ISSUES IN GLOBAL BUSINESS AND MANAGEMENT RESEARCH

ISSUES IN GLOBAL BUSINESS AND MANAGEMENT RESEARCH

Proceedings of the 2008 International Online Conference on Business and Management (IOCBM 2008)

Mehran Nejati • Azadeh Shafaei • Mostafa Nejati
Editors

Universal Publishers
Boca Raton, Florida

Issues in Global Business and Management Research:
Proceedings of the 2008 International Online Conference on Business and Management (IOCBM 2008)

Universal Publishers
Boca Raton, Florida • USA
2008

ISBN-10: 1-59942-944-6
ISBN-13: 978-1-59942-944-1

www.universal-publishers.com

Introduction

The 2nd International Online Conference on Business and Management (IOCBM 2008) was held in August 2008. It aimed to provide a forum for academics, practitioners, consultants and doctoral students to debate current international issues and challenges in the broad area of business and management, and to provide a chance to find new research colleagues and partners for future research works.

An International Advisory Committee (IAC), comprising international experts and university professors guided the development of the conference program and agenda. A Program Scientific Committee (PSC) supplemented the activities of IAC, and decided on identification of moderators and speakers, evaluated conference papers, and finalized the agenda for the conferences.

The quality of accepted papers was so high and the participants were pleased with the technological facilities and organization of the event.

The conference was successfully held on August 15 and 16, 2008 with over 50 participants from around the globe. Experts and participants from across the world came together to share their research findings and knowledge through this prestigious International event.

IOCBM 2008 is the second International Online Conference on Business and Management at a global scale attracting business and management practitioners, students, professors, researchers, and activists from around the world submitting their research findings to the conference. It is an annual conference in the field of business and management which is held by ALA Excellence Consulting Group annually. More information about this conference can be found at http://www.ala.ir/iocbm2008

The online nature of IOCBM annual conferences saves the conference participants from paying extra costs of travel, accommodation, and visa. Instead, conference participants can simply register to the conference and log in to conference website in order to attend different conference presentations and workshops online.

Sincerely,

Mehran Nejati Ajibisheh & Azadeh Shafaei Darestani (Conference Managers)

Table of Contents

Full Papers

Financial Management

Human Resource Management

Sustainability, Social Responsibility and Ethics

Others

Abstracts

Full Papers

Financial Management

Principles of Overhead Cost Allocation

Boris Popesko (Ph.D.)
Assistant Professor, Tomas Bata University in Zlin, Faculty of Management and Economics, Department of Enterprise Economics, Czech Republic
Phone: ++ 420 576 032 504
E-mail: popesko@fame.utb.cz

Petr Novak (MSc.)
Assistant, Tomas Bata University in Zlin, Faculty of Management and Economics
Department of Enterprise Economics, Czech Republic
Phone: ++ 420 576 032 504
E-mail: pnovak@fame.utb.cz

Abstract
This paper is on different methods of allocating overhead costs. It defines the basic rules for successfully carrying out the process based on causal principles of overhead cost consumption by individual activities and cost objects.

Contemporary cost management is influenced by dramatic increases in portions of overhead costs in various kinds of business. According to standard costing methods, one risk attached to inaccurate overhead cost allocation is that of increase, which could result in a wrong managerial decision being made.

Two major areas are described in the article: the first one is a description of traditionally used means of allocation, in which different costs are usually allotted to the cost object; the second is a definition of principles for more accurate overhead cost allocation using modern costing methods, e.g. activity-based costing, and information provided by the high quality ERP system. The allocation guidelines described have been defined as a result of performing costing method implementation projects.

Keywords: Cost management, costing methods, overhead costs, cost allocation

Introduction

Overhead cost allocation has become, in the past few decades, one of the most serious problems within cost management for companies. Accurately allocating overhead costs is one of the key criteria for effective product costing, meaning that correct managerial decisions can thus be made, an example being pricing decisions governing products.

Traditional costing techniques were used for the purposes of overhead cost allocation during the 20th century. These are based on simplified procedures using principles of averages. In recent decades, such conventional concepts have become obsolete due to two major phenomena. The first of these is ever increasing competition in the marketplace, the necessity to reduce costs and the effect of having more detailed information on company costs. Secondly, there has been a change in the cost structure of companies. In terms of the majority of overhead costs, traditional allocation concepts, based as they are on overhead absorption rates, can often provide incorrect information on product costs.

Modern costing systems and methods have the advantage of providing more sophisticated techniques for overhead cost allocation. Unfortunately, these processes often prove extremely demanding as regards input data and the general abilities of users, limiting their effective utilization. This paper presents a brief overview of the limitations of traditional concepts and the possibilities offered by modern costing methodologies for overhead cost allocation.

Overhead cost allocation

It is clear that cost management systems have been rising in importance over the years, resulting from dramatic changes in the business world. Due to growing competition on globalized markets, companies need data on product profitability, customers and markets, as well as costs consumed by various activities and other areas where costs have an important role. In all such cases, appropriate overhead cost allocation plays a key role.

The philosophy of cost allocation is widely known (Drury, 2001). Assigning direct and indirect costs is carried out differently. Direct costs can be accurately traced to the cost object, simply because they can be specifically and exclusively traced back to the cost object, unlike indirect costs. Consequently, indirect costs are assigned to cost objects via cost allocation. By definition, cost allocation is the process of assigning costs in the absence of a direct means of measuring the quantity of resources consumed by a particular cost object. Cost allocating does involve the use of the quantity of resources consumed by a particular cost object. The basis for allocating costs to a cost object is known as an allocation base or cost driver.

In this text, where allocation bases are a significant determinant of costs, they are referred to as the cause-and-effect allocations. When a cost allocation base is employed that is not a determining factor of costs, the term arbitrary allocation has been used.

The principles mentioned above mean that an ideal costing system should utilise as many cause-and-effect allocations as possible for the maximum possible portion of overhead costs. Arbitrary allocation should not take place in the maximum possible portion.

Two types of methodologies could be used to assign indirect (overhead) costs to cost objects - traditional costing processes and activity-based costing (ABC) systems.

Theory states that ABC allows for important improvement in the quality of cost calculations, and avoids the basic shortfalls of traditional absorption costing systems, by seeking out the true causes of overhead cost consumption. The activity-based costing method offers a very effective tool for defining the origins of overhead cost consumption, which it does by analysing company processes and individual overhead activities, and permits overhead costs to be allocated to the operations that brought about these costs.

However, complex implementation of the ABC system remains uncommon in contemporary costing practise. A fundamental problem in adopting the ABC system, which is usually able to allocate overhead costs much more accurately, is that there are frequent conflicts between the costs for implementing and operating the system and its measurable benefits.

For the methodology's effectiveness to be maintained, it is necessary to ensure costs for obtaining that kind of the data do not outweigh the benefits of the system. In other instances, the application of the system proves ineffective. Applying ABC brings different advantages for every organisation. Depending on the characteristics of the system, it can be stated that the application of the system would be effective in organisations with a complex and diverse structure of activities, products and customers. Petřík (2006) describes organisations clearly benefitting from applying ABC as follows:

- Those with a high frequency of different cost objects – this presumption is valid for either manufacturers or for service and trading companies;
- Those with a high portion of indirect and supporting costs;
- Those with a high number of processes and activities.

Traditionally used concepts for overhead cost allocation

Traditional costing methods are represented by the widely known absorption costing process. Absorption costing methods assign overhead costs proportionally to the selected type of direct costs (recovery base). The most simplistic traditional costing systems assign indirect costs to cost objects using a single overhead rate for an organisation as a whole. Some authors (Drury 2001) use the terms **blanket overhead rate** or **plant-wide rate** to describe examples of single overheads established for a body as an entirety. Generally, this method of overhead cost assignment bears the characteristic of arbitrary allocation, due to the varying character of a group's overheads. This kind of the method tends to be used by small to medium sized enterprises with obsolete and undeveloped systems for cost management.

A far more accurate way of allocating overhead costs is possible using **departmental rates**. This means that an individual recovery base and overhead rate is calculated for the various departments of an organisation. It is possible to go a stage further in some situations and establish separate overhead rates for smaller segments within a body, such as a group of similar machines within a department.

A frequently used method of overhead cost allocation is that featuring several **overhead rates**, where overheads **are divided according to the functional division of an enterprise** (e.g. production overheads, administration overheads and sales overheads). This type of allocation does not offer any advantage over the blanket overhead method, because products consume many and various overheads, furthermore, products are not classified in any way.

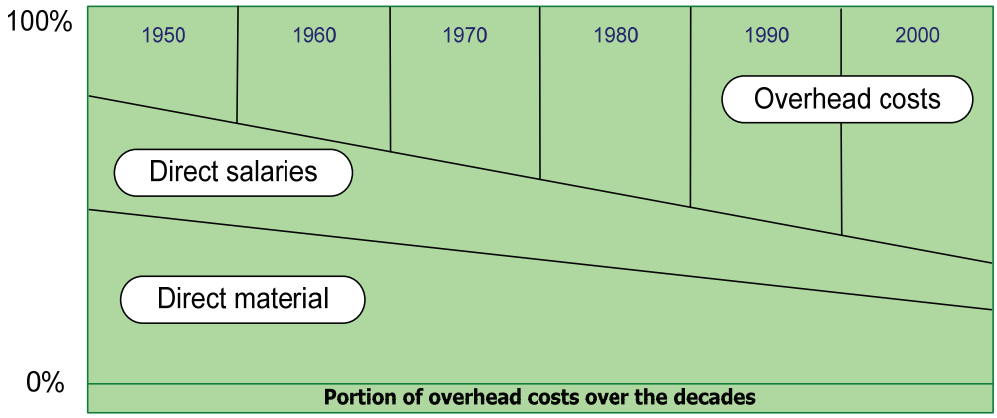
Problems in traditional overhead costing

The problems experienced with traditional costing systems are caused by two major phenomena: the **dramatic change that has occurred in the cost structure of companies,** and, the prerequisite of traditional absorption cost systems, **the reason for overhead cost consumption**, this being the volume of direct labour consumed when manufacturing a product, where errors have begun to register.

A striking change in business has been the alteration in the cost structure of companies. In the first half of the 20th century, manufacturing related costs (materials, salaries of employees) accounted for well over 90% of total costs. A traditional cost system focusing on these main cost elements, using labour as a method of allocating overheads might have calculated products' costs fairly accurately. In later years, after dramatic changes to the structure of companies' activities, the portion of direct costs decreased, e.g. material and personnel, but the portion of overheads increased. Direct labour had diminished, making way for automation and robotic systems. This trend occurred in conjunction with the sudden rise in development of a number of performed overhead activities, such as quality control, IT services, and reconfiguring production lines. Presently, the average portion of mean costs is over 50%.

In this instance, when the portion of overheads exceeds 50% of total company costs, and one single measure for allocating these overheads to cost objects is utilised, the risk of incorrectly calculating the cost allocated to the cost object becomes significant.

Figure 1: Portion of overhead costs over the decades (Cookins 2001)



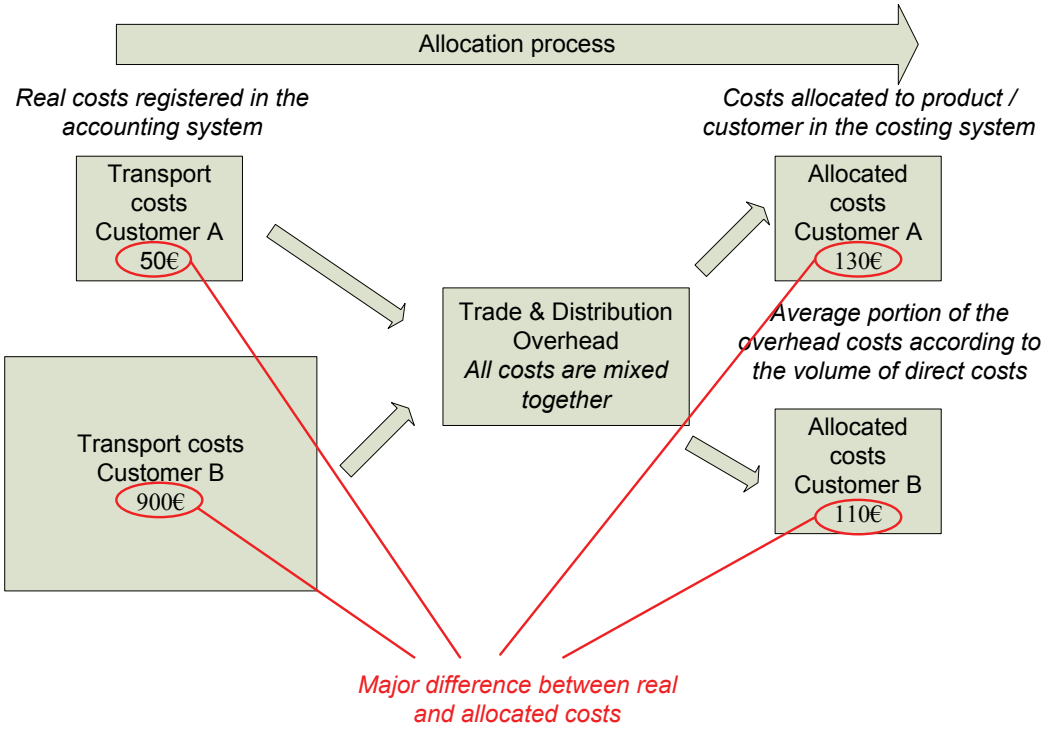
The portion of overhead costs is most important issue to bear in mind when considering a good costing system to adopt. If the portion of overhead costs increases, there is a greater risk of incorrect cost allocation. The origin of this phenomenon is inherent in both types of costs. **Direct costs** can be **directly** traced to a particular cost object, but **indirect costs,** i.e. overhead costs only allocated to the cost object via an **allocation method**, often turn out to be inappropriate.

The overhead costs themselves cause the majority of problems within the costing process. If we want to allocate product costs accurately, we need to ensure that the costs the object had consumed in reality are allocated to the cost object. Should the portion of overhead costs exceed 50%, the probability of incorrect allocation is very high.

The key factor in overhead cost allocation is the means of allotting chosen. A common choice is the **absorption costing method**, which allocates a proportionally identical volume of overhead costs to each product according to the volume of the direct costs. In contemporary enterprises, this method could very often prove misguiding. The effect that plays a role in determining an inaccurate overhead cost allocation could be described as 'averagisation'. In other words, the end result of allocating a proportionally average volume of costs of any type to all cost objects. For example, the cost for transporting an item to customer A is the true value of 50€, and transport to customer B is 900€. If we use traditional absorption costing, the transport costs will become part of the sales or distribution overhead, meaning all the costs of this type will be mixed together and then allocated through the absorption rate to the cost object, in proportion to the specific type of direct cost. All cost objects then will be subject to the principal average volume of

transport costs. In the example this means 130€ for customer A and 110€ for customer B.[1]

Figure 2: The 'averagisation effect' in the costing process



The problem of what here is termed 'averagisation' is also very important in companies with a very sophisticated system featuring cost centre overhead rates. Even if several different overhead rates for different overhead cost pools are used, so as to improve the quality of cost assignment, the basis is still same – the direct costs. If the basis is only set to the easily measured amount of direct costs, it is not possible to achieve accuracy in cost assignment, because the true causes of cost consumption frequently have a natural base.

Glad and Becker (1996) defined a number of fundamental limitations in traditional costing systems:

[1] The difference is caused by the different level of direct costs of product A and B. If the direct costs are the same for both customers, and both customers order an identical product, the transport costs for both products will also be same – the average amount. This example shows the injustice of incorporating the relation of direct labour cost volume to trade or transport cost allocation. Direct labour and transport or trade costs usually bear no relation to each other.

- Labour, as a basis for assigning manufacturing overhead, is irrelevant as it is significantly less than an overhead and many overheads do not bear any relationship to labour costs of labour hours.
- The cost of technology is not assigned to products based on usage. Moreover, direct (labour) cost is replaced by an indirect (machine) cost(s).
- Service-related costs have increased considerably in the last few decades. Costing for these services was previously non-existent.
- Customer-related costs (finance, discounts, distribution, sales, after-sales service, etc.) are not related to the product's cost objects. Customer profitability has become as crucial as product profitability.

Kim and Ballard (2002) defined the problems that can result from using traditional methods of overhead costing as:

- Cost distortion hinders profitability analysis
- Little management attention to activities or processes of employees

Overhead cost allocation in modern costing methods

Looking back, the first method which tried to eliminate the shortfalls of absorption costing methods was the **variable costing method**. Time and again, this has been used to replace traditional absorption costing methods, in order to avoid an incorrect overhead cost allocation. The variable costing method is based on a separate allocation of variable and fixed costs, where fixed costs are not allocated to the cost objects at all. The method is very effective when short-term decisions are required. Some authors have stated that the variable costing method is a means to providing useful, extra information for decision making (Drury, 2001). Generally, the most important limitations of the variable costing method are defined thus (Král 2006):

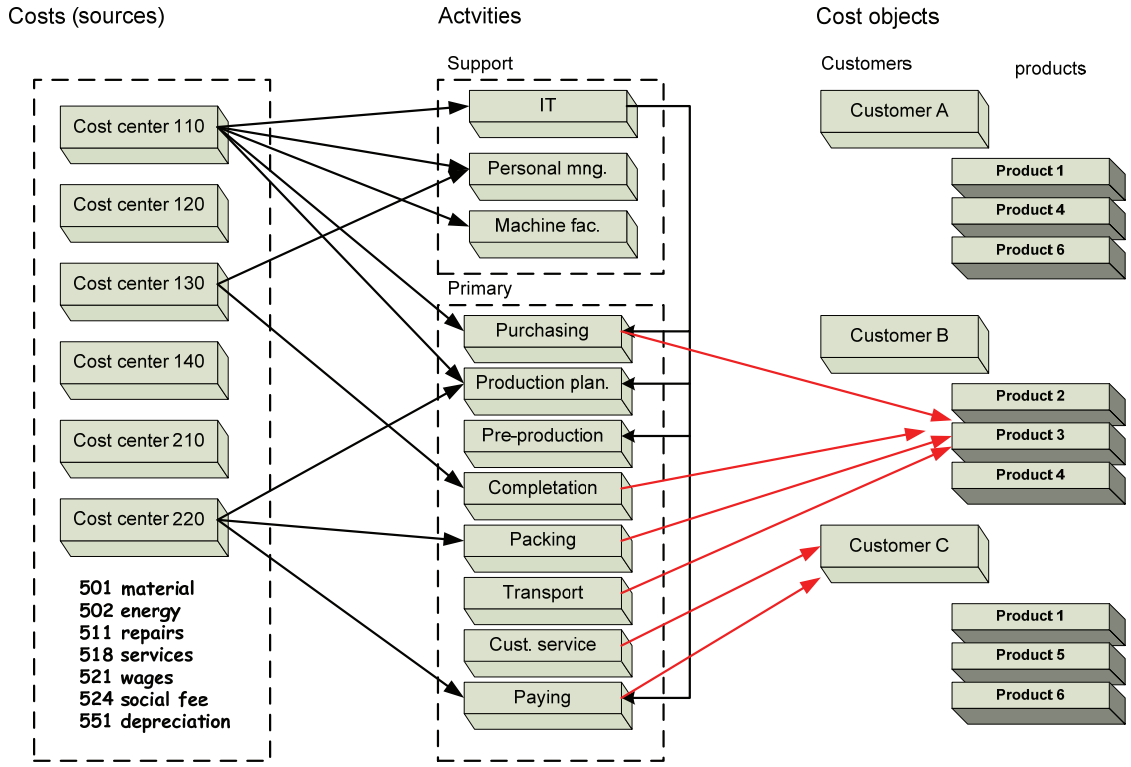
- The construction of the method restricts managers to formulating short-term decisions which could clash with strategic objectives of the enterprises in question;
- Because fixed costs are not calculated, they are eliminated from consideration;
- Due to the fact that fixed costs are summarised, the causal relations between costs and objects are lost

Neither the absorption costing method nor the variable costing method is suitable and useful when it comes to accurate overhead cost allocation. This is especially true in situations where the portion of overheads is relatively high and the structure of overhead operations very diverse.

The activity-based costing method is the tool which could bring about significant improvement in the quality of overhead cost allocation. The ABC process is able to incorporate both physical measures and causal principles in the costing system.

The basic idea of ABC is to allocate costs to operations through the various activities in place that can be measured by cost drivers. In other words, cost units are allocated to individual activities (e.g. planning, packing, quality control) in the first phase using a resource cost driver, with costs of those activities being allocated to specific products or cost objects, which in reality caused the incurrence of the overheads, using an activity cost driver in the second phase. (fig.3)

Figure 3: Overhead cost allocation in ABC systems



Company costs, in the case of ABC, can be split into two groups - traceable costs and non-traceable costs (Glad, Becker, 1996). Traceable costs are accounted per activity. Direct costs are directly traceable to the cost object. The greater portions of costs are those which are traceable to the costs via activity measurement. Non-traceable costs are those that are difficult to link to any specific activity or cost object. Such expenses are normally small in relation to total expenses (less than 5%).

In process costing systems, most attention is focused on costs allocated through activities. Activities can be classified as primary or secondary. The costs of primary activities can

be directly related to cost objects – this normally being the product, service or customer. Secondary activities, such as training or personnel services, are performed to support primary activities, so their costs should be recovered from the primary activities they serve.

The reason for this is obvious. Some authors say (Glad, Becker, 1996) that traditional accounting systems present summarised accounting information in the form of manufacturing and trading accounts, with other expenses summarised as general, sales and administrative expenses. This is the functional perspective of a business and does not necessarily focus on the flow of business. This flow is very well depicted in Porter's value chain, which classifies company activities as primary or secondary. It is on the principle mentioned above that the elementary condition for accurate cost allocation is based.

Another defined drawback of absorption costing systems is the inaccurate means of measurement for gauging overhead cost allocation. Traditionally used measures or rates are usually based on the volume of the direct cost. In fact, they are dependent on physical measures. These physical measures are described within the ABC system through cost drivers, which could be defined as those factors or transactions that are significant determiners of costs (Glad, Becker, 1996). A cost driver should provide a good explanation for costs in each activity's cost pool and prove easily measurable, likewise, data should be relatively easy to obtain and be identifiable with products. (Drury 2001) A cost driver represents the measure of quantity which causally allocates a definite amount of activity output to a cost object. (Petřík, 2006).

Another challenge, as solved by modern costing methods, which is absent from traditional approaches, is identifying the correct object of overhead cost allocation. Cost objects (Glad, Becker 1996) can be defined as significant activities for which an individual cost measurement is performed. Distinct products and services usually form the most often used cost objects. In reality, it is possible to discern a much wider spectrum of cost objects. Traditional costing systems usually work with a single cost object. Activity-based costing allows for implementation of a variety of cost drivers, which more closely correspond to the character of cost flow within an organisation, as well as helping managers work with varying levels of cost objects in different situations. In such cases, a manager is able to gauge the profitability of products, services, processes, distribution channels, customers and markets.

Based on the principles mentioned above, three major guidelines for accurate overhead cost allocation can be stated:

1. Use an accurate cost driver for allocating separate cost pools within a company
2. Label the costs of activities (cost pools) as primary and secondary, and allocate secondary costs to primary in the first step.
3. Allot overhead costs to the cost objects causing their occurrence.

Those elementary principles or conditions represent the basic rules of the ABC system, but they are also applicable to systems with less complexity than the ABC system itself, and can be referred to as guidelines for effective overhead cost allocation. That means that it is not necessary to implement the complete ABC system to make major improvements in overhead cost allocation.

Conclusion

Overhead costing problems are now very significant due to their increasing portion. These challenges are largely solved by firms´ management at present, because correct and causal allocation has a bearing on the effectiveness of particular overhead activities. These problems also affect proper price fixing and the measurement of output profitability.

Traditional concepts of overhead cost allocation very often simplify the relationship between costs and outputs. However, modern costing systems, such as activity-based costing, offer effective solutions to problems connected with overheads. Complete implementation of the ABC system is very often made harder by the method's requirements and complicated execution procedures. The ABC system requires a wide range of financial data, but also data of a non-financial type, which is usually unavailable from standard sources. For effective overhead cost allocation, in some instances, it can prove easy to use selected principles (as defined in the literature) essential to carrying out a correct allocation of overheads.

References

COKINS, G. (2001), *Activity-Based Cost Management: An Executive's Guide,* John Wiley and Sons, ISBN 047144328X.

DRURY, C. (2001), *Management and Cost Accounting,* Fifth Edition, Thomson Learning; ISBN 1-86152-536-2.

GLAD, E., BECKER, H. (1996), *Activity-Based Costing and Management,* John Wiley and Sons, ISBN 0-471-96331-3.

KIM, Y., BALLARD, G. (2002), *Case study – Overhead cost analysis,* Proceedings IGLC, Gramado, Brasil.

KRÁL, B., (2006) *Manažerské účetnictví,* Management Press, ISBN 80-7261-141-0

PETŘÍK, T., (2007) *Procesní a hodnotové řízení firem a organizací,* Linde Praha, ISBN 978-80-7201-648-8.

POPESKO, B. (2005), *Aplikace procesního řízení nákladů v podmínkách českých organizací*, dissertation thesis, Tomas Bata University Press, ISBN 80-80-7318-280-7.

STANĚK, V. (2003), *Zvyšování efektivnosti procesním řízením nákladů,* Grada Publishing a.s., 236 s., ISBN 80-247-0456-0.

Heterogeneity of monetary regimes in Maghreb: an illustration with national Taylor rules

BELHADJ Aram
Laboratoire d'économie d'Orléans, France
Phone: (0033) 2 38 49 49 44,
Email: aram.belhadj@etu.univ-orleans.fr

Abstract
The launch of the euro has fed doubts concerning the constitution of an optimal European monetary zone. Indeed, the differences in legal, institutional and cultural frameworks… as well as the diversity of the productive and financial European systems may have led to the idea that Europe does not constitute a viable monetary zone.

In Africa, the decision of African Central Bank governors to adopt a single currency by 2021 and the call from the union of Maghreb banks in November 2007 to create one currency for the Maghreb (Algeria, Libya, Morocco, Mauritania and Tunisia) raises the same doubts as to the efficiency of such decisions.

In this preliminary work, we have tried to evaluate implicitly the pertinence of such decision by showing in a first section the heterogeneity of Maghrebian monetary regimes. We have tried to illustrate in a second section this heterogeneity via a model describing the functioning of the economy of these countries. Finally, we have attempted to show in a third section the consequences of these heterogeneities by simulating optimal monetary rules defined for each country.

Our results suggest that these countries will need divergent Taylor rules and that the decision to belong to the same monetary union where a common monetary policy will be conducted proved to be unsuitable.

Keywords: Monetary policy, exchange rate, heterogeneity, Taylor rule, Maghreb

JEL Classification: E40, E47, E52, E58, F30, F40, F47, F50

Introduction

The launch of the euro has fed doubts concerning the constitution of an optimal European monetary zone. Indeed, the differences in legal, institutional and cultural frameworks… as well as the diversity of the productive and financial European systems may have led to the idea that Europe does not constitute a viable monetary zone.

The idea behind this reasoning is that the conduct of a unique monetary policy in the presence of heterogeneity faces many constraints insofar as the objective of monetary stability is hard to achieve in the presence of this heterogeneity (for example, one

decision may suit the macroeconomic evolutions of one country and not be suitable for another).

However, even if the partner countries are unanimous concerning the objectives of the common monetary policy, they face an additional constraint related to the divergence of monetary transmission mechanisms. Indeed, different structures between many economies composing a monetary zone make their reaction (or their response) to a shock diverse. Moreover, the speed of price adjustments differs according to the extent of this diversity. In addition, the delays in monetary transmission are long and inconsistent, and expand according to changes in the financial, economic and institutional environment.

Basically, the common Central Bank can no longer achieve its objective of price stability for the entire zone given the increasing complexity of the transmission mechanisms of monetary policy.

On the other hand, the absence of political unification within Europe makes the situation more difficult. In fact, in spite of a strong political desire to create the unique European currency, the discordance of individual decisions, especially budgetary ones, renders the success of the euro more problematical. Up to now, the feeling of national citizenship has come before the feeling of being European.

The history of monetary unions shows that the failure of the monetary integration process was often due to the absence of efficient adjustment mechanisms allowing the viability of the monetary zone, especially when it is deeply heterogeneous. Bordo and Jonung (1999) consider the theory of optimum currency areas (OCA) as static and ahistorical. They also consider that studies which have dealt with the question of the stability and durability of monetary unions are few. This is why future research into OCAs must be oriented toward the practical questions linked to the relative efficiency of different adjustment mechanisms (Cesarano, 1992).

Also, history shows that the absence of political involvement toward the process of monetary integration facilitates the disintegration and the division of countries into many independent entities, each of them characterized by a new national currency and a unique Central Bank (Goodhart, 1995).

In Africa, the decision of African Central Bank governors to adopt a single currency by 2021 and the call from the union of Maghreb banks in November 2007 to create one currency for the Maghreb raises the same doubts as to the efficiency of such decisions.

The Maghreb countries (which groups together Algeria, Libya, Morocco, Mauritania and Tunisia) indeed decided to improve the coordination of their economic policies and to reinforce their financial and commercial relations when they created the Arab Maghreb Union (AMU) in February 1989. The reasoning behind this creation is that a Maghrebian zone where goods, services and capital circulate freely would be an attractive market for domestic and foreign investors. In particular, a well-integrated Maghrebian zone would bring more important advantages then the potential gains resulted from association

agreements with the European Union and the new European neighbourhood policy. It would moreover become an attractive destination for other investors notably the oil-exporting countries of the Middle-East (IMF 2007). Besides, the establishment of supranational central bank would resolve the problem of dependence of national central banks.

This ambition to pursue an autonomous monetary policy in order to avoid the marginalisation of their monetary power faces many problems. Indeed, the economic and financial structures of these countries are different and evolve with changes in the international environment. Furthermore, these countries conduct monetary policies whose objectives and strategies are not yet transparent.

Moreover, a political involvement directed towards the creation of a monetary union probably constitutes a serious problem for governments, given the traditional rivalry between some countries of the zone and the importance of the seigneuriage role as a last resort. Moreover, there are still many political problems which have prevented, until now, the completion of the economic and financial integration within the Maghreb as well as the functioning of the MAU (Darrat et al 2002).

In this preliminary work, we have tried to understand the foundations of differences in Maghrebian monetary regimes to evaluate the consequences of the choice of monetary unification in these countries[1].

To this end, we have tried in a first section to describe the evolution of the monetary practices of the Maghreb countries (MC). We have illustrated in a second section the heterogeneity of these practices from a model describing the functioning of their economies. We have finally tried in a third section to evaluate the consequences of this heterogeneity by simulating optimal monetary policy rules for each country.

Our choice is focused on the Taylor rule and expresses our willingness to define an efficient, credible and simple rule which will be understandable by all economic agents and will constitute the key to the success of all future reforms undertaken by the Maghrebian authorities.

Monetary regimes in Maghreb

McKinnon and Schnabl (2004) admit that emerging markets and developing countries cannot choose their monetary regimes in an exogenous way. These regimes are in fact endogenous and generally determined by interdependent factors such as macroeconomic stabilisation, invoicing of international trade as well as currency denomination of the international capital flows.

In this section, we will try to describe the evolution of monetary regimes (monetary and exchange rate policies) in MC over the last two decades before illustrating the foundations of this evolution via a simple model of an open economy.

[1] Our sample is limited to Algeria, Morocco and Tunisia.

Tunisia

In the early 1980s, the Central Bank of Tunisia (CBT) undertook to define a strategy aiming at the preservation of the value of the currency and the support of the economic policies of the government. However, although this strategy has more than one objective, price stability remains the primary (implicit) objective of monetary policy (Boughrara 2007).

Indeed, since 1987, the Tunisian monetary authorities have had as an intermediary objective the targeting of M2 aggregate. This is determined according to the quantitative function MV=PY. In fact, the CBT fix a growth of M2 at 2% below the projected growth of nominal GDP[2]. Then, under the assumption of a roughly constant multiplier, the amount of base money supply consistent with the target growth of M2 is calculated.

Finally, taking into account projected net international reserves and the credit requirement of the agricultural sector, the CBT determines the quantity of liquidity to be distributed through the refinancing facilities. On a weekly basis, these amounts are fine-tuned taking into account the perceived financing needs of the commercial banks (Treichel 1997). Any deviation of M2 from its reference value is considered as a risk to the price stability objective.

To attain its intermediary objective, the CBT acts on the amount of liquidity. Until 1996, this amount was regulated from the restrictions imposed to the commercial banks. These banks are in fact submitted to constraints such as the obligation to finance priority sectors as well as the fixation of debtors' interest rates.

Furthermore, from 1997, after the removal of these restrictions, the principal instrument became that of money market interventions (FMI 2004). The CBT inject or withdraw liquidity through the refinancing facilities (repurchase agreements and bid techniques[3]). These techniques are completed with standing facilities[4] and weekly fine-tuned operations[5] in light of the financing needs of the commercial banks. As regards reserve requirement techniques, this was not actively used during the last two decades. In October 1989, the reserve requirement rate rose from zero to 2%. From that date to the early 2000s, banks had to deposit on non remunerated accounts, at the Central Bank, all deposits which were above a certain rate determined monthly by the emission institute (Boughrara 2002).

It is however useful to mention that, besides the stated instruments, the law allows the Central Bank (after deciding the amount of liquidity to be distributed or removed) to ask banks to specify the amount of credits and the interest rate they are willing to pay. This

[2] The CBT inserts in the definition of M2 the anticipation of prices, products and the velocity of this aggregate.

[3] The distinction between the two instruments is a little bit vague. For further details, see Dack (1999).

[4] These techniques allow the bank, through their own initiative, to obtain or to place liquidity at official intervention rates nevertheless a penalty with regard to rates reflecting market conditions.

[5] The fine-tuned operations are irregular operations conducted in the money market to cancel the effects of unpredictable fluctuations of liquidity (IMF 2004).