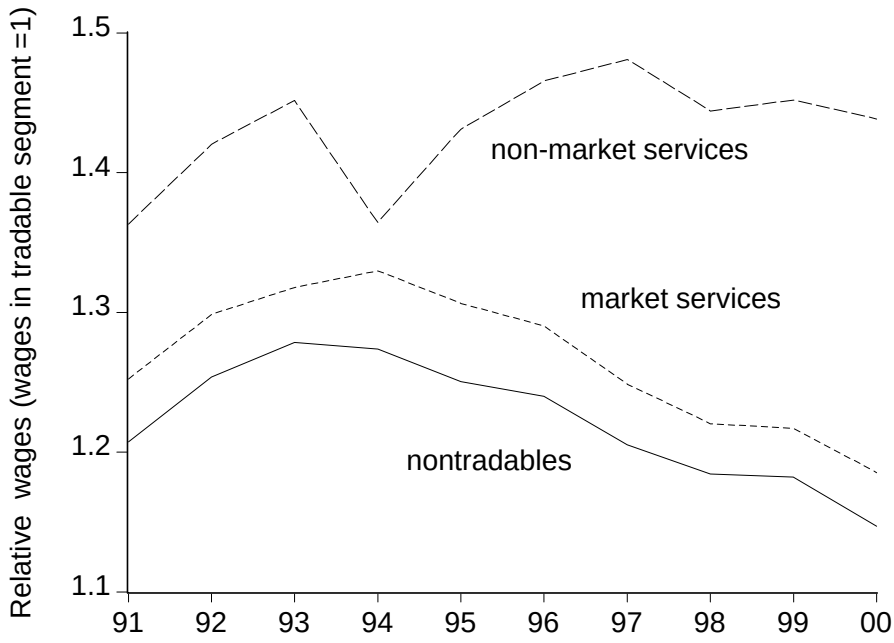
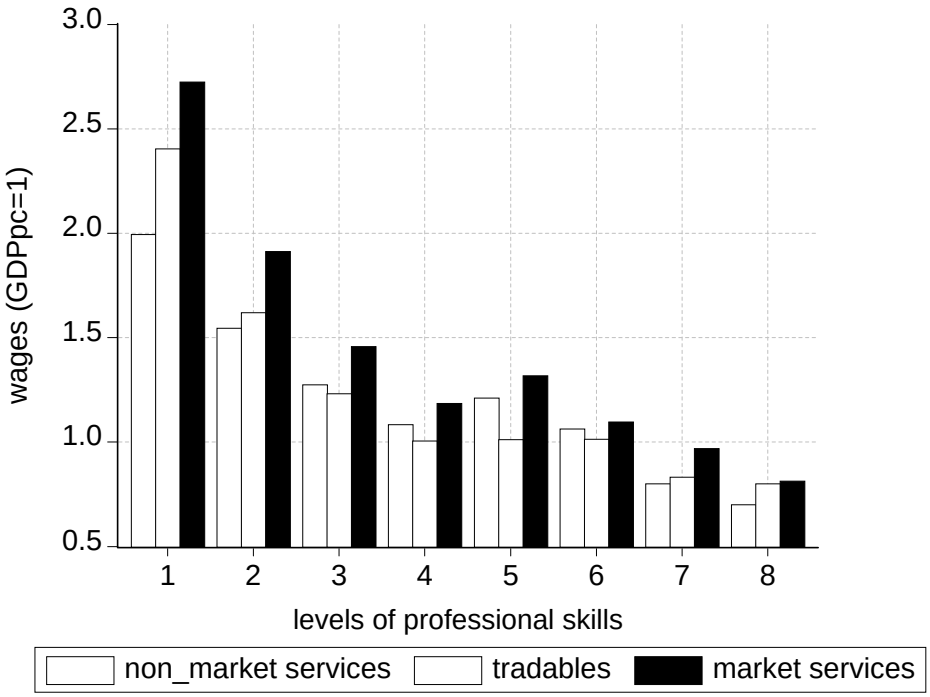
Figure 1
Relative wages (in units of wages in tradable segment)



Source: Statistical Yearbook, Statistical Office of the Republic of Slovenia;
own calculations.

Figure 2
Wages for levels of professional skills (in units of GDPpc)

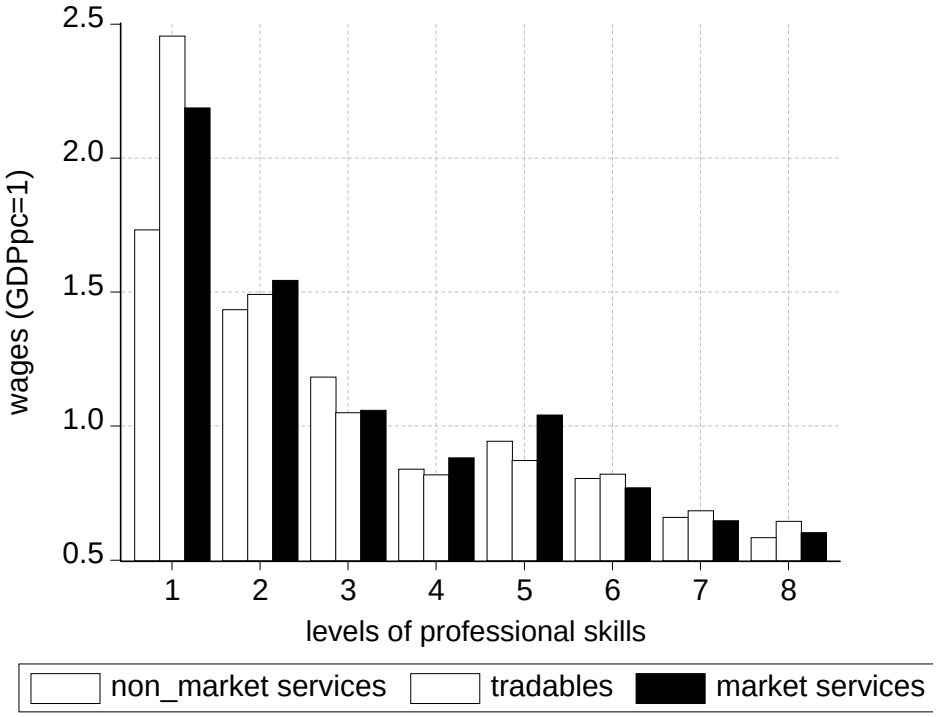
Wages in 1991



Note: 1university degree; 2 non-university degree; 3 secondary professional degree; 4 lower professional degree; 5 highly skilled; 6 skilled; 7 semi-skilled; 8 unskilled.
Source: Statistical Yearbook, Statistical Office of the Republic of Slovenia; own calculations.

Figure 2(continued)
Wages for levels of professional skills (in units of GDPpc)

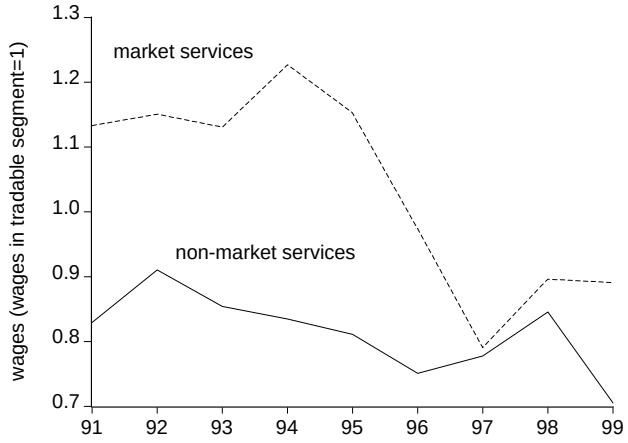
Wages in 1999



Note: 1university degree; 2 non-university degree; 3 secondary professional degree; 4 lower professional degree; 5 highly skilled; 6 skilled; 7 semi-skilled; 8 unskilled.
Source: Statistical Yearbook, Statistical Office of the Republic of Slovenia; own calculations.

Figure 3
Wages for levels of professional skills (in units of wages in tradable segment)

University degree



Non-university degree

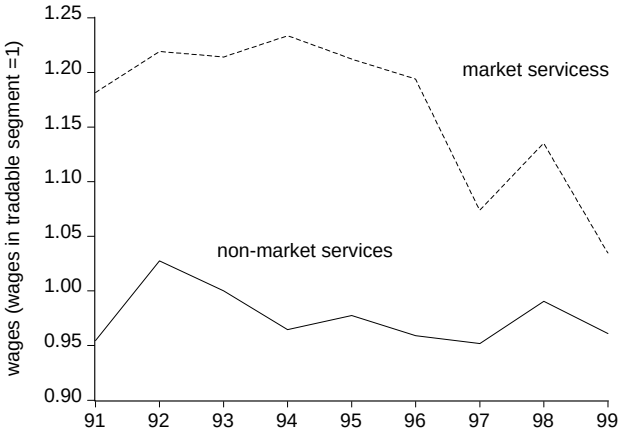
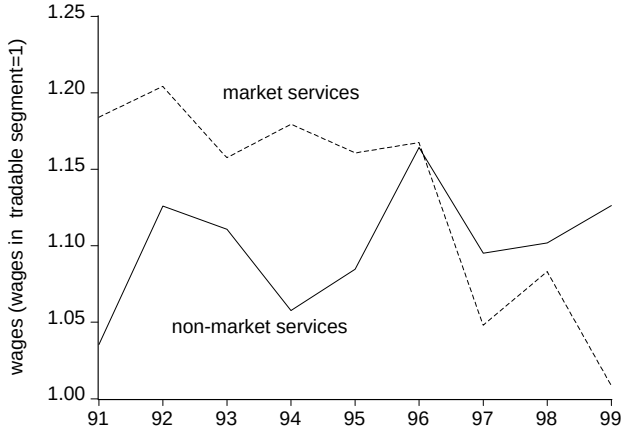


Figure 3 (continued)
Wages for levels of professional skills (in units of wages in tradable segment)

Secondary professional degree



Lower professional degree

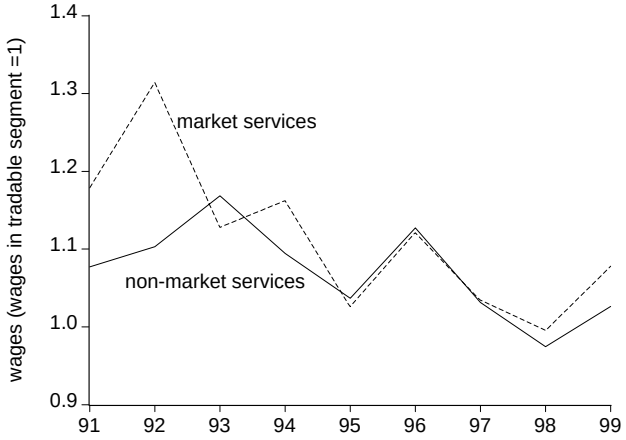
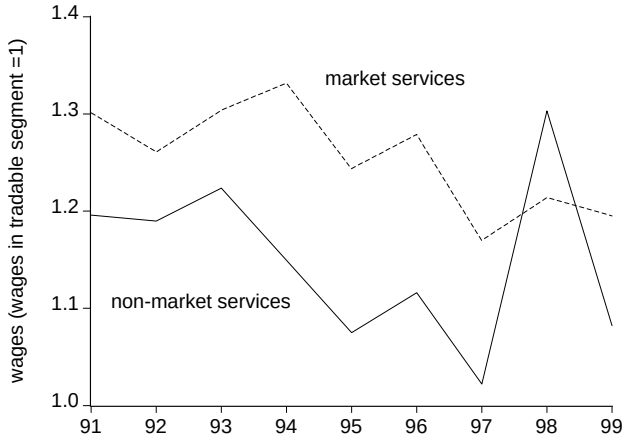


Figure 3 (continued)
Wages for levels of professional skills (in units of wages in tradable segment)

Highly skilled workers



Skilled workers

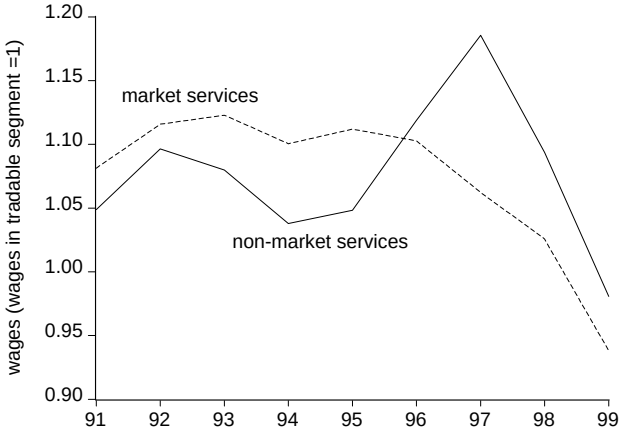
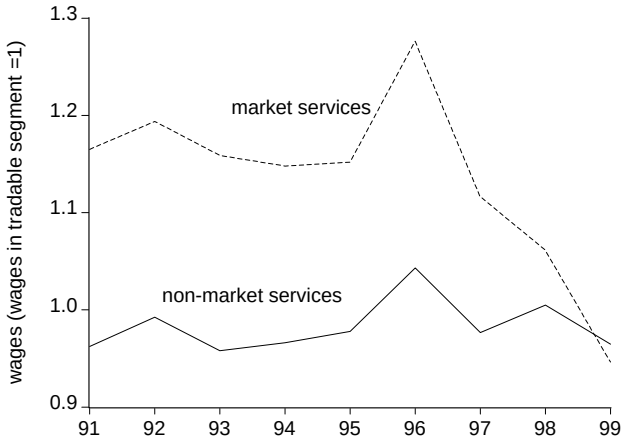
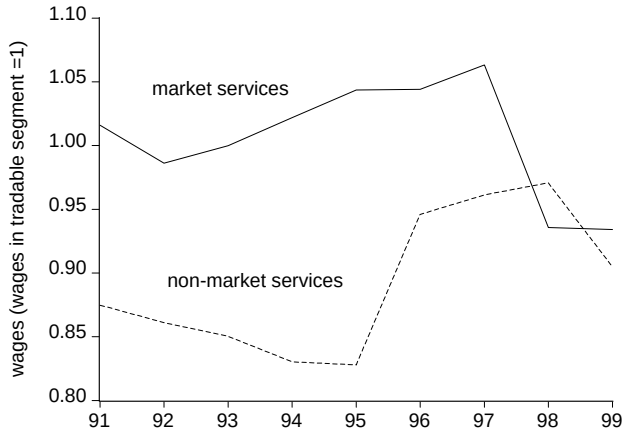


Figure 3 (continued)
Wages for levels of professional skills (in units of wages in tradable segment)

Semi skilled workers

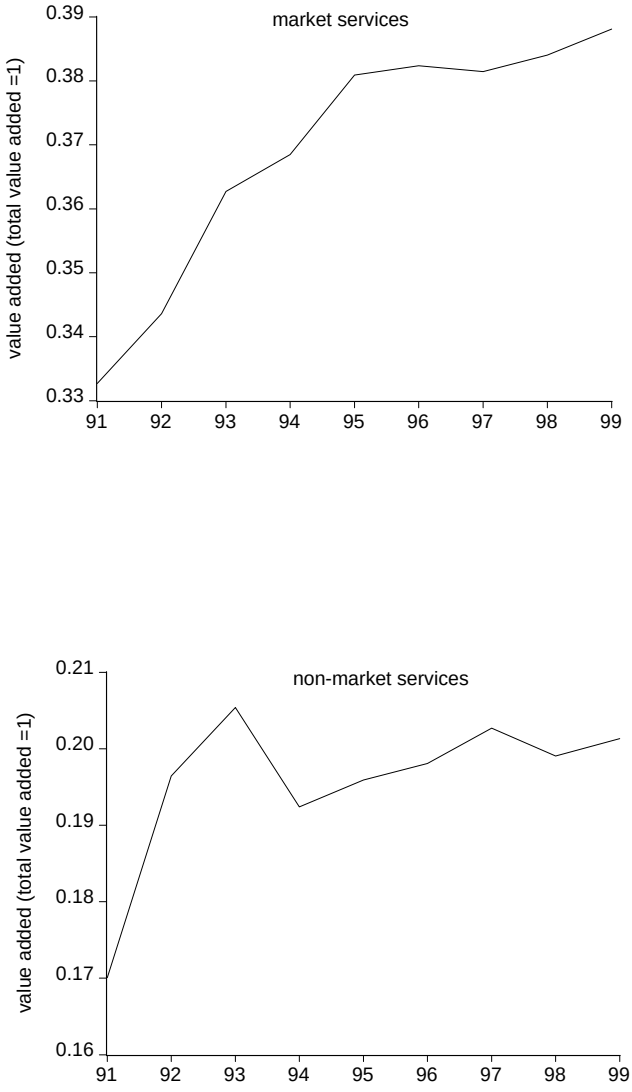


Unskilled workers



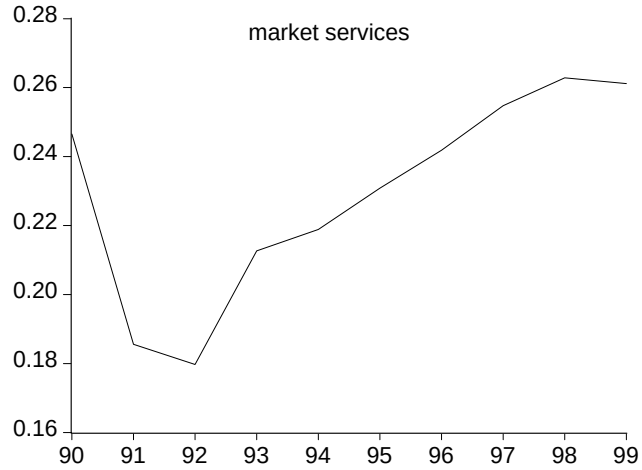
Source: Statistical Yearbook, Statistical Office of the Republic of Slovenia; own calculations.

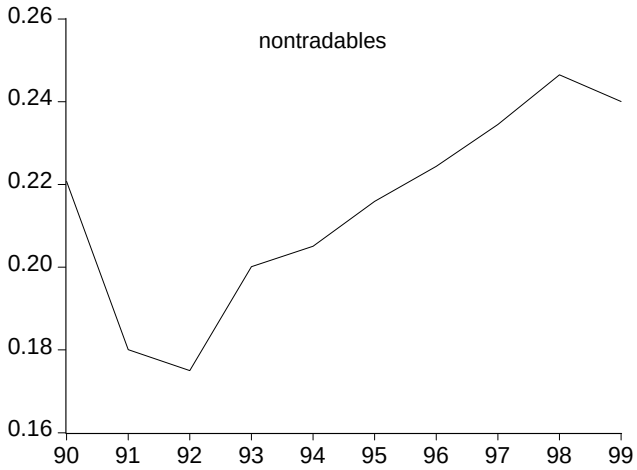
Figure 4
Value added of the services segment (share in total value added)



Source: Statistical Yearbook, Statistical Office of the Republic of Slovenia; own calculations.

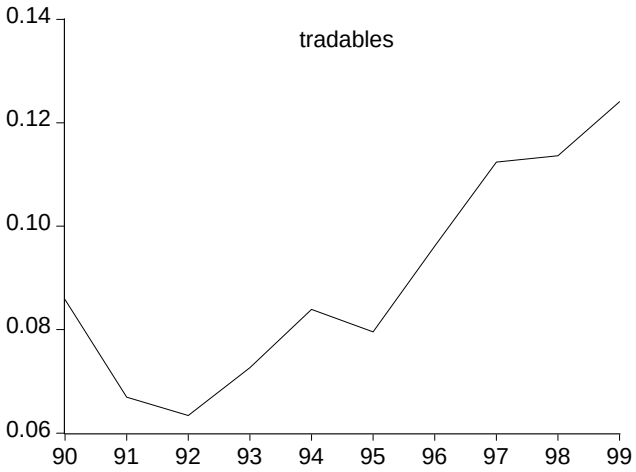
Figure 5
Price cost margin





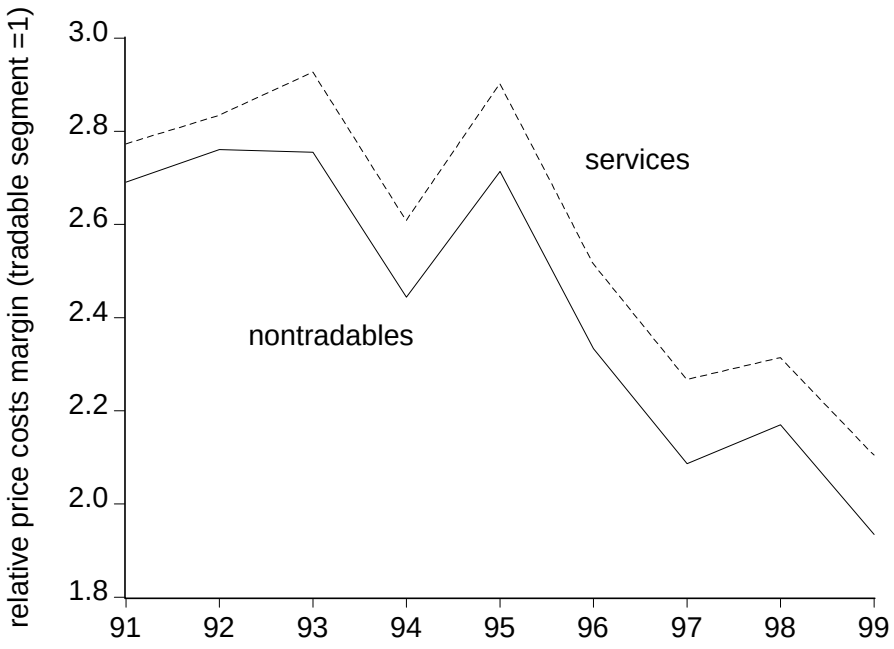
Source: Statistical Yearbook, Statistical Office of the Republic of Slovenia; own calculations.

Figure 5 (continued)
Price cost margin



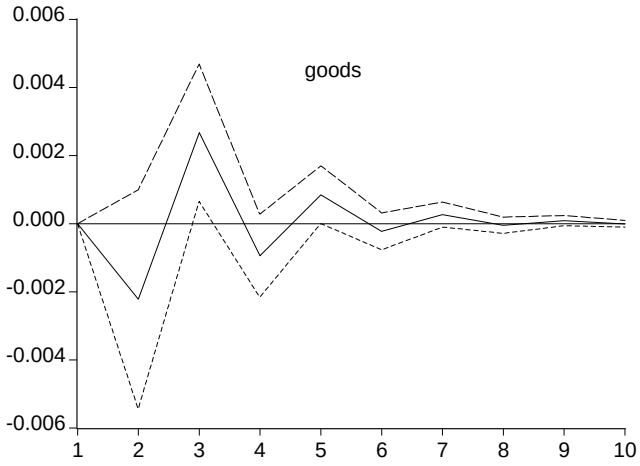
Source: Statistical Yearbook, Statistical Office of the Republic of Slovenia; own calculations.

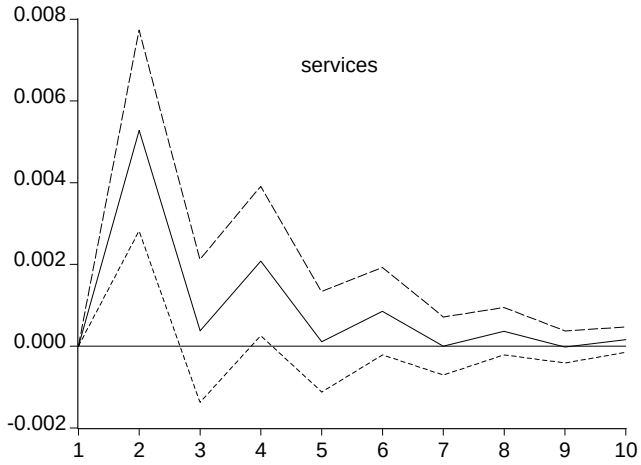
Figure 6
Relative price cost margin (in units of price cost margin in tradable segment)



Source: Statistical Yearbook, Statistical Office of the Republic of Slovenia; own calculations.

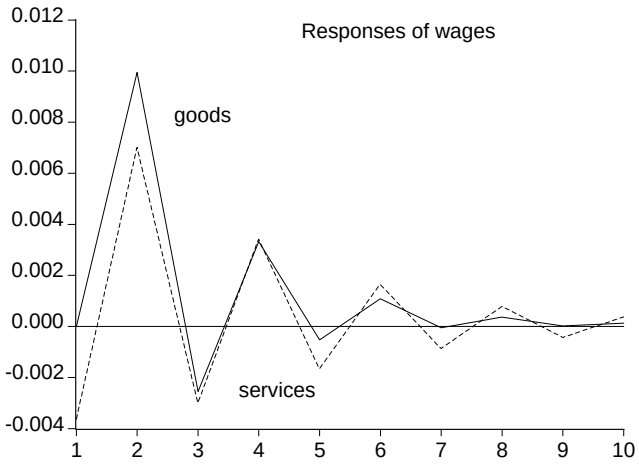
Table 7
Price responses to wage impulses

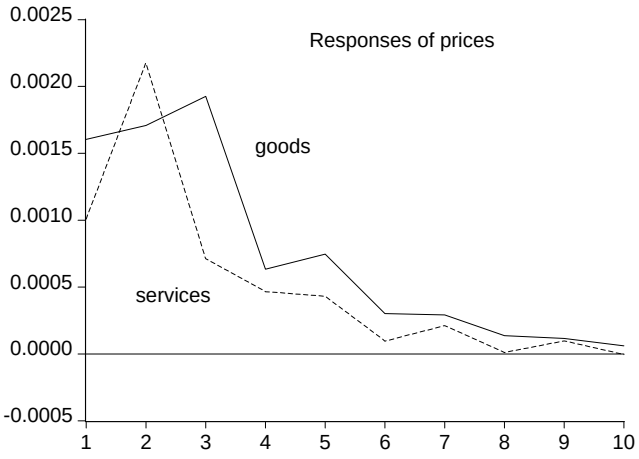




Source: VAR model simulations.

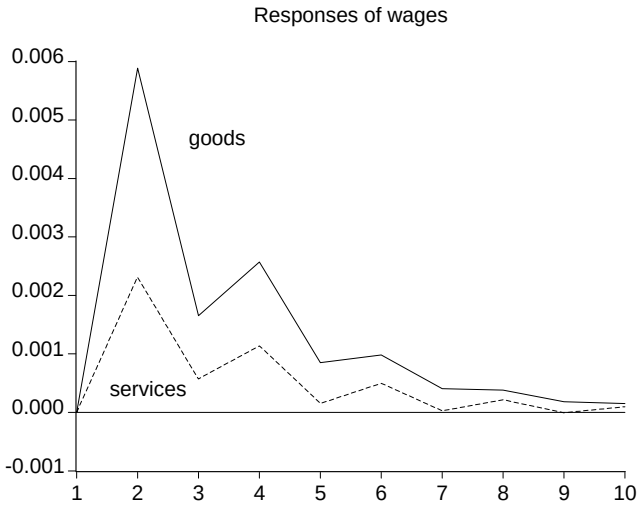
Figure 8
Responses to money impulses





Source: VAR model simulations.

Figure 9
Responses to exchange rate impulses



Source: VAR model simulations.

Table 1
Enterprises in transition

		Manufacturing	Services	Nontradables
Change in the number of enterprises in 1990-1994[a]				
5 - 60	employed	0.448	0.850	0.699
over 60	employed	-0.292	-0.808	-0.780
Change in the number of enterprises in 1995-2000[b]				
5 - 50	employed	0.209	0.098	0.141
over 50	employed	0.485	0.037	0.094
Total employment[c]				
1990		373	245	403
1994		287	250	377
2000		245	274	405

Note: [a] In units of the number of enterprises in 1990.
[b] In units of the number of enterprises in 1995.
[c] In thousands.

Source: Statistical Yearbook of the Republic of Slovenia; own calculations.

Table 2
Model of the market structure

	Tradables	Services
Competition parameter	1.652	2.233
	(3.2)	(5.3)
"Transition progress" and capital growth effects	0.012	0.003
	(3.4)	(2.6)
DW	1.63	2.07
R^2	0.58	0.89

Source: Statistical Yearbook of the Republic of Slovenia; own calculations.

Table 3
VAR model for "goods" producing sectors

	Wages[a]	Money[b]	Prices[c]	Exchange rate
Wages	0.011	0.520	0.197	0.151
	(0.1)	(1.6)	(2.0)	(0.9)
Money	0.358	-0.285	0.079	0.111
	(3.4)	(-1.6)	(1.5)	(1.2)
Prices	-0.256	0.923	0.055	-0.042
	(-0.7)	(1.6)	(0.3)	(-0.1)
Exchange rate	0.370	0.140	0.237	0.298
	(1.8)	(0.4)	(2.2)	(1.7)
Intercept	0.005	0.006	0.005	-0.001
	(0.5)	(0.3)	(0.9)	(-0.1)
Fuel prices	0.395	0.089	0.048	0.058
	(2.9)	(0.4)	(0.7)	(0.5)
VAT dummy	0.012	0.050	0.011	0.009
	(0.5)	(1.2)	(0.9)	(0.5)
R^2	0.39	0.32	0.49	0.18
DW	1.6	1.6	1.6	2.0
RESET[d]	0.8	0.7	0.7	0.5

Akaike(1)=337.5
Akaike(2)=365.2

Note: Model is quarterly; all variables are in differences of logarithm.
[a] Narrow money per unit of real GDP.
[b] Average wage in the tradable segment.
[c] Retail prices of "goods".
[d] Significance.

Source: Monthly Bulletin of Bank of Slovenia; Rapid Reports: Labor market, Statistical Office of the Republic of Slovenia; own calculations.

Table 4

VAR model for "services" producing sectors

	Money[a]	Wages[b]	Prices[c]	Exchange rate
Money	-0.235	0.189	0.116	0.077
	(-1.7)	(1.9)	(3.3)	(1.0)
Wages	0.743	-0.388	0.228	0.080
	(3.1)	(-2.2)	(3.7)	(0.6)
Prices	0.970	0.523	-0.020	0.181
	(1.7)	(1.2)	(-0.1)	(0.6)
Exchange rate	-0.013	0.169	0.128	0.256
	(-0.03)	(0.7)	(1.5)	(1.3)
Intercept	0.004	0.026	0.009	-0.003
	(0.2)	(2.2)	(2.1)	(-0.3)
Fuel prices	-0.243	-0.228	0.163	0.089
	(-1.2)	(-1.5)	(3.0)	(0.8)
VAT dummy	0.055	-0.000	0.035	0.005
	(1.5)	(-0.0)	(3.8)	(0.3)
R^2	0.46	0.22	0.67	0.18
DW	1.7	1.5	1.9	2.0
RESET[d]	0.9	0.2	0.3	0.6

Akaike(1) = 349.9
Akaike(2) = 380.9

Note: Model is quarterly; all variables are in differences of logarithm.

[a] Narrow money per unit of real GDP.

[b] Average wage in the nontradable segment.

[c] Retail prices of "services".

[d] Significance.

Source: Monthly Bulletin of Bank of Slovenia; Rapid Reports: Labor market, Statistical Office of the Republic of Slovenia; own calculations.