

PONAŠANJE TROŠKOVA PRI PROMENI OBIMA AKTIVNOSTI I MOGUĆNOST PRIMENE U RAČUNOVODSTVU

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Rezime

Suštinu ovog rada čini kritička ocena teorijskih koncepcija o ponašanju ukupnih troškova u odnosu na promene obima aktivnosti sa aspekta mogućnosti primene u računovodstvenoj praksi. Rad je prvenstveno zamišljen kao pregled nužnih ograničenja teorijsko-dinamičkog modela o ponašanju troškova za potrebe kratkoročnog upravljanja troškovima unutar relevantnog raspona obima aktivnosti. U radu se, takodje, raspravlja o potrebama razdvajanja i alociranja fiksnih i varijabilnih troškova na uzročnike njihovog nastajanja u upravljačkim sistemima obračuna troškova. U nužnoj meri učinjen je teorijski osvrt na učenje o reagibilnosti troškova kao delu metodologije za klasifikovanje troškova na fiksnu i varijabilnu komponentu. Na kraju rada data su objašnjenja o mogućim izvorima grešaka prilikom diferenciranja troškova kroz kritičku ocenu operativnih metoda koji se u praksi primenjuju.

Ključne reči: ukupni troškovi, fiksni troškovi, varijabilni troškovi, mešoviti troškovi i relevantni raspon obima aktivnosti

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THE COST BEHAVIOR AT THE ACTIVITIES VOLUME CHANGE AND THE POSSIBLE APPLICATIONS IN ACCOUNTING

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Summary

The essence of this work is a critical evaluation of theoretical concepts on the behaviour of total costs in respect to changes in the activities volume from the aspect of the possible applications in the accounting practice. The work is primarily designed to offer an overview of the necessary restrictions to the theoretical-dynamic model on the behaviour of costs for the needs to a short-term costs management within the relevant volume of activities. The paper also offers a discussion on the need to make differentiation and allocation of fixed and variable costs into causes of their generation in the management accounting systems. To the extent that was necessary a theoretic survey was given of the teachings on the costs reability, as a part of the methodology for classifying costs into the fixed and variable component. Finally, the work offers explanations on the possible sources of errors in differentiation of costs through critical assessment of the operative methods that are being applied in practice.

Key words: total costs, fixed costs, variable costs, mixed costs, and relevant scope of activities volume

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Uvod

Posmatrano sa istorijskog aspekta, postoji evidentna diskrepanca između učenja ekonomske teorije i njene praktične primene u računovodstvenoj praksi. Ovaj vremeski jaz je nekada trajao i preko pola veka. Tako, na primer, trebalo je više od 50 godina da se učenje neoklasičara - teoretičara marginalizma primeni u privrednoj praksi.

Razloge ovog zaostajanja računovodstvene prakse u odnosu na ekonomsku teoriju, treba tražiti u međusobnom nerazumevanju, koja proističu iz uzajamnog nepoznavanja problema, sa kojima se druga strana suočavala. I jedni i drugi bili su sa svog aspekta delimično u pravu. Međutim, privredna praksa nije imala nikave koristi od toga, što su jedni u sličnosti videli razlike, a drugi u razlikama sličnost. Nakon dužeg perioda neslaganja, obe strane su postale svesne da će jedino naučno fundirana kompromisna rešenja doprineti obostranom napretku.

U tom smislu učinjeni su izvesni ustupci sa obe strane. Prva tačka susreta teorije i prakse, bila je praktična aproksimacija o linearnoj funkcionalnoj zavisnosti kretanja ukupnih troškova, u odnosu na promene obima aktivnosti, koja je bila u suprotnosti sa učenjem o krivolinijskoj funkcionalnoj zavisnosti ekonomske teorije. Drugo kompromisno rešenje odnosilo se na konvenciju, kojom se teorijski marginalni troškovi za praktične potrebe mogu, pod izvesnim uslovima, supstituisati prosečnim varijabilnim troškovima. Ove dve bazične pretpostavke, u kasnijoj fazi razvoja privredne prakse, činile su okosnicu svih upravljačkih sistema obračuna troškova.

Savremeni upravljački sistemi obračuna troškova neizostavno uključuju metodologije razdvajanje ukupnih troškova na fiksnu i varijabilnu komponentu. Podela troškova na fiksne i varijabilne učinjena je sa aspekta kratkoročnog ponašanja troškova unutar relevantnog raspona obima aktivnosti. Kratak rok posmatranja i relevantni raspon obima aktivnosti predstavljaju limitirajuće faktore ovog koncepta s jedne, a omogućavaju praktičarima, da teorijska učenja korektno prilagode potrebama računovodstvene prakse, s druge strane.

Teorijski koncept o kratkoročnom ponašanju troškova i učenje o reagibilnosti troškova

umnogome su doprineli da se razrade metode za derivaciju ukupnih troškova na fiksne, varijabilne i mešovite. Pod pretpostavkom da su apsolutno fiksni i proporcionalno varijabilni troškovi jedini teorijski „čisti troškovi“, svi ostali troškovi se mogu svrstati kao mešoviti, odnosno kao njihova međusobna kombinacija.

Doduše, teorijski koncept dinamike troškova, osim pravolinijsko degresivnih troškova unutar jedne zone, u mešovite troškove svrstava i sve druge troškove izuzev apsolutno fiksnih i proporcionalno varijabilnih, koji se nalaze između različitih zona (opsega) zaposlenosti. Međutim, kako se ovde radi o srednjoročnom i dugoročnom međuzonskom ponašanju troškova to ovi troškovi neće biti posebna tema našeg daljeg razmatranja. Sledstveno tome teorijski koncept o dinamičkom ponašanju troškova, biće korišćen samo u onim prilikama, kada je to nepohodno da se objasni uticaj vremenskog roka i opsega aktivnosti na funkcionalnu zavisnost u ponašanju troškova.

U radu nameravamo da se pozabavimo ograničenjima metodološke prirode koja su vezana za operativno razdvajanje troškova na fiksnu i varijabilnu komponentu. Zbog karaktera rada, formalna i terminološka ograničenja na ovom mestu nećemo posebno razmatrati. To svakako ne znači da ona nisu bitna, jer često mogu svojim kontradiktornim sadržajem da izazovu zabunu. Na primer, zbog neujednačene terminologije, jedna ista kategorija relativno fiksnih troškova, može se naći pod različitim nazivima i to kao: mešoviti troškovi, polufiksni troškovi, stepenasti troškovi itd. Degresivno - varijabilni troškovi (pravolinijski i krivolinijski), takođe se mogu naći pod različitim nazivima, kao što su: mešoviti troškovi, semivarijabilni i polufiksni troškovi.

Ekonomsko-računovodstvene postavke o ponašanju troškova

U savremenoj stručnoj literaturi, troškovi se definišu, kao novčani izraz trošenja faktora proizvodnje u cilju stvaranja učinaka, odnosno proizvoda i usluga. Međutim, neke vrste troškova postoje, nezavisno od toga, da li proizvodnja teče ili je proizvodni proces potpuno zaustavljen. U tom smislu, osnovna ideja ovog teksta je da ukaže na funkcionalnu

Introduction

Viewed from a historical aspect, there is an evident discrepancy between the teachings of the economic theory and its practical application in the accounting practices. This time gap had lasted, at times, even longer than half a century. Thus, for instance, it took more than 50 years for the teachings of neo-classicists - theoreticians of marginalism, to be applied in economic practices.

The reasons for this lag of accounting practices in relation to the economic theory are to be looked for in the lack of mutual understanding that resulted from the unawareness of one side as to of the problems that the other side was facing. Both ones and the others, from their own point of view, seemed to be right, at least in some parts of their stance. However, economic practice could not draw any benefits from such a situation where one of the parties would perceive difference in similarities, while the other would perceive similarity in differences. After a rather lengthy period of discord, both parties became aware that only a scientifically founded compromise solutions would contribute towards a mutual progress.

Certain concessions were made to that end by the counterparties. The first point of accord between theory and practice was the practical approximation on the linear functional dependency of the total costs movement, in respect to the changes in the volume of activities, which stood opposed to the teachings on the curve functional dependency of the economic theory. The second compromise solution pertained to the convention stating that theoretically marginal costs for practical purposes may, under certain conditions, be substituted by the average variable costs. Both of these basic assumptions, in the later development phase of the economic practice, came to be regarded as the backbone of all the cost accounting management systems.

Modern management accounting systems irrefutably embrace methodologies of differentiation of total costs into their fixed and variable components. Differentiation of costs into fixed and variable ones is made from the aspect of the short-term behaviour of costs within the relevant activities scope. Short

period of observation and the relevant scope of activities volume are the limiting factors of this concept, on the one hand, yet on the other hand allow practical applicants to adjust correctly theoretical teachings on to the needs of the accounting practices.

Theoretical concept of the short-term cost behaviour and the teachings on the costs reagibility have greatly contributed to the working out of the methods for the derivate differentiation of total costs on the fixed, variable and the mixed ones. Under the assumption that the absolutely fixed and proportionally variable costs are the only theoretically "clean costs", all the other costs may be classified as mixed, i.e. as their mutual combination.

It should be said, however, that the theoretical concept of costs dynamics, except for the linear digressive costs within a given zone, is allocating within the mixed costs also all the other costs, except for the absolutely fixed and proportionally variable ones, which are to be found between different zones (of the scope) of employment. However, as we are speaking here of the medium-term and the long-term inter-zone behaviour of costs, these costs will not be a particular topic of our further deliberations. Consequently, theoretical concept on the dynamic behaviour of costs will be used only in those circumstances when it is necessary to explain the impact of the time deadline and the activities volume on the functional dependency in the costs behaviour.

We intend to deal in this paper with the constraints of a methodological nature related to the operative separation of costs into fixed and variable components. Due to the nature of this work, formal and terminological constraints will not be examined here in more detail. This in no case implies that they are not important, as they can cause by their contradictory contents certain confusion. For example, due to non-harmonized terminology, one and the same category of relative fixed costs may be found under different names, such as: mixed costs, semi-fixed costs, stepped costs, etc. Digressive - variable costs (rectilinear and curvilinear variable costs) can also be found under different terms, such as mixed costs, semi-variable, and semi-fixed costs.

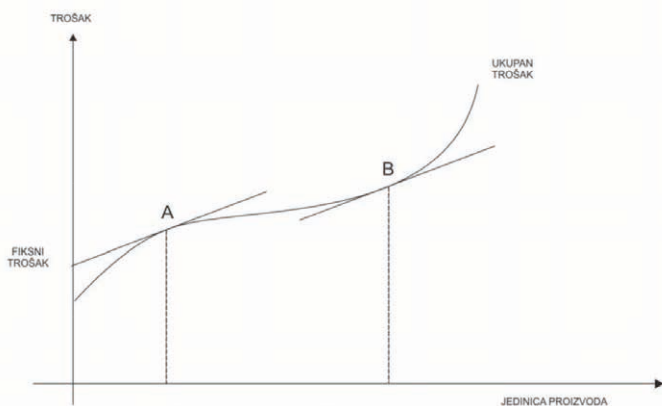
zavisnost koja postoji između variranja obima aktivnosti i troškova za potrebe upravljanja. Osnovna i polazna pretpostavka ovog koncepta je da obim aktivnosti može biti meren jedinicom fizičkog proizvoda, mašinskim časovima rada, pređenim kilometrima, ili nekim drugim kompleksnijim nosiocem troškova. U slučaju, da se struktura proizvodnje sastoji od nehomogenih učinaka, koji se ne mogu izraziti istom jedinicom mere, tada se kao pomoćno sredstvo za predviđanje fluktuacije troškova koristi stepen korišćenja kapaciteta.

U ekonomskoj teoriji aspekt istraživanja ponašanja ukupnih troškova u odnosu na promenu obima aktivnosti, uslovljava nužnu podelu troškova na: fiksne, varijabilne i mešovite. Ne treba posebno naglašavati da se ova podela mora krajnje uslovno shvatiti. Naime, sa stanovišta kratkog roka, neki troškovi su fiksni, a drugi varijabilni. Nasuprot tome, na dugi rok, svi troškovi su varijabilnog karaktera.

S druge strane, ponašanje troškova u dinamičkoj ravliniji je isto zasvezone zaposlenosti. Svaka zona zaposlenosti ima karakteristične tendencije dinamike troškova. Konkretnije, u nekim sekvencama troškovi su degresivnog karaktera, u drugim proporcionalnog i, na kraju, mogu biti progresivni.

Za potrebe računovodstvene prakse, neke teorijske postavke o ponašanju ukupnih troškova moraju biti nužno prilagođene. U ekonomskoj teoriji, dinamičko ponašanje ukupnih troškova u odnosu na promene obima aktivnosti ima nelinearni karakter kao na grafiku br. 1.

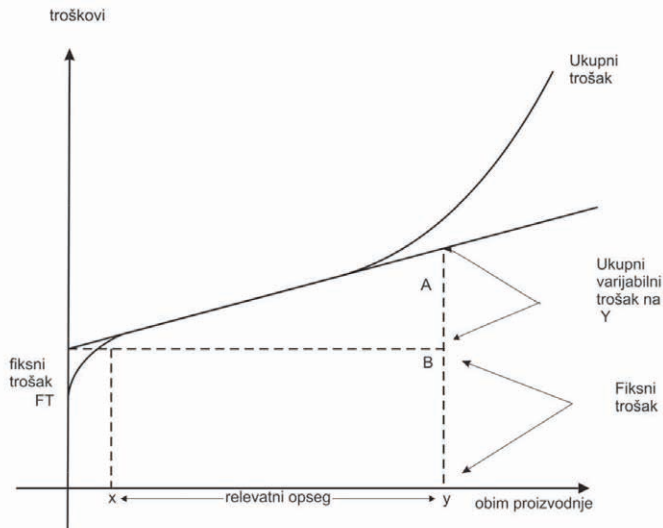
Grafik 1 - Nelinearna kriva ukupnih troškova



Izvor: Zimmerman J.L. (2009) Accounting for Decision Making and Control, Sixth Edition, Mc-Graw-Hill New York, P32

Za potrebe računovodstvene prakse međuzavisnost troškova i obima aktivnosti može se, iz pragmatičnog razloga, prikazati linearnom funkcijom.

Grafik 2 - Aproksimacija pravolinijskog ponašanja ukupnih troškova



Izvor: Zimmerman J.L. (2009) Accounting for Decision Making and Control, Sixth Edition, Mc-Graw-Hill New York, P34

Teorijski, ova pretpostavka može biti validna za kratkoročni vremenski horizont unutar relevantnog raspona obima aktivnosti. Relevantni raspon obima aktivnosti može se definisati kao onaj obim aktivnosti unutar kojeg fiksni troškovi ostaju konstantni u ukupnom iznosu, a varijabilni troškovi po jedinici outputa (Horgren, Harison 2009 p 952.). Matematičko uporište za ovu ideju, nađeno je u tzv. „tangntnom fenomenu 2“ po kome je svaki pravac, odnosno svaka prava povučena iz ishodišta proporcionalnog karaktera. (Majcen 1975 str. 79)

Pretpostavkom o linernom ponašanju ukupnih troškova unutar relevantnog opsega učinjen je napredak da se pojednostavi postupak obračuna troškova, planiranje i kontrola ostvarenja preduzeća i užih organizacionih delova. To je važan aspekt koji pomaže menadžmentu pri obavljanju upravljačkih aktivnosti.

Koncepcija o lineranosti ukupnih troškova unutar relevantnog raspona obima aktivnosti, koju je prihvatila računovodstvena praksa, dosta je osporavana od strane ekonomskih teoretičara. Iako su ove kritike bile dobrim

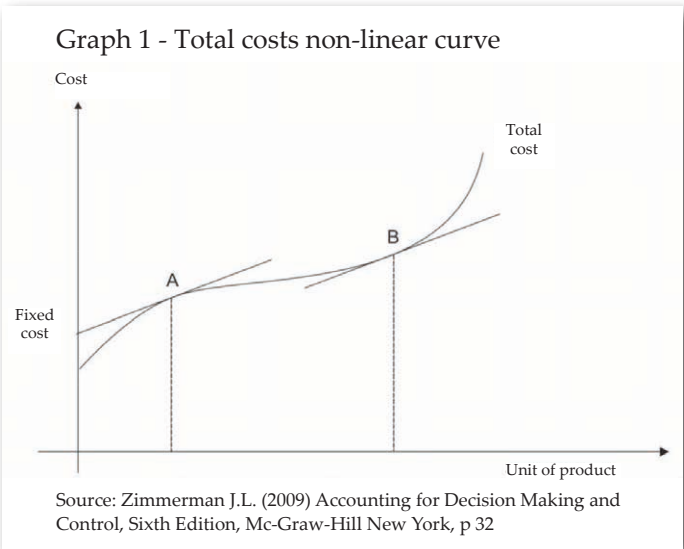
Economic-accounting cost behaviour assumptions

In the contemporary professional literature costs are defined as the monetary expression of the production factor expenditure for purpose of output creation, i.e. creation of products and services. However, there are some types of costs that prevail irrespective of whether the production is on-going or whether the production process is completely stopped. To that end, the basic idea of this text is to point out at the functional dependency that exists between variable activities volume, and the costs required for managerial purposes. The basic and starting assumption of this concept is that the activities volume may be measured by the unit of physical product, by machine-labour hours, by kilometres covered, or by some other more complex costs carrier. In case the product structure consists of non-homogeneous output that can not be expressed in the same unit measure, then as an auxiliary tool for forecasting costs fluctuation what is used is the degree of capacity exploitation.

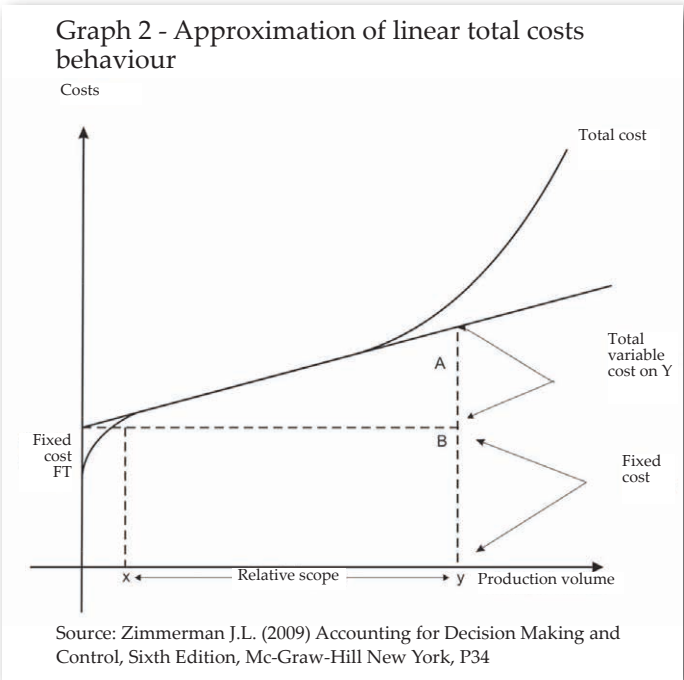
In the economic theory, the aspect of investigation into the behaviour of total costs in respect to the change in the activities volume causes a necessary division of costs into: fixed, variable, and mixed. It is not necessary even to stress particularly that this division must be perceived extremely conditionally. Namely, from the short-term aspect, some costs are fixed, some others are variable. Conversely, in the long-term perspective, all costs are of a variable character.

On the other hand, however, behaviour of costs in a dynamic plane is not the same for all the employment zones. Every employment zone has its own characteristic tendencies of costs dynamics. In concrete terms, in some sequences costs are of a digressive character, in some others they are of a proportional character, and finally, they may be progressive.

For the needs of accounting practice, some theoretical assumptions on the behaviour of total costs must necessarily be adjusted. In the economic theory, dynamic behaviour of total costs, in respect to the changes in the activities volume, has a non-linear character, as presented in Graph 1.



For the needs of accounting practice interdependence between costs and activities volume may be presented, for pragmatic reasons, by a linear function.



In theory, this assumption may be deemed valid for a short-period time horizon within the relevant scope of activities volume. Relative

delom tačne, svojom jednostranošću prenebregle su činjenicu da se teorijski model mora prilagoditi realnom životu (Krasulja 1969. str. 45)

U suštini, ovde je reč u uzajamnom animozitetu ekonomskih teoretičara i računovodstvenih praktičara, koja je proistekla najvećim delom iz nepoznavanja problema sa kojima se druga strana suočavala. Naime, ekonomski teoretičari nisu dovoljno upućeni u računovodstvo troškova, a računovođe u ekonomsku teoriju. U kontekstu ovog izlaganja treba istaći i druge razlike u shvatanju troškova između ekonomske teorije i računovodstvene prakse. Naime, finansijske računovođe se uglavnom bave pripremanjem izveštaja za eksterne korisnike. Iz tih razloga, finansijske računovođe posmatraju troškove retrospektivno (istorijski), jer im je cilj da evidentiraju promene na imovini i obavezama, koje su nastale kao rezultat prethodnih aktivnosti, a iskazane u trenutnim bilansnim pozicijama preduzeća. Pored toga, finansijske računovođe u svojim izveštajima uključuju troškove koje ekonomisti ne bi uključili, a isključuju stavke koje ekonomisti ne bi isključili (Pindyck, Rubinfeld 2005. str. 204).

Ekonomisti, upravljačke računovođe, a naročito menadžeri moraju biti okrenuti budućnosti preduzeća. Oni se dakle bave problemima vezanih za racionalnu raspodelu oskudnih resursa sa ciljem da se smanje budući troškovi i poslovanje učini profitabilnijim. Ekonomski teoretičari, uključiv i menadžment, posmatraju troškove kao posledicu propuštenih prilika, a ne kao istorijske troškove, kako ih tretira finansijsko računovodstvo.

Logično se nameće pitanje na koji način možemo pomiriti oprečna učenja o ponašanju troškova u teoriji i praksi u cilju upravljanja troškovima. Prvo, treba rešiti konflikt između teorijskog koncepta o krivolinijskom ponašanju troškova, s jedne, i linearne funkcionalnosti između troškova i obima aktivnosti na kojima se zasniva praktična primena teorijskog učenja, s druge strane. U tesnoj vezi sa ovom problematikom je teorijsko pitanje o ponašanju troškova u kratkom i dugom roku. Poznavanje ovih zakonitosti o ponašanju troškova pomaže praktičarima da neke teorijske modele, uz izvesna ograničenja, primene u privrednoj praksi, a druge kao nekorisne ili skupe odbace.

Drugi korpus problema, čini izbor

upravljačkih ciljeva i alata potrebnih da se ti izabrani ciljevi ostvare. Radi se o ciljevima vezanim za planiranje, kontrolu troškova i poslovno odlučivanje. Za ostvarivanje navedenih ciljeva potrebno je pribaviti informacije o prošlim (stvarnim) troškovima, prvenstveno iz finansijskog računovodstva. Zatim utvrditi standarde za buduće troškove poštujući princip troškovne efikasnosti. Najzad, izabrati efikasan i nezavisan način kontrole troškova za potrebe preduzimanja korektivnih akcija.

Na osnovu navedenog, u narednom delu rada nameravamo da se bavimo sledećim pitanjima:

Kako pomiriti postavke ekonomske teorije i privredne prakse o modelu ponašanju troškova u odnosu na promene obima aktivnosti?

Kako klasifikovati troškove, odnosno kako definisati funkcionalni odnos troškova i obima aktivnosti na kratak i dugi rok?

Koja ograničenja teorijskih modela treba uzeti u obzir pri klasifikaciji troškova?

Zašto i na koji način treba izvršiti razdvajanje troškova čije se ponašanje ne uklapa u koncept izabranih upravljačkih sistema?

Zbog ograničenog prostora i složenih tema koja se ovim pitanjima pokreću nije moguće ponuditi celovite odgovore. S toga će naša pažnja biti usmerena na ključna pitanja relevantna za razumevanje teme istraživanja.

Teorije o ponašanju troškova i njihova klasifikacija

Teoretičari klasične škole smatrali su da ukupni troškovi počev od nultog stepena zaposlenosti prolaze kroz tri zone: zonu regresije, zonu proporcionalnosti i zonu progresije.

scope of activities volume can be defined as that activities volume within which the fixed costs remain constant in the total amount, and are variable costs per unit of output (Horgren, Harison 2009, p. 952). Mathematical grounds for this idea were found in the so-called "tangent phenomenon 2" which implies that every direction, i.e. every straight line drawn from the source is of a proportional character (Majcen 1975, p. 79).

The assumption of the linear behavior of total costs within the relevant scope marked a step forward in simplifying the cost accounting procedure, planning and control of company performance and its particular organizational units. This is an important aspect that can assist management in carrying out its managerial activities.

The concept of linear form of total costs within a relevant scope of activities volume that has been recognized by the accounting practice was rather extensively challenged by the economic theoreticians. Although presented challenges were in good part accurate, in their one-sided approach they have overlooked the fact that the theoretical model must be adjusted to real life (Krasulja 1969, p. 45).

Essentially, it is the question here of a mutual animosity that prevails between economic theoreticians and the accounting practitioners, which mostly derived from the insufficient awareness of the problems facing the other side. Namely, economic theoreticians were not sufficiently versed with the cost accounting, while the accountants lacked full insight into the economic theory. In this context, it is important to note also some other differences that exist in the perception of costs between the economic theory and the accounting practice. Namely, financial accountants are mainly engaged in preparing reports for external users. For this reason, financial accountants are observing costs in retrospect (historically), as their aim is to record changes in assets and liabilities, incurred as a result of previous activities, and expressed in the current company balance positions. In addition, financial accountants in their reports are presenting costs that the economists would not present, and are excluding positions that the economists would not exclude (Pindyck, Robinfeld, 2005, p. 204).

The economists, management accountants, and especially the managers themselves, must be turned towards the future of the company. Hence they must engage in problems related to a rational allocation of scarce resources with the aim of lowering future costs and making business more profitable. Economic theoreticians, including the management, are experiencing costs as a consequence of opportunities lost, not as historic costs, as they are actually treated by the financial accounting.

There is a logical question here in what way can we reconcile the teachings on the behavior of costs in theory and in practice, for purpose of costs management. Firstly, it is necessary to resolve the conflict between the theoretical concept of the curve-line cost behavior on the one hand and on the other hand the linear functionality between costs and the activities volume on which the practical application of theoretical teaching is based. There is a close connection of this problematic issue with the theoretical question of the behavior of costs in the short-term and in the long-term. The knowledge of these norms in the cost behavior helps the practitioners to apply in business practices some of these theoretical models, with certain limitations, while abandoning or rejecting some others as either useless or costly.

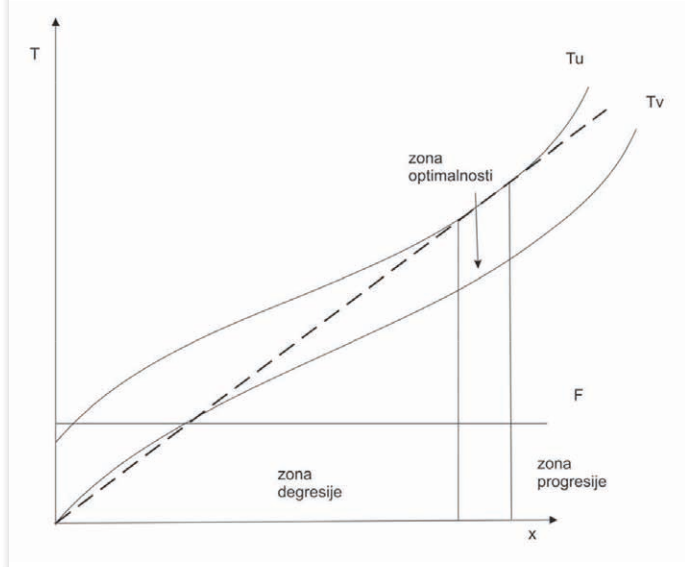
Another problem corpus is the selection of management targets and the tools necessary for reaching the selected targets. They are the targets related to planning, costs control and business decision-making. For the achievement of these targets what is necessary is to provide information on the past (real) costs, primarily from the financial accounting. In addition, it is also necessary to set up standards for future costs with the respect for the principle of cost efficiency. Finally, it is necessary to select an efficient and independent manner of costs control necessary for undertaking corrective actions.

In view of the above stated the part of this paper that is to follow is intended for focusing on the following issues:

How can we reconcile assumptions of economic theory and business practice on the costs behavior model in respect to the activities volume change?

How can we classify costs, i.e. how to define the functional relationship between costs and

Grafik 3 - Dinamika ukupnih troškova (fiksni i varijabilni)



Klasična teorija troškova smatra da postoji pet glavnih činilaca koji utiču na troškove, a to su: kvalitet faktora proizvodnje, zaposlenost (stepen zaposlenosti), cene faktora, veličina preduzeća i proizvodni program.

Kako je predmet našeg istraživanja, između ostalog, povezan sa uticajem obima aktivnosti na ponašanje troškova, to ćemo se u daljoj analizi na ovaj aspekt funkcionalne zavisnosti posebno fokusirati. Normalno je očekivati da postoje različite grupe i podgrupe troškova koje iskazuju različitu funkcionalnu zavisnost u odnosu na variranje obima aktivnosti, odnosno stepena zaposlenosti kapaciteta. S tim u vezi, ukupne troškove možemo razvrstati na tri osnovne grupe: fiksne, varijabilne i mešovite. Fiksne troškove možemo podeliti na apsolutno fiksne i relativno fiksne, a promenljive (varijabilne) na proporcionalne, regresivne i progresivne.

Navedena podela troškova je uslovljena razlikama u načinu reagovanja troškova na oscilacije obima aktivnosti. Taj stepen osetljivosti troškova na promene obima aktivnosti u teoriji je poznat kao „stepen reagibilnosti“. Stepenn reagibilnosti može se utvrditi ne samo za ukupne troškove, već se može iskazati i za pojedine materijalno značajne vrste troškova kao konstitutivne elemente. Tako na primer, stepenn reagibilnosti troškova (r) u odnosu na fluktuacije obima proizvodnje (stepena zaposlenosti) može se izraziti sledećim funkcionalnim vezama:

Kod fiksni troškova $r = 0$

Kod proporcionalno varijabilni troškova $r = 1$

Kod regresivno varijabilni troškova $r < 1$ (interval između 0 i 1),

Kod progresivni troškova $r > 1$

Naravno, stepenn reagibilnosti ne mora da bude uvek konstantan. U praksi, troškovi imaju sekvencijalne fluktuacije sa tendencijama koje inkliniraju teorijskim pretpostavkama. To naročito važi za troškove, koji čak ni u teorijskom smislu nemaju jednoznačno određeno ponašanje, jer se njihove referentne vrednosti reagibiliteta kreću u intervalnom opsegu od 0 do 1 ili preko 1.

Kao što je napred rečeno, fiksni troškovi se mogu dalje razložiti na apsolutno fiksne (vremenske troškove) i relativno fiksne (skokovite) troškove. Apsolutno fiksni troškovi u masi su vezani za samo postojanje preduzeća, a to znači da je njihov obim definisan veličinom kapaciteta, a ne obimom aktivnosti. Apsolutno fiksni-vremenski troškovi, u ukupnom iznosu, ispunjavaju teorijsku pretpostavku o indiferentnom ponašanju u odnosu na promene obima aktivnosti.

Drugu komponentu fiksni troškova čine relativno fiksni (stepenasti) troškovi, koji nastaju pri prelasku iz jedne zone u drugu zonu aktivnosti, a potom poprimaju karakter apsolutno fiksni troškova. Neki teoretičari iz oblasti upravljačkog računovodstva ove međuzonske troškove, koji skokovito rastu, klasifikuju kao mešovite troškove, jer se oni razlikuju od „elementarno čistih troškova“ u koje spadaju apsolutno fiksni i proporcionalno varijabilni troškovi (Stevanović 1998. str. 49.) Ne ulazeći dublje u teorijsku opravdanost ovog stava, smatramo da je za potrebe ostvarenja kratkoročni upravljački ciljeva ova teza neodrživa. Naime, klasični teoretičari dinamike troškova, čvrsto stoje na stanovištu da je pojava relativno fiksni troškova povezana za srednji i dugi vremenski rok (Kolarić, 1975 str.205). Iz toga se eksplicitno može izvući zaključak, da na kratak rok ovi troškovi nisu relevantni. Konkretnije, fiksni troškovi se javljaju samo u obliku apsolutno fiksni troškova, koji

the activities volume over a short-term and long-term horizon?

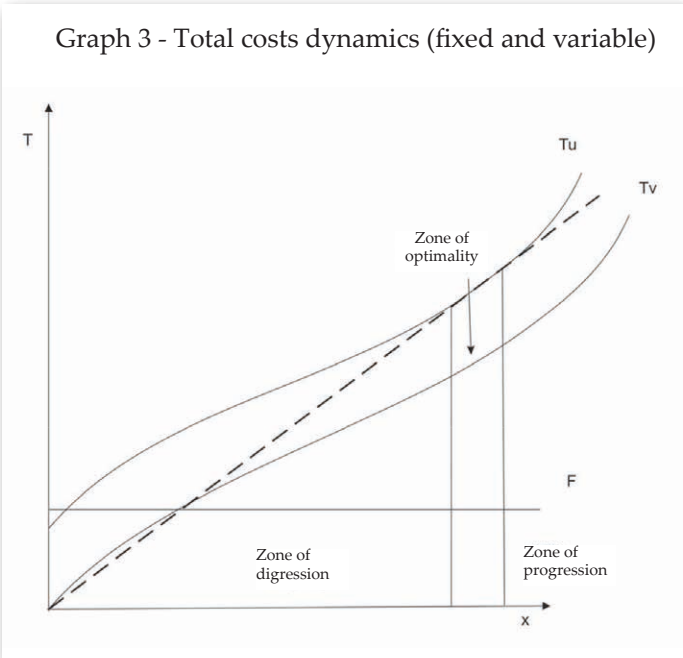
What are the limitations of the theoretical models that should be taken into consideration in classifying costs?

Why and in what way should the division of costs be made, those that in their behavior do not fit in the concept of selected management systems?

Due to limited space and complexity of the topics tackled by these issues it is not possible to offer comprehensive answers. Hence our questions will be focused on the key issues relevant for the understanding of this research topic.

Theory of costs behavior and their classification

Theoreticians of the classical school were of the view that total costs, starting from the zero degree of employment, are passing through the three zones: the zone of digression, the zone of proportionality, and the zone of progression.



Classic cost theory holds that there are five main factors impacting costs, as follows: production quality factor, employment (degree of employment), price factor, company size, and the production program.

The subject of our research being related, among other, with the impact of the activities volume on the costs behavior, we shall engage in

our further analysis and especially focus on this aspect of the functional dependency. It would be normal to expect that there are different groups and sub-groups of costs that are expressing a different functional dependency in respect to the variable activities volume, i.e. degree of capacities employment. In this connection, we can classify total costs into three main groups: fixed, variable, and mixed. Fixed costs can be divided into absolutely fixed and relatively fixed, while the variable ones can be divided into proportional, digressive, and progressive.

The above stated costs classification is conditioned by the differences in the manner costs react to the oscillations in the activities volume. This degree of sensitivity to activities volume changes in theory is known as the “degree of reagibility”. The degree of reagibility may be determined not only for the total costs, but may also be expressed for certain materially significant kinds of costs, as constituent elements. For example, the degree of costs reagibility (r) in respect to the

production volume fluctuation (degree of employment) may be expressed in the following functional connections:

In fixed costs $r = 0$

In proportional variable costs $r = 1$

In digressive variable costs $r < 1$
(interval between 0 and 1)

In progressive costs $r > 1$

The degree of reagibility, of course, does not have to be constant at all times. In practice, costs are having their sequential fluctuations with the tendencies inclined towards theoretical assumptions. This especially applies to costs which even in the theoretical sense do not have a single particularly designated behavior as their reference reagibility values are moving in an interval from 0 to 1, or more than 1.

Fixed costs, as stated here in above, can be further divided into absolute fixed costs (time costs) and relative fixed costs (jumping costs). Absolute fixed costs in the mass are linked to the very existence of the company, which means that their volume is defined by the capacities size, and not the activities volume. Absolute fixed-time costs, in the total sum, are proving the theoretical assumption on the

egzistiraju samo unutar iste zone zaposlenosti.

Neki autori smatraju da u okviru mešovitih troškova, pored relativno fiksnih (stepenastih) troškova, postoje i druge vrste koje se mogu javiti samostalno, ili u međusobnoj kombinaciji (Stevanović 1998. str. 46). U tom smislu, navode se pravolinijsko degresivni troškove koji su nesrazmerni u odnosu na promene obima aktivnosti, krivolinijsko degresivne i progresivne troškove nesrazmerne u odnosu na fluktuacije obima aktivnosti. Ne sporeći teorijsku i praktičnu mogućnost o postojanju krivolinijsko - degresivnih i progresivnih troškova, stojimo na stanovištu da je takav koncept o ponašanju troškova samo jednim svojim delom prihvatljiv za potrebe kratkoročne analize i kontrole troškova.

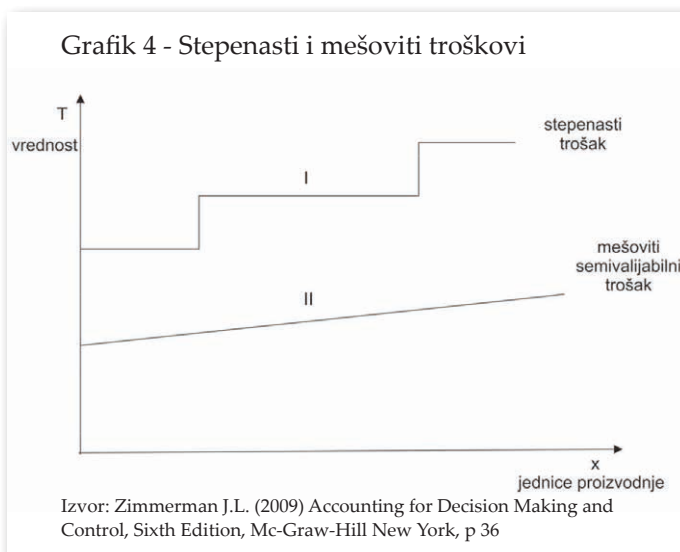
Naime, sa stanovišta kratkog roka, samo pravolinijski degresivni troškovi mogu imati tretman mešovitih troškova. Degresivno linearni troškovi, u svojoj strukturi imaju miks apsolutno fiksnih i proporcionalno varijabilnih troškova, te se iz tih razloga, savršeno uklapaju u teorijski koncept o kratkoročnom ponašanju troškova unutar relevantnog raspona obima aktivnosti. Drugu grupu troškova, poznatu kao krivolinijsko - degresivni troškovi, između ostalih, čine i relativno fiksni troškovi, a to su kao što smo već rekli troškovi srednjeg u dugog roka i kao takvi nisu u fokusu kratkoročne analize o ponašanju troškova. Osim toga, ovaj konglomerat troškova ima značajne varijacije unutar definisanog intervala reagibilnosti, te ih je iz tog razloga u praksi teško rasčlaniti na fiksne i varijabilne elemente. Kao treća grupa u ovom korpusu javljaju se progresivno

krivolinijski troškovi. Pod pretpostavkom da apsolutno fiskni troškovi ne mogu da izazovu progresiju ukupnih troškova, ostaje mogućnost da progresiju troškova uzrokuju varijabilni i relativno fiksni troškovi.

Progresija varijabilnih troškova nastaje, kada se usled povećanja proizvodnje iznad optimalnog nivoa, mora raditi prekovremeno. Tada jedinice troškova rada mogu rasti brže od obima proizvodnje zbog obaveza isplaćivanja naknada zaposlenima za prekovremeni rad. (Meigs, Meigs 1999. str. 1082) Osim toga, zamor radnika i užurbanost dovodi do čestih kvarova na opremi i stvaranju proizvodnog škarta, a sve to zajedno utiče na progresiju ove grupe troškova. Pošto je pretpostavka o progresiji varijabilnih troškova povezana sa ekstremnim korišćenjem kapaciteta, koji su izvan relevantnog raspona obima aktivnosti, to ovi troškovi nisu u fokusu naše analize.

Ukoliko progresiju troškova izazivaju međuzonski relativno fiksni troškovi, tada je to slučaj koji takođe nije u domenu kratkoročne analize troškova unutar relevantnog raspona obima aktivnosti.

Generalno, može se zaključiti da samo linearno degresivni troškovi svojom strukturom i ponašanjem na kratki rok, unutar relevantnog raspona obima aktivnosti, ispunjavaju teorijski uslov da se svrstaju u mešovite troškove. Ta činjenica je bila ključna tačka pomirenja ekonomskih teoretičara i računovodstvenih praktičara. Potvrde o ispravnosti ovih stavova mogu se naći u aktuelnoj i relevantnoj literaturi iz oblasti upravljanja troškovima, a može se plastično i prikazati sledećim graficima.



indifferent behavior in respect to the activities volume changes.

The second component of fixed costs is composed of the relatively fixed (stepped) costs which appear with the transition from one zone of activities into the other, and thereupon they acquire the character of absolutely fixed costs. Some theoreticians in the field of management accounting are classifying these inter-zonal costs, that are on a jumping growth, as mixed costs because they differ from the “elementary clean costs” where the absolutely fixed and proportionally variable costs are covered (Stevanovic 1998, p. 49). Without venturing further into the theoretical justification of this stance, we are of the view that for the needs of achieving short-term management objectives, this thesis is unsustainable. Namely, classic theoreticians of costs dynamics are holding a firm stance that the appearance of relatively fixed costs is linked with the medium and long-term time period (Kolaric, 1975, p. 205). Therefore an explicit conclusion can be made that over a short-term horizon these costs are irrelevant. In concrete terms, fixed costs appear only in the form of absolutely fixed costs, which exist only within the same zone of employment.

Some authors are of the view that within the framework of mixed costs, in addition to the relatively fixed (gradual) costs, there are also some other kinds that can appear independently, or in a mutually combined form (Stevanovic, 1998, p. 46). In this sense, some linear digressive costs are stated which not in proportion with the changes in the activities volume, curve-line digressive and progressive costs out of proportion with the fluctuations in the activities volume. Without challenging theoretical and practical possibilities that the curve-line digressive and progressive costs exist, we hold that such a concept on the behavior of costs is only acceptable in one of its parts for the needs of a short-term analysis and costs control.

Namely, from a short-term point of view, only linear digressive costs can have the treatment of mixed costs. Digressive linear costs, in their structure, have a mix of absolutely fixed and proportionally variable costs, and for this reason they make a perfect match into the theoretical concept on the short-term

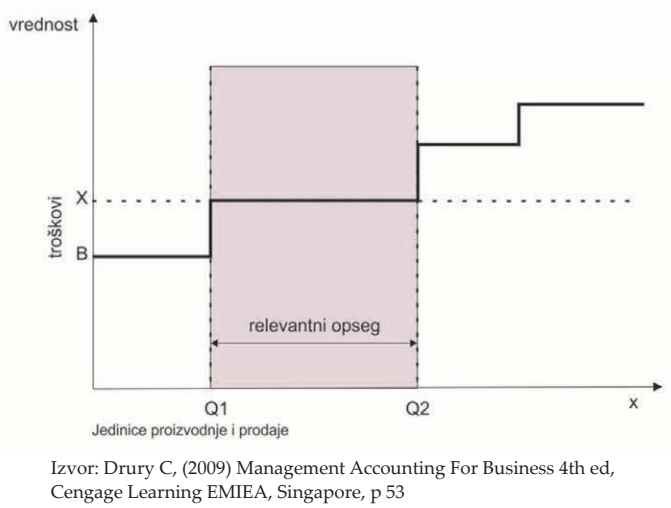
behavior of costs within the relevant activities volume. The second group of costs, known as the curve-line digression costs is composed, among others, of the relatively fixed costs, and they are, as we have already mentioned, costs of the medium and long-term, and as such are not in the focus of the short-term costs behavior analysis. In addition, this conglomerate of costs has significant variations within a defined reability interval, and thus it is difficult to differentiate them in practice into the fixed and variable elements. The third group that appears in this corpus of costs is the progressive costs curve. On the assumption that the absolutely fixed costs can not cause a progression of total costs, the only option that remains is that the costs progression is caused by variable and relatively fixed costs.

Progression of variable costs occurs when the production is increased above its optimum level and must work overtime. It is then that the labour cost units can grow faster than the production volume because of the obligation to pay wages to the employed labour force for overtime work (Meigs, Meigs 1999, p. 1082). In addition, work force fatigue and work overload can cause frequent fail-outs on the equipment and pilling up of production rejects, which altogether impacts the progression of this group of costs. As this assumption on progression of variable costs is linked with the extreme employment of production capacities, which are beyond the relevant scope of activities volume, these costs are not in the focus of our analysis.

If costs progression is caused by inter-zonal relatively fixed costs, then it is deemed to be the case that is beyond the scope of a short-term costs analysis within a relative scope of activities volume.

Generally speaking, it may be concluded that only linear digressive costs by their structure and short-term behavior, within the relevant scope of activities volume, are complying with the theoretical requirement to be classified as mixed costs. This fact was the key point of reconciliation between economic theoreticians and the accounting practitioners. Confirmation of accuracy of these stands may be found in the actual and relevant literature in the field of management accounting, and may be plastically presented on the following graphs.

Grafik 5 - Primena fiksnih troškova u okviru odgovarajućeg opsega



Mogućnost primene ekonomski dinamičkog modela o ponašanju troškova za potrebe upravljačkog računovodstva

Opšte prihvaćeno mišljenje je da se ukupni i pojedinačni troškovi različito ponašaju u odnosu na obim aktivnosti u kratkom i dugom roku. Kratkoročnost je ono vreme koje je dovoljno dugo da se prilagode varijabilni inputi, ali prekratko da bi se dogodila promena svih inputa (Samuelson, Norhaus 2009. str. 131). Neki autori definišu kratak rok kao razdoblje u kome se količina jednog ili više faktora proizvodnje ne mogu menjati (Pinduck, Rubinfeld 2005. str. 181). Kratkoročno gledano, postoji samo jedna (nepromenljiva) kombinacija faktora proizvodnje u vidu fiksnog inputa. Dugi rok predstavlja vremensko razdoblje gde su svi faktori varijabilni.

Sa stanovišta teorije dinamike troškova, kratkoročno razdoblje je onaj vremenski raspon, u kome se kao statički input javlja fiksni trošak, a dinamički faktor je predstavljen svim varijabilnim troškovima. Ukoliko ovom vremenskom ograničenju dodamo relevantni raspon obima aktivnosti, koji u suštini predstavlja jedinstvenu zonu zaposlenosti, dobijamo kompletniju sliku ekonomskog modela o ponašanju troškova prilagođenog potrebama upravljačkog računovodstva.

U privrednom životu, teorijska pretpostavka o podeli troškova na fiksne i varijabilne, koja je učinjena na osnovu njihovog ponašanja u

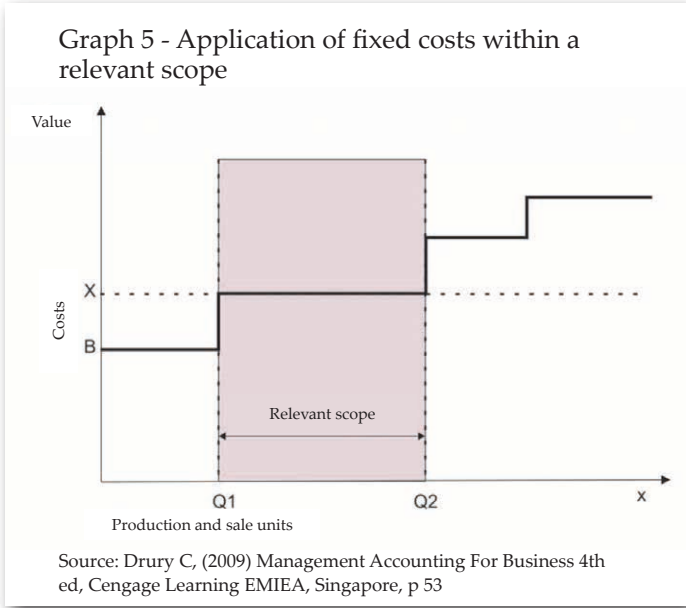
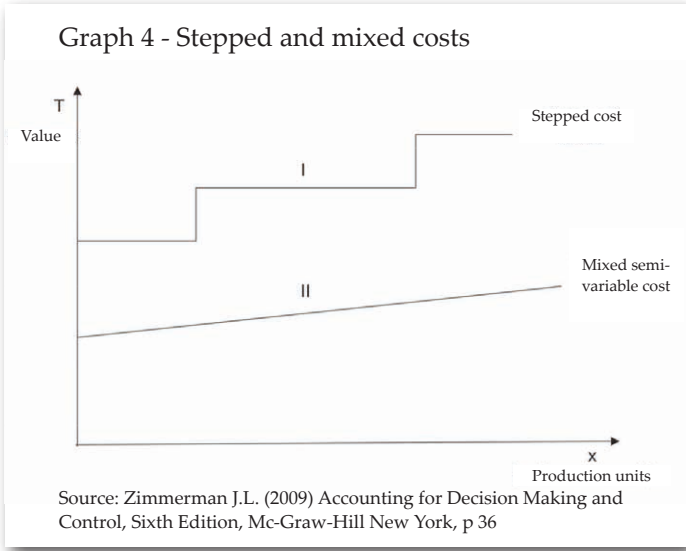
odnosu na promene obima aktivnosti često nije održiva. Naime, zbog načina poslovanja i karaktera proizvodnih procesa, neki teorijski varijabilni troškovi postaju fiksni, a fiksni imaju privid varijabilnosti. Na primer, troškovi prevoza u linijskom saobraćaju iako su teorijski varijabilnog karaktera, pri odlučivanju moraju se tretirati kao fiksni. Amortizacija stalne imovine kao vremenski trošak je fiksnog karaktera, ali ukoliko se obračun amortizacije vrši funkcionalnom metodom, onda ovaj teorijski fiksni trošak, operativno postaje varijabilan. Ovakvih primera u praksi ima mnogo. Namera nam je da ih istaknemo kao ograničenja teorijskog

koncepta za potrebe praktične primene.

Kada se i same teorijske postavke o ponašanju troškova mogu osporavati, logično je postaviti i drugo pitanje, koliko je daleko od stvarnosti pretpostavka o linearnom ponašanju troškova koja se primenjuje u privrednoj praksi. Prvo, različite vrste troškova i uzroci njihovog ponašanja imaju tendenciju međusobnog kompenziranja. Iz tih razloga, aproksimacija uzorka stvarnih troškova može imati linearni karakter (Meigs, Meigs, 1999. str. 1083). Drugo, ukoliko posmatramo ponašanje troškova izvan relevantnog raspona, moguće je kolebanje troškova koje nije u skladu sa projektovanim obrascem ponašanja. Većina preduzeća želi da izbegne ekstremne fluktuacije u volumenu proizvodnje, jer one izazivaju enormne troškove. Iz tih razloga, preduzeća kad god je to moguće žele da posluju u okviru relevantnog raspona obima aktivnosti, a poslovanje izvan njega je pre izuzetak nego pravilo. S toga se pretpostavka o linearnom ponašanju troškova u odnosu na promene volumena proizvodnje unutar relevantnog opsega može prihvatiti kao održiva.

Klasifikacija troškova na fiksnu i varijabilnu komponentu u sistemu obračuna troškova

Podela ukupnih troškova na fiksne i varijabilne ima različit značaj, u zavisnosti od izabrane metodologije obračuna troškova. U zavisnosti od toga da li su svi troškovi, ili samo neke vrste, ili segmenti troškova, predmet



Possibility for application of economic dynamic cost behavior model in management accounting

There is a generally recognized view that the total and individual costs are having a different behavior in respect to the activities volume over a short-term and a long-term horizon. Short-term horizon is the time that is long enough for the variable inputs to be adjusted, but too short for the change to occur in all inputs (Samuelson, Norhaus 2009, p. 131). Some authors define short-term as a period when the quantity of one or more production factors can not be changed (Pinduck, Rubenfeld, 2005, p. 181). Over a short-term timeline, there is only one (unchangeable) combination of production factors in the form of fixed input. Long-term

horizon designates a timeline where all the factors are variable.

Costs dynamics theory views the short-term timeline as the time period where fixed cost appears as a static input, while the dynamic factor is represented by all the variable costs. If we are to add to this timeline limitation the relevant scope of activities volume, which is essentially a single employment zone, we can obtain a more complete picture of the economic model on the behavior of costs, well adjusted to the needs of management accounting.

In the business life, theoretical assumption on the division of costs into fixed and variable, made on the basis of their behavior in respect to the changes in the activities volume, often proves to be unsustainable. Namely, because of the manner of business operation and the character of production process, some theoretically variable costs turn into fixed ones, while the fixed costs acquire an illusion of variability. Transport costs, for example, along established transport lines, although being of a variable character in theory, when making transport decisions must be treated as fixed costs. Fixed assets amortization, as a time-related cost, is of a fixed character, but if amortization is calculated by the functional method

then this fixed cost in theory, in the operational field, becomes variable. There are many such examples in practice. It is our intention to point out at them as constraints to the theoretical concept for the needs of practical application.

In a situation when the very theoretical assumptions on costs behavior can be challenged, it is logical to ask yet another question here: How far removed from reality is the assumption on the linear behavior of costs that is being applied in business practice. Firstly, different types of costs and causes of their behavior have a tendency towards mutual compensation. For this reason, an approximation of the real costs sample may have a linear character (Meigs, Meigs, 1999, p.1083). Secondly, if we are to observe costs behavior beyond the relevant scope, it is possible to encounter costs volatility which is not concordant

obračuna možemo razlikovati:

- metod (sistem) obračuna na bazi ukupnih (potpunih) troškova, metod poznat pod nazivom kao apsorpcioni ili konvencionalni obračun troškova poslovanja i
- metod obračuna po varijabilnim troškovima (Direct Costing)), kao metod obračuna po nepotpunim troškovima;

Apsorpcioni sistem obračuna troškova, može se javiti u dve osnovne varijante, kao obračun po stvarnim (istorijskim) troškovima i obračun po standardnim (planskim) budućim troškovima. Obračun po varijabilnim troškovima može se takođe javiti u dva oblika kao obračun po stvarnim i obračun po standardnim varijabilnim troškovima.

U teoriji i računovodstvenoj praksi mogu se naći i drugi sistemi obračuna troškova, kao što je sistem obračuna troškova po aktivnostima (Activity Based Costing - ABC metoda). Međutim, u relevantnoj računovodstvenoj literaturi, ustalila se podela sistema (metoda) obračuna troškova na: sisteme obračuna po stvarnim i standardnim (apsorpcionim) troškovima i sisteme obračuna po stvarnim i standardnim (nepotpunim) varijabilnim troškovima (Malinić, 2004. str. 106)

Svaki od navedenih sistema (metoda) obračuna troškova ima svoju metodologiju i ciljeve. Ovi ciljevi se teorijski i praktično mogu podeliti na klasične i upravljačke (Novićević, Antić, 2005. str. 32). U klasične ciljeve spadaju obračun troškova zaliha i rezultata za potrebe zvaničnog bilansiranja, kao i ciljevi sa aspekta dugoročne politike cena. Te i takve ciljeve ispunjava apsorpcioni obračun po stvarnim troškovima. Korpus upravljačkih ciljeva čine planiranje i kontrola troškova, kao i analiza troškova za potrebe donošenja pojedinačnih poslovnih odluka. Realizacija navedenih upravljačkih ciljeva ostvaruje se putem apsorpcionog sistema obračuna po standardnim troškovima i sistema obračuna po varijabilnim troškovima u obe varijante (po stvarnim i standardnim troškovima).

Metodološka nužnost razdvajanja troškova na fiksne i varijabilne

Značaj podele ukupnih troškova na fiksnu i varijabilnu komponentu ima različitu vrednost,

u zavisnosti od izabrane metodologije obračuna troškova. Tako, na primer, podela troškova na fiksne i varijabilne ima manji značaj za klasične ciljeve obračuna troškova u odnosu na upravljačke ciljeve. Sledstveno tome, za sistem obračuna troškova putem kojeg se utvrđuje puna cena koštanja, značajnija je podela troškova na direktne i indirektno, od podele troškova na fiksne i varijabilne.

Za druge sisteme obračuna troškova sa upravljačkim ciljevima, kao što su sve vrste obračuna po standardnim troškovima i obračun po stvarnim varijabilnim troškovima, nužno je razgraničiti troškove na fiksne i varijabilne, jer je to sastavni deo njihove metodologije. Naime, apsorpcioni sistem obračuna po standardnim troškovima, pored standardizacije direktnih i opšte varijabilnih troškova, zahteva i standardizaciju opšte fiksnih troškova razdoblja. Standardizacija direktnih, a posebno opštih troškova, nužno zahteva standardizaciju obima aktivnosti, izradu fleksibilnog plana troškova i rasčlanjivanje mešoviti troškova proizvodnje. Osnovu za planiranje i kontrolu troškova čini standardizacija troškova. Pri standardizaciji troškova, polazi se od opšte prihvaćenog pravila da različite grupe direktnih i opštih troškova različito reaguju u odnosu na promene obima aktivnosti. Naime, neki su troškovi konstantni, drugi pokazuju regresiju, a treći progresiju. Shodno tome može se dogoditi da neke uštede u troškovima koje su izazvane objektivnim ekonomskim dejstvom, budu usled neznanja pripisane pojedincima ili grupama koje za to nisu zaslužne. Iz tih razloga, u praksi nužno mora da postoji „merni“ instrument za razgraničenje odgovornosti koji se naziva fleksibilni plan troškova.

U suštini, fleksibilni plan troškova predstavlja plansku projekciju budućih fiksnih i varijabilnih troškova po jedinici outputa za različite nivoe aktivnosti. Taj plan troškova se pravi za pojedina mesta troškova ili uže organizacione jedinice, pri čemu njihovoj izradi za pojedina mesta troškova prethodi izrada fleksibilnog plana troškova na nivou preduzeća. Proces izrade fleksibilnog plana troškova započinje razgraničenjem opštih troškova na fiksnu i varijabilnu komponentu zbog njihovog različitog reagovanja na promene obima aktivnosti. Nakon toga se vrši projekcija direktnih i opšte varijabilnih

with the projected behavior patterns. Most of the enterprises wish to avoid extreme fluctuations in the production volume, as they cause enormous costs. For this reason enterprises, whenever possible, wish to operate within the relevant scope of activities volume, while operation beyond this scope is rather an exception than it is the rule. Hence the assumption on the linear costs behavior in respect to the changes in the production volume within the relevant scope may be accepted as sustainable.

Costs differentiation into fixed and variable component in the costs accounting system

Differentiation of total costs into fixed and variable has a different significance depending on the selected methodology of cost accounting. Depending on whether all of the costs, or only some types of costs, or segments of costs, are the subject of accounting, we can differentiate the following:

- Accounting method (system) based on total (complete) costs, the method known as absorption or conventional business costs accounting method; and
- Direct Costing - accounting method based on variable costs, or accounting method of incomplete costs.

Absorption costs accounting system may appear in two basic variants: as accounting of real (historic) costs, and accounting of standard (planned) future costs. Variable costs accounting may also appear in two forms: as accounting of real, and accounting of standard variable costs.

In theory and accounting practice some other costs accounting systems can also be found, such as the costs accounting system based on activities - Activity Based Costing -ABC method. However, in the relevant accounting literature the division of systems (methods) of costs accounting that is usually applied is on the accounting systems of real and standard (absorption) costs, and accounting systems of real and standard (incomplete) variable costs (Malinic, 2004, p. 106).

Each one of the above stated systems (methods) of costs accounting has its own methodology and targets. These targets can be divided, both in theory and in practice, into

the classic and the managerial ones (Novicevic, Antic, 2005, p. 32). Classic targets comprise costs accounting of inventory-stocks costs and results for the needs of official balancing, but also targets from the aspect of a long-term pricing policy. These and such targets are met by the absorption accounting of real costs. The corps of management targets is composed of costs planning and control, and of costs analysis for the needs of making particular business decisions. Implementation of the stated managerial targets is possible through the absorption costs accounting system of standard costs and the costs accounting system of variable costs in both of these variants (of real and standard costs).

Methodological necessity of differentiating costs into fixed and variable ones

The importance of division of total costs into fixed and variable component has different merits, depending on the selected costs accounting methodology. Hence, for example, division of costs into fixed and variable ones is of a lesser importance for the classic costs accounting targets in respect to the managerial targets. Therefore, for the costs accounting system used to determine full cost price what is more important is the division of costs into direct and indirect, than the division of costs into fixed and variable.

In other managerial accounting systems, such as all types of standard costs accounting and the real variable costs accounting, it is important to differentiate costs into fixed and variable, as this is the component part of their methodology. Namely, the absorption costs accounting system of standard costs, in addition to standardization of direct and generally variable costs, also requires standardization of the general fixed costs of the period. Standardization of direct, and especially of general costs, necessarily demands standardization of the activities volume, elaboration of a flexible costs plan and differentiation of mixed production costs. The basis for costs planning and control is costs standardization. In the costs standardization, the starting point is the generally accepted rule that different groups of direct and general costs

troškova za različite nivoe aktivnosti unutar relevantnog raspona obima aktivnosti. Na kraju obračunskog ciklusa, vrši se kontrola stvarnih troškova metodom kompariranja sa standardom za projektovani nivo aktivnosti koji je najbliži sa praktičnim ostvarenjem. Krajnji cilj ovog procesa je da se blagovremeno utvrde odstupanja i uzroci odstupnja u troškovima po centrima odgovornosti i izvrši adekvatna korekcija.

Sistemi obračuna po varijabilnim troškovima u obe varijante (stvarnih i standardnih) troškova, zahtevaju podelu ukupnih troškova na fiksne i varijabilne. Za razliku od metodologije apsorpcionog sistema obračuna po standardnim troškovima, za čiju je primenu neophodna standardizacija fiksnih troškova, za sisteme obračuna po stvarnim i standardnim varijabilnim troškovima, to nije neophodno. To znači da se fiksni troškovi ne standardizuju i smatraju se kao nedeljiva veličina, koja ima tretman rashoda perioda. Metodologijom obračuna po varijabilnim troškovima, fiksni troškovi nisu uključeni u cenu koštanja učinaka, te ih iz tih razloga treba razlučiti od varijabilnih troškova i posebno iskazati. Takodje, proračun i konstruisanje prelomne tačke rentabiliteta, kao glavnog instrumenta ovog sistema, nužno zahteva razdvajanje ukupnih troškova na fiksnu i varijabilnu komponentu.

Tema koju obrađujemo zahteva sledeću distinkciju: apsorpcioni sistem obračuna po standardnim troškovima dozvoljava mogućnost deljenja kapaciteta, a time i fiksnih troškova unutar relevantnog raspona obima aktivnosti; bazični sistemi obračuna po varijabilnim troškovima, troškove kapaciteta tretiraju kao nedeljivu celinu. U čisto teorijskom smislu, može se izraziti sumnja da je nedeljivošću kapaciteta ugrožena pretpostavka o fleksibilnosti varijabilnih troškova i koncept proporcionalnosti. Naime, logično je pretpostaviti da deljivost kapaciteta pruža veće šanse menadžementu da uskladi fiksne i varijabilne faktore i učini ih optimalnim za konkretni obim aktivnosti. Međutim, neki eminentni autori smatraju da se izborom bilo kog nivoa obima aktivnosti unutar relevantnog raspona ne narušavaju pravila o ponašanju troškova (Meigs, Meigs 1999. str. 1084).

Izvor mogućih grešaka pri rastavljanju troškova

Mogući izvor grešaka, najpre, leži u arbitrarnosti pri alokaciji primarnih opšte fiksnih i opšte varijabilnih troškova na uzročnike (baze aktivnosti). Koncept obračuna po varijabilnih troškova, ne zahteva alokaciju opšte fiksnih troškova na nosioce, jer ih u celokupnom iznosu tretira rashodima perioda. Međutim, iako je mogućnost grešaka sužena samo na alokaciju direktnih i opšte varijabilnih troškova, to po našem mišljenju samo delimično umanjuje značaj izbora merljive veličine obima proizvodnje (aktivnosti) koja služi kao nosilac troška. Naime, pogrešno izabrana baza aktivnosti koja služi kao nosilac troška, ima veliki uticaj na alokaciju ukupnih opštih troškova i njihovu klasifikaciju na fiksnu i varijabilnu komponentu. Problem izbora baze aktivnosti je naročito kompleksan kod preduzeća koja se istovremeno bave proizvodnjom roba i usluga. U tom slučaju vezivanje direktnih varijabilnih troškova za uzročnike može se učiniti sa prihvatljivom tačnošću, dok će se poistovećivanje opšte varijabilnih i fiksnih troškova sa proizvedenim jedinicama učinaka biti vrlo diskutabilno, jer je zasnovano na arbitrarnoj alokaciji troškova na proizvode i aktivnosti.

Mogući izvor grešaka nije samo u izboru bazne aktivnosti. Greške mogu da nastanu usled promene strukture asortimana finalnog outputa. Promene u strukturi asortimana po širini ili dubini menjaju bazu aktivnosti i strukturu troškova, a time i ključeve za njihovu alokaciju. Drugim rečima, kada je planirana podela ukupnih troškova na fiksne i varijabilne izvršena prema nosiocima troškova, to podrazumeva konstantnost strukture proizvodnog asortimana. Nameće se zaključak da je alokacija ukupnih troškova (fiksnih i varijabilnih) najtačnija u mono proizvodnji. Sa nešto manje tačnosti ovi troškovi kao diferencirani, mogu se alocirati i u proizvodnji širokog asortimana, pod uslovom da je struktura proizvodnje konstantna. Ostale varijacije proizvodnje koje ne spadaju u prethodnu klasifikaciju, mogu biti iz objektivnih razloga generatori grešaka. Ako je trend kretanja ukupnih troškova predstavljen neprekidnom pravom linijom, promena strukture asortimana

are showing a different reaction to the changes in the activities volume. Namely, some of the costs are constant, some other ones are showing digression, and the thirds ones show progression. To that end, it is possible that some of the cost savings, caused by an objective economic action, are ascribed out of ignorance to individuals or groups that are not deserving of such savings. For this reason, it is absolutely necessary in practice to have in place a “gauging” instrument for separation of responsibility, which is called ‘flexible costs plan’.

In essence, the flexible costs plan is a planned projection of future fixed and variable costs per unit of output for different levels of activities. This costs plan is being made for certain costs points or for closer organizational units, and in drawing such plan for the given costs points what must be previously done is drafting of a flexible costs plan on the level of the enterprise. The process of drafting flexible costs plan starts from the differentiation of general costs into fixed and variable components because of their different reaction to the changes in the activities volume. Thereupon the projection of direct and generally variable costs for different levels of activities within the relevant scope of activities volume is made. At the end of the accounting cycle, control is made of real costs by the method of comparison with the standard for the projected level of activities which is the closest to the practical achievement. Ultimate target of this process is to determine in good time the digressions and causes of digression in costs per responsibility centers and make adequate corrections.

Accounting systems of variable costs in both of the variants (real and variable) of costs require differentiation of total costs into fixed and variable ones. Contrary to the absorption accounting system methodology of standard costs, where it is necessary to make standardization of fixed costs for its implementation, for the accounting system of real and standard variable costs this is not necessary. This means that the fixed costs are not standardized and are deemed to be an indivisible magnitude which has the treatment of the period expenditure. In the methodology of variable costs accounting, fixed costs are not included in the output cost price, and for

this reason it is necessary to divide variable costs and present them separately. In addition, calculation and construction of the profitability breaking point, as the main instrument of this system, necessarily requires separation of total costs into their fixed and variable components.

The topic that we are deliberating requires the following distinction: the absorption accounting systems of standard costs allows the option of division of capacities, and hence of the fixed costs within the relevant scope of activities volume; the basic accounting systems of variable costs treat capacities costs as an indivisible entity. In a purely theoretical sense, a doubt may be expressed that the indivisibility of capacities may jeopardize the assumption on the flexibility of variable costs and the concept of proportionality. Namely, it is logical to assume that the divisibility of capacities offers greater chances to the management to harmonize fixed and variable factors and make them optimal for the concrete activities volume. However, some of the distinguished authors are of the mind that by selecting any of the levels of the activities volume within the relevant scope is not detrimental to the rules on the costs behavior (Meigs, Meigs, 1999, p. 1084).

The source of possible errors in the differentiation of costs

The possible source of errors primarily lies in the arbitrary choice in the allocation of the general fixed and general variable costs into the category of causes (activity base). The concept of accounting of variable costs does not require allocation of the general fixed costs into carriers, as in the overall amount it is treating them as the period expenditures. However, although the possibility of error is narrowed down to only the allocation of direct and general variable costs, in our opinion it only partially diminishes the significance of choice of the measuring unit of the production (activity) volume which serves as the carrier of cost. Namely, wrongly selected activity base which serves as the costs carrier has a great impact on the allocation of total general costs and their classification into fixed and variable component. The problem of selection of the activity base is especially complex in enterprises which are at the same

izaziva različiti nivo i strukturu troškova (fiksni i varijabilni). To može ugroziti pretpostavku o linearanosti ukupnih troškova i na taj način postati izvor mogućih grešaka u planiranju i kontroli troškova.

U kontekstu ove problematike, može se postaviti sledeće pitanje: kako je moguće da se u sistemu obračuna po varijabilnim troškovima izvrši valjana diferencijacija troškova na fiksnu i varijabilnu komponentu, kada se fiksni troškovi tretiraju kao nedeljiva celina? Na ovo pitanje, a i mnoga druga koja tangiraju problematiku o nedeljivosti fiksnih troškova, teško je naći zadovoljavajući odgovor u izvornom konceptu obračuna po varijabilnim troškovima.

Osim grešaka koje nastaju kao posledica pogrešnog projektovanja fiksnih i varijabilnih troškova, usled izbora neadekvatne baze aktivnosti, postoje i drugi izvori grešaka, koje su prouzrokovane u postupku izbora operacione metode za razdvajanje ukupnih troškova na fiksnu i varijabilnu komponentu.

Metode za razdvajanje ukupnih troškova na fiksne i varijabilne

Uz teorijsku pretpostavku da se većina troškova može razlučiti na fiksnu i varijabilnu komponentu, postoji jedna masa mešoviti troškova, za koju se mora utvrditi koji je njihov deo fiksni, a koji varijabilni. Za vođenje poslovne politike od izuzetnog je značaja da se ova masa troškova razdvoji na njene sastvane elemente, odnosno na fiksne i varijabilne troškove. U stručnoj literaturi se pominju različite metode za razdvajanje ovih troškova i nijedna od njih ne daje apriori sasvim pouzdane podatke. To svakako ne znači da ih sve treba odbaciti, jer su dobijeni rezultati približno tačni i imaju praktičnu korisnost.

Do sada poznate metode nastale su na temelju činjenice, da degresivno varijabilni (mešoviti troškovi) imaju koeficijent reagibilnosti od 0 do 1 i da u sebi sadrže manju ili veću fiksnu komponentu. Primjenjene metode mogu imati manju ili veću tačnost u zavisnosti od oscilacija u obimu aktivnosti. Stabilna proizvodnja u analiziranom razdoblju je uslov korektnosti primenjenih modela. Budući da se u našoj analizi radi o proizvodnji unutar relevantnog raspona obima aktivnosti, postoji velika verovatnoća da

će rezultati dobijeni adekvatnom metodom biti prihvatljivo tačni i korisni upravljačkoj funkciji.

U stručnoj literaturi postoje različite klasifikacije modela za podvajanje fiksnih i varijabilnih troškova, odnosno utvrđivanje njihove strukture u ukupnim mešovitim troškovima. Sve ove metode se generalno mogu razvrstati prema načinu diferenciranja troškova na knjigovodstvene i matematičke. Knjigovodstvene metode se često zbog primenjene procedure nazivaju subjektivističke, jer se oslanjaju pretežno na iskustvo procenitelja. Pod matematičkim metodama spadaju svi matematički i statistički modeli pojedinačno, ili u međusobnoj kombinaciji, tako da u stvari imamo tri grupe modela: računovodstveno-tehnički, računski i grafički.

Knjigovodstveno-tehnički metod je subjektivističkog karaktera. Polaznu osnovu za njegovu primenu čine izvorni podaci o prirodnim vrstama troškova iz finansijskog računovodstva. Prirodne vrste troškova često ne odražavaju suštinu stvari. Naime, troškovi se metodološki razdvajaju na fiksnu i varijabilnu komponentu po unapred utvrđenom obrascu i iskustvu procenitelja, koje često ne mora biti relevantno. Ovakav način razvrstavanja troškova može se, uz izvesna ograničenja, upotrebiti za sisteme obračuna po stvarnim troškovima, dok je za sisteme obračuna po standardnim troškovima u izvornom obliku praktično neupotrebljiv.

Planiranje i kontrolu troškova prirodne vrste, moraju biti diferencirane i razvrstane na funkcije, mesta troškova i nosioce. Sam čin alociranja prirodnih vrsta troškova na uže organizacione jedinice preduzeća zahteva identifikovanje uzročnika troškova i kvantificiranje njihovih učinaka, što je često neizvodljivo, naročito u višefaznoj proizvodnji širokog asortimana. Metoda razdvajanja fiksnih i varijabilnih troškova pomoću varijatora, zasnovana je na evidentnim razlikama u stepenu reagibilnosti pojedinačnih neproporcionalno-varijabilnih (mešoviti) troškova. Ova vrsta mešoviti unutar zonskih troškova ima reagibilnost u obliku diskreciono zatvorenog intervala od 0 do 1. Logično je pretpostaviti da struktura pojedinih mešoviti troškova u miksu zavisi od mesta unutar intervala reagibilnosti koji zauzimaju. Ako su pojedinačni troškovi bliži početku intervala, tada je stepen fiksnosti

time engaged in producing goods and offering services. In such a case linking direct variable costs with the causes may be done with acceptable accuracy, while identifying general variable and fixed costs as identical to the produced output units may be very arguable, as it is based on an arbitrary allocation of costs into products and activities.

The possible source of error is not to be found only in the choice of the base activity. Errors may occur also because of the changes in the structure of the final output range. Changes in the production range structure, in width and depth, are changing activity base and the costs structure, and thus the keys for their allocation. In other words, when the planned division of total costs into fixed and variable is done according to the costs carriers, this means the constancy of structure of the production range. The conclusion is imminent here that the allocation of total costs (fixed and variable) is the most precise in the case of mono-production. With slightly lower accuracy these costs, once differentiated, can be allocated in the broader production range, provided that the structure of production remains constant. The other production variations which do not belong within the previous classification can be, for objective reasons, generators of errors. If the total costs trend is presented in a straight line, the change in the production range structure would cause different level and structure of costs (fixed and variable). This may jeopardize the assumption on the linear feature of the total costs and in this way become the source of possible errors in the costs planning and control.

In the context of this issue, the following question may be asked: How is it possible in the accounting system of variable costs to make valid costs differentiation into fixed and variable component when the fixed costs are treated as an indivisible unit? It is very difficult to find a satisfactory answer to this question and many others that are pertinent to the problems of indivisibility of fixed costs, in the original concept of variable costs accounting.

In addition to the errors that occur as a consequence of an erroneous projection of fixed and variable costs, because of the selection of an inadequate activity base, there are also some other sources of errors, which are caused in the

process of selection of the operational method for separation of total costs into their fixed and variable component.

Methods for differentiation of total costs into fixed and variable ones

Under the theoretical assumption that the majority of costs may be differentiated into the fixed and the variable component, there is a certain mass of mixed costs for which it must be determined which of their parts is fixed and which one is variable. In order to conduct business policy it is of extreme importance for this mass of costs to be divided into its component elements, i.e. into the fixed and variable costs. In the professional literature there is a mention of various methods for differentiation of these costs, yet none of them offers an a priori reliable data. This certainly does not imply that all of them are to be rejected, as the results obtained are approximately accurate and have their practical use.

The methods recognized so far have been created on the basis of the fact that digressive variable costs (mixed costs) have a reagibility ratio of 0 to 1, and that they contain therein a lower or a higher fixed component. Methods applied may have a lower or higher accuracy depending on the oscillations in the activities scope. Stable production in the analyzed period is a precondition for models to be correctly applied. As our analysis deals with the production within the relevant scope of activities volume, there is a high probability that the results obtained by an adequate method will be of acceptable accuracy and useful for managerial function.

Professional literature offers various classifications of the model used for differentiation of fixed and variable costs, i.e. for determination of their structure in the total mixed costs. All of these methods may be generally classified according to the manner of costs differentiation, into bookkeeping and mathematical ones. Bookkeeping methods are often called, because of the procedure applied, subjectivist as they mostly rely on the past experience of the appraiser. Mathematic methods comprise all the mathematic and statistical models individually, or in a mutual

troškova intenzivniji, a kada se reagibilnost približava jedinici, elemenat fiksnosti opada a raste stepen varijabilnosti. U praksi se ovaj raspon reagibilnosti od 0 do 1 najčešće deli na 100 jednakih delova, koji se u stručnoj literaturi nazivaju varijatorima. Ideja o podeli troškova na fiksnu i varijabilnu komponentu pomoću varijatora je involvirana u fleksibilni plan troškova kao okosnice obračuna po standardnim troškovima.

Osnov ove ideje čini subjektivna procena o budućem ponašanju značajnijih vrsta mešovitih troškova, u odnosu na promene niva korišćenja kapaciteta. Dakle, ovde se svi elementi troškova planski i iskustveno određuju, a iskustvo je uvek vezano za prošlost, i kao takvo ne može se nekritički projektovati u budućnost. Subjektivistička procena o ponašanju troškova i projekcija prošlih iskustva na budućnost, čine da ovu metodu treba krajnje oprezno primenjivati, jer u sebi sadrži opasnost od znatne netačnosti.

Na osnovu knjigovodstvenih podataka mogu se neposredno sastaviti izveštaji o fiksnim i varijabilnim troškovima samo za one nivoe aktivnosti koji su se već pojavljivali u praksi. Međutim, često se nameće potreba da se utvrdi nivo fiksnih i varijabilnih troškova za obime aktivnosti koji se u praksi konkretnog preduzeća uopšte nisu pojavljivali. Za ove potrebe koristi se matematička metoda interpolacije. Ideju interpolacije je dosta koristio Šmalenbah (Schmalenbach), doduše ne za svrhu podvajanja troškova na fiksnu i varijabilnu komponentu, već za potrebe analize diferencije troškova na različitim stepenima zaposlenosti kapaciteta (Slović, 2010. str. 92). Osnov ove ideje čini matematička jednačina prave kroz dve tačke. Matematička tačnost ovog modela zavisi od raspona posmatranog intervala. Naime, što je raspon između tačaka veći to je veća mogućnost grešaka. Razlog tome je što interpolacija u matematičkom smislu podrazumeva linearnu funkcionalnu vezu varijabli, a ekonomska stvarnost pokazuje da je kretanje troškova u odnosu na promene obima aktivnosti krivolinijskog karaktera.

Navedena metoda i njene varijacije (kao što je metoda „visoko-nisko“) mogu se uspešno primenjivati samo unutar uskog intervala relevantnog opsega korišćenja kapaciteta. Druga metoda najmanjih kvadrata, daje

matematički najtačnije podatke o visini varijabilnih i fiksnih troškova u prethodnom periodu, kao i tendenciji kretanja troškova u budućem periodu u odnosu na promene obima aktivnosti unutar relevantnog raspona obima aktivnosti. Bazična pretpostavka ove metode je izbor adekvatne jednačine funkcionalne zavisnosti. Testiranje tačnosti izabrane metode funkcionalne zavisnosti i konkretnog rasporeda tačaka u koordinatnom sistemu vrši se posebnim statističkim merama odstupanja od linije regresije. Ovaj model ne trpi ekstremna odstupanja originalnih podataka od generalne linije trenda. Iz tog razloga treba pažljivo ispitati sve ekstremne vrednosti za koje nema validnog opravdanja da se eventualno izostave.

Grafičke metode su po prirodi stvari manje tačne od matematičkih. Međutim, zbog svoje jednostavnosti i transparentnosti, često se koriste za praktičnu primenu. Grafički prikaz razdvajanja fiksnih i varijabilnih troškova iz mase mešovitih troškova započinje grupisanjem originalnih troškova po vremenskim intervalima i obimu aktivnosti, a potom se vrši njihovo ucrtavanje na grafikonu. Pošto se ucrtaju sve tačke, onda se povuče prva linija koja predstavlja simetralu u odnosu na originalne podatke, grafička udaljenost ove linije od apcise je iznos ukupnih troškova za posmatrane periode, odnosno obime aktivnosti koji se očitavaju na ordinati. Tačka u kojoj povučeni pravac u produženju ove linije seče ordinatu, označava iznos fiksnih troškova za nulti obim proizvodnje. Ovde ne treba posebno naglašavati da su rezultati dobijeni ovim putem često grube aproksimacije varijabilnih i fiksnih troškova, jer je graf ukupnih troškova najčešće povučen na osnovu ličnog iskustva analitičara. Podaci dobijeni ovim putem mogu se koristiti u selektivne informativne svrhe. Ipak, brzina i jednostavnost ove metode ne može biti supstitut za validnost podataka koje ona pruža. Upravo iz tih razloga rezultati dobijeni na ovaj način ne preporučuju se kao informaciona baza za donošenje ključnih upravljačkih odluka.

Zaključak

Trend multidisciplinarnog pristupa u rešavanju problema i sve kraći rok koji je potreban da se teorijska saznanja primene u

combination, so that we actually have three groups of models: accounting-technical, accounting, and graphic.

Bookkeeping-technical method is of a subjective character. The starting point for its application is the original data on the natural classification of types of costs from financial accounting. Natural types of costs often do not reflect the very essence of the matter. Namely, costs are methodologically divided into their fixed and variable component according to an in-advance determined pattern and the experience of the appraiser, which does not always have to be relevant. Such a manner of costs differentiation, with certain constraints, may be used for the accounting systems based on real costs, while for the accounting systems of standard costs it is practically unusable in its original form.

Planning and control of natural classification type of costs must be differentiated and classified into functions, cost points, and cost carriers. The very action of allocating natural type of costs into closer organizational units of an enterprise requires identification of costs causes and quantification of their output, which is often not feasible, especially in a multi-phase production of a large product range. Method of differentiation of fixed and variable costs by means of variator is based on evident differences in the degree of reability of individual non-proportionally variable (mixed) costs. This type of mixed intra-zonal costs has reability in the form of a discretion closed interval of 0 to 1. It is logical to assume that the structure of individual mixed costs in the mix will depend on the place within the reability interval that it will occupy. If the individual costs are closer to the starting point of the interval, then the degree of costs being fixed will be more intensive, and when the reability is close to one, the element of fixation starts to fall, while the degree of variability starts to rise. In practice, this reability scope from 0 to 1 most often is divided into 100 equal parts, which are called in professional literature variators. The idea on the differentiation of costs into fixed and variable component by means of variators is involved in the flexible costs plan as the core for accounting of standard costs.

The basis of this idea consists of subjective

assessment of the future behavior of significant types of mixed costs, in respect to the changes in the level of capacities employment. Hence, all the elements of the costs are determined here in a planned and experienced way, provided experience is always past-related (historic), and as such can not be uncritically projected into the future. Subjective assessment of the costs behavior and projection of past experiences into the future are rendering this method susceptible to extreme caution in its application, as it contains in itself the danger of significant inaccuracy.

On the basis of the bookkeeping data it is possible to compose directly reports on fixed and variable costs only for those activity levels that have already been present in the practice. However, there is often a need to determine the level of fixed and variable costs for activity volumes that have never previously appeared in the practice of that concrete enterprise. What is used for these needs is the mathematic interpolation method. The interpolation idea was amply used by Schmalenbach, albeit not for purpose of costs differentiation into the fixed and variable component, but for the needs to analyze costs differentiation on different levels of capacities employment (Slovic, 2010, p. 92). The basis of this idea consists of mathematic equation of a straight line passing through two points. Mathematical accuracy of this model depends on the scope of the observed interval. Namely, the larger the scope between the two points, the higher the possibility of error. The reason for this is that interpolation, in the mathematical sense, requires a linear functional connection of variables, while the economic reality shows that the movement of costs in respect to the changes in the activities volume is of a curve character.

The above stated method and its variants (such as the method "high-low") may be successfully applied only within a narrow interval of the relevant scope of capacities employment. Another method of the least squares offers mathematically the most accurate data on the amount of variable and fixed costs in the previous period, and also the tendency of costs movement over the future period in respect to the changes in the activities volume within the relevant scope of activities volume. The basic assumption of this method is the

privrednoj praksi nije mimoišao ekonomsku teoriju i računovodstvenu praksu. Posmatrano sa istorijskog aspekta prošlo je vreme dugih i jalovih sporenja teoretičara i praktičara, čiji je uzrok najvećim delom bio nepoznavanje problematike sa kojom se ona druga strana suočavala. Poučeni prethodnim iskustvom, savremeni teoretičari i praktičari u ovoj oblasti idu ka kompromisnim rešenjima koja su delimično prihvatljiva za obe strane. Pored materijalne konzistentnosti, u semantičnom smislu prisutan je i trend unifikacije pojmova koji se odnose na glavne ekonomske i računovodstvene kategorije. Na materijalnu konzistentnost uticala je računovodstvena aproksimacija o pravolinijskom kretanju ukupnih troškova u odnosu na obim aktivnosti. Druga, ne manje značajna tačka susreta ekonomske teorije i računovodstvene prakse, odnosi se na mogućnost supstitucije teorijskih marginalnih troškova prosečnim varijabilnim troškovima u računovodstvenoj praksi.

Nakon ovih bazičnih kompromisa, počelo se sa uspešnom primenom upravljačkih sistema obračuna troškova koji su imali za cilj kratkoročno planiranje i kontrolu troškova. Odmah nakon toga, nastali su i drugi upravljački sistemi obračuna po varijabilnim troškovima koji su korišćeni za donošenje kratkoročnih poslovnih odluka u situacijama nedovoljne zaposlenosti. Uspešna primena ovih sistema, zavisila je od adekvatnog razdvajanja ukupnih troškova na fiksnu i varijabilnu komponentu. Konkretnije, svi sistemi obračuna po standarnim troškovima podrazumevali su podelu troškova na fiksnu i varijabilnu komponentu, kao bazu za izradu fleksibilnog plana troškova. S druge pak strane, sisteme obračuna po varijabilnim troškovima u svim

svojim varijantama nije moguće zamisliti bez podelu ukupnih troškova na fiksne i varijabilne. Osim toga, prelomna tačka rentabiliteta, kao ključni alat za dinamičku procenu rentabilnosti, koji je involviran u obračun po varijabilnim troškovima takođe podrazumeva podelu ukupnih troškova na fiksne i varijabilne.

U najnovijoj stručnoj literaturi, a naročito u literaturi sa anglosaksonskog govornog područja, iskristalisalo se mišljenje, da se obrazac o pravolinijskom ponašanju troškova, može uspešno primeniti samo za kratkoročno ponašanje troškova unutar relevantnog raspona obima aktivnosti. Sumiranjem ovih ograničenja mogu se eksplicito izvući sledeći zaključci: proizvodnja se odvija samo unutar relevantnog raspona (unutar jedne zone aktivnosti). Ova zona aktivnosti je predvidiva i u njoj važe pravila o konstantnom ponašanju ukupnih troškova (fiksni, varijabilni i mešoviti). Fiksni troškovi predstavljeni su kao prava linija paralelna sa apcismom i oni su apsolutno fiksni, varijabilni troškovi su konstantni po jedinici (u masi rastući sa obimom proizvodnje). Kada se pak radi o mešovitim troškovima oni mogu biti, odnosno moraju biti mešavina isključivo apsolutno fiksnih i proporcionalno varijabilnih troškova.

U operativnom smislu, alokacija i diferencijacija ukupnih troškova, odnosno fiksnih i varijabilnih troškova može biti poboljšana, pre svega pravilnim izborom baze aktivnosti (uzročnika trošenja), kao ključa za alokaciju troškova. Razdvajanje mešoviti troškova na fiksne i varijabilne može biti korektno, samo pod uslovom pravilnog izbora metode koja odgovara konkretnim okolnostima, kao što su vrsta preduzeća, njegova veličina i tip organizacije proizvodnje.

selection of an adequate functional dependency equation. Testing of accuracy of the selected functional dependency method and concrete location of points in the coordinate system is done by special statistic measures of digression from the regression line. This model does not tolerate extreme digression of original data from the general trend line. For this reason, it is necessary to examine carefully all the extreme values for which there are no valid justification for them to be eventually omitted.

Graphic methods by their very nature are less accurate than the mathematical ones. However, thanks to their simplicity and transparency they are often used for practical purposes. Graphic presentation of differentiation of fixed and variable costs from the mass of mixed costs starts with grouping of original costs according to time intervals and activities volume, to be followed by their mapping into the graph. After all the points are drawn in the graph, the first line is drawn that represents symmetric line in respect to the original data, graphic distance of this line from the abscise is the sum of total costs for the observed periods, i.e. the activities volume that are read on the ordinate. The point in which the drawn trend in the continuation of this line cuts the ordinate is designated as the amount of fixed costs for the zero production volume. It is not necessary to especially underline here that the results obtain in this manner are often rough approximations of variable and fixed costs, as the graph of total costs most often is drawn on the basis of personal experience of the analyst. Data obtained in this manner may be used for selective informative purposes. Nevertheless, the speed and simplicity of this method can not be the substitute for validity of data that it provides. Actually it is for this reason that that the results obtained in this manner are not recommended as an information base for making key managerial decisions.

Conclusion

The trend of multi-disciplinarian approach in problem solution and the ever shortening deadline necessary for the theoretical knowledge to be applied in economic practice did not circumvent economic theory and

accounting practice. Viewed from the historical aspect, it would appear that a thing of the past are those long and tedious arguments between theoreticians and practical users, caused mostly by the lack of knowledge of the problematic issues facing the other side. Once cognizant of the past experience, contemporary theoreticians and practical users in this field are moving towards compromise solutions that are in part acceptable for both sides. In addition to the material consistency, what is present in the semantic sense is also a trend of unification of terms that pertain to the main economic and accounting categories. Material consistency was impacted by the accounting approximation on the linear movement of total costs in respect to the activities volume. Another, not less important point in the encounter between the economic theory and the accounting practice is the option for substitution of theoretical marginal costs by average variable costs in the accounting practice.

Following these basic compromises, a successful application started of the management costs accounting systems aimed at short-term planning and costs control. Immediately to follow were the other management accounting systems of variable costs which were used for making short-term business decisions in the situation of insufficient employment. Successful implementation of these systems depended on an adequate differentiation of total costs into fixed and variable component. In concrete terms, all the accounting systems of standard costs required differentiation of costs into fixed and variable component, as basis for drafting flexible costs plan. On the other side, accounting system of variable costs in all of its variants could not be conceived without the differentiation of total costs into fixed and variable ones. In addition, the profitability breaking point as a key tool for dynamic assessment of profitability, which is involved in the accounting of variable costs, also requires differentiation of costs into fixed and variable ones.

In the latest professional literature, and especially in the literature from the Anglo-Saxon linguistic area, the opinion crystallized that the pattern of linear costs behavior may be successfully applied only on the short-term

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costs behavior within the relevant scope of activities volume. In summing up all of these limitations, it is possible to draw the following explicit conclusions: production is taking place only within a relevant scope (within one zone of activities). This zone of activities is predictable and in it the rules prevail on the constant behavior of total costs (fixed, variable, and mixed). Fixed costs are presented in the form of a straight line which is parallel with abscise and they are absolutely fixed, variable costs are constant per unit (in the mass growing with the production volume). When speaking of the mixed costs, however, they can be, i.e. they

must be a mix of exclusively and absolutely fixed and proportionally variable costs.

In the operational sense, allocation and differentiation of total costs, i.e. fixed and variable costs may be improved, primarily through the correct selection of the activity base (causes of costs), as the key for costs allocation. Differentiation of mixed costs into fixed and variable may be correct only provided the right choice is made of the method which corresponds to the concrete circumstances that prevail, such as the type of enterprise, its size, and the type of production organization.