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Методика визначення мінімальної ціни та обсягу реалізації продукції, з урахуванням податкового навантаження

Стаття присвячена обґрунтуванню методичного підходу до визначення мінімальної ціни та обсягу реалізації продукції з урахуванням податкового навантаження. Об'єктом дослідження виступає фінансово-господарська діяльність юридичних осіб, а предметом – розрахунок критичних значень ціни та кількості продукції, при яких чиста виручка від реалізації покриє всі витрати підприємства. В своєму дослідженні автор опирається на положення теорії беззбитковості, норми податкового законодавства та дані бухгалтерського обліку. Здійснено аналіз витрат, які можуть мати місце в господарській діяльності підприємства, досліджено специфіку грошових потоків та чинні правила оподаткування. Запропоновано формули розрахунку точки беззбитковості для підприємств на загальній системі оподаткування та підприємств платників єдиного податку. Система показників, обґрунтованих автором, дозволяє підприємству оцінити доцільність випуску конкретного виду продукції чи послуги та можливість отримання прибутку від їх реалізації.
Ключові слова: *ціна реалізації, беззбитковість, витрати, податок на прибуток, єдиний податок.*

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Методика определения минимальной цены и объема реализации продукции, с учетом налоговой нагрузки

Статья посвящена обоснованию методического подхода к определению минимальной цены и объема реализации продукции с учетом налоговой нагрузки. Объектом исследования выступает финансово-хозяйственная деятельность юридических лиц, а предметом – расчет критических значений цены и количества продукции, при которых чистая выручка от реализации покроет все расходы предприятия. В своем исследовании автор опирается на положения теории безубыточности, нормы налогового законодательства и данные бухгалтерского учета. Осуществлен анализ расходов, которые могут иметь место в хозяйственной деятельности предприятия, исследована специфика денежных потоков и действующие правила налогообложения. Предложены формулы расчета точки безубыточности для предприятий на общей системе налогообложения и предприятий плательщиков единого налога. Обоснованная автором система показателей позволяет предприятию оценить целесообразность выпуска конкретного вида продукции или услуги и возможность получения прибыли от их реализации.
Ключевые слова: *цена реализации, безубыточность, расходы, налог на прибыль, единый налог.*

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Method for Determining Minimum Prices and Sales Volumes, Taking into Account the Tax Burden

The article is devoted to the substantiation of the methodical approach to determining the minimum price and volume of sales on the basis of the tax burden. The object of research is the financial-economic activity of legal entities, and the subject of research is the calculation of critical prices and the amount of products, at which the net proceeds from the sale will cover all costs of the company. In his study, the author is based on the theory of the break-even point, tax regulations and accounting data. The analysis of costs that may occur in the company's activities is performed; the specifics of cash flows and current tax rules are investigated. A formula for calculating the break-even point for the

business subjected to a common system of taxation and business that are single tax payers. The system of indicators substantiated by the author allows the company to evaluate the feasibility of manufacturing specific products or services, and the opportunity to profit from their sale.

Keywords: *price of sales, break-even point, costs, income tax, single tax.*

Topicality of research. In a market economy, the businesses independently determine their activities, creating physical infrastructure and building up the headcount. First, they conduct market analysis and determine supply and demand for specific products or services. Secondly, they compare the cost effectiveness of various activities. And only then they take decision on products introduction. The question may arise regarding the capacity of the target market, or a situation of fierce competition, in which a business will be forced to lower the sales price. Therefore, the issue of the minimum sales price or volume will always remain pressing.

Review of recent publications. Many works were dedicated to the issue of break-even points, namely: Colin Drury (1994) examines break-even points using financial and economic approaches; S.F. Golov (2003) proposes to use technical analysis and accounting analysis methods. Specific features of estimating break-even points for businesses of different economic sectors are discussed in the scientific papers by V.G. Andriychuk (2007), V.B. Mossakovsky (2006), L.V. Napadovska (2004) and others.

The goal of this article is to generate approach for calculating data for businesses using the break-even theory, tax laws and accounting data.

Key research findings. Business leaders at various levels should make management decisions. Therefore, it is necessary to possess information for sound decision-making, to use modern theoretical approaches and to comply with tax laws.

According to V. Andriychuk: 'First, all business managers should know at which sales volume the break-even point (zero return) is achieved'(Andriychuk, 2007).

Sales price is influenced by market supply and marketing policies of the business and can be unaffected by the manufacturer's wishes. Such factors as cost and output are influenced by the manufacturers and can be simulated and predicted. Therefore, to determine the conditions, under which the business will generate profit, it is necessary to calculate the critical output (O. Ratushna, 2010).

This article studies the financial and economic activities of the businesses. The subject of this research is the estimation of critical values of products price and volume, at which net proceeds cover all the production costs.

The main objective of the business is to manufacture and sell the products, and to generate profit. The Tax Code of Ukraine stipulates that profit is the difference between the revenues and production costs incurred. Therefore, there is a need to constantly compare the costs incurred and the revenues. Different periods (year, month, etc.) can be selected for analysis.

According to C. Drury (1994), it is appropriate to use economic and accounting approaches in determining the break-even point.

First, we will use the break-even theory (P.Yu. Buryak, M.V. Rymar, M.T. Byts, 2004) and accounting data.

Here, we will estimate the minimum amount of revenues for break-even operation of the business:

$$R = OpC \qquad (1)$$

The business receives revenues through the sales of finished products:

$$R = \Pr \times N \qquad (2)$$

where R – net income (revenues) from the sales of products (goods, works and services) that appears in correlation DB 70 CR 79, UAH;

Pr – sales price without any indirect taxes, UAH;

N – quantity of products sold, pcs.

$$COp = Cpr + CAd + CDist + COth \qquad (3)$$

where C_{Op} – operating costs, UAH;

C – prime cost of the products (goods, works and services) sold, which is reflected in correlation DB 79 CR 90, UAH;

C_{Ad} – administrative costs (DB 79 CR 92), UAH;

C_{Dist} – distribution costs (DB 79 CR 93), UAH;

C_{Oth} – other costs (DB 79 CR 94), UAH.

Secondly, the businesses pay taxes to the budgets and contributions to the funds.

Legal entities pay income tax or single tax. Below, we will review a business subject to income tax.

The Tax Code of Ukraine (as restated on February 01, 2016) states that income tax makes up 18 % of the tax object, which is calculated as the difference between gross revenues, gross costs and depreciation. In this study, it is assumed that the business net revenues equal the costs. So the business will not generate profit, but must pay the taxes to the budget.

Therefore, the business needs to plan its costs related to income tax (DB 79 Cr 981). According to the guidelines on scheduling the planned audit of the business entities, as approved by the STA of Ukraine, a business is recommended to maintain tax return:

$$T_{return} = T_{In} \div R \times 100\% \qquad (4)$$

where T_{return} – tax return, depending on the activity and given in Annex 8 to the above guidelines,%;

T_{in} – income tax, UAH.

$$T_{In} = Treturn \times R \div 100 \qquad (5)$$

Below, we will review a single tax payer. The businesses may choose a simplified tax system and pay a single tax of 5 % of the revenue (6), if they are not subject to VAT; and 3 % if they are subject to VAT (7), according to the Tax Code of Ukraine.

$$T_{\sin gle5\%} = R \times 5\% = \mathrm{N} \times \Pr \times 5\% \qquad (6)$$

Where T_{single} – amount of single tax, UAH.

$$T_{\sin gle3\%} = R \times 3\% = \mathrm{N} \times \Pr \times 1{,}2 \times 3\% \qquad (7)$$

where 1,2 – factor that increases the price by VAT amount.

In these calculations, indirect taxes can be omitted because they are paid from profit – revenues received from the customers.

If the business is an exporter, it is necessary to take into account the turnover of VAT, since a period of time passes between the date of payment to the vendors and shipment for export, and the dates of budget refund. This period includes the duration of the operating cycle and budget refund documenting.

When planning the costs, it is necessary to consider the minimum wage established by the current legislation, which systematically increases. The costs incurred by the business for an obligatory state social insurance depend on the payroll amount.

Thirdly, the business has to plan cash flows. It is therefore necessary to consider the timing of settlements with the suppliers and receipt of revenues from the customers. For this purpose, it is necessary to use the following terms: receivables maturity term (T_{rec}) and payables maturity term (T_{pay}), estimated according to the financial statements:

$$T_{rec} = \frac{365}{R_{n/c\,\mathrm{Re}c}} \quad (8)$$

$$T_{pay} = \frac{365}{R_{n/cPay}} \quad (9)$$

The ratio of non-current receivables ($R_{n/cRec}$) and the ratio of non-current payables ($R_{n/cPay}$) are calculated as follows:

$$R_{n/c\,\mathrm{Re}c} = \frac{Netsalesvalue}{averagereceivables} \quad (10)$$

$$R_{n/cPay} = \frac{prime\,\mathrm{cos}\,toftheproducts(goods,services)sold}{averagepayables} \quad (11)$$

So, if T_{pay} is 8 days, then the business pays the suppliers' invoices every eight days, if T_{rec} is 10 days – it receives revenues from the customers every ten days.

If the business pays the suppliers' invoices before receiving revenues from the customers ($T_{\mathrm{Re}c} \geq T_{Pay}$), the question arises as to raising funds.

The business can extend a bank loan, but in this case bank interest has to be taken into account upon calculation of the costs.

$$C\% = L \times a \times (T_{\mathrm{Re}c} - T_{Pay}) \quad (12)$$

where C% - the costs related to loan interest;

L – loan amount that equals the business's costs, UAH;

α - loan interest per day.

Following the review of the break-even theory, tax laws and accounting data, the business can determine the minimum sales price or volume.

Below, we will summarize the above for the business operating based on a general tax system.

We will calculate the costs:

$$COp = C\,\mathrm{Pr} + CAd + CDist + COth + C\% + Tin \quad (13)$$

Formula (13) will look as follows taking into account the formulae (5, 12):

$$COp = (C\,\mathrm{Pr} + CAd + CDist + COth)(1 + a\,(T_{\mathrm{Re}c} - T_{Pay})) + T_{return} \times R \div 100 \quad (14)$$

Formula (1) will look as follows taking into account the formulae (2, 14):

$$\mathrm{Pr} \times N(1 - T_{return} \div 100) = (C\,\mathrm{Pr} + CAd + CDist + ExOth)(1 + a\,(T_{\mathrm{Re}c} - T_{Pay})) \quad (15)$$

Due to formula (15), the business can calculate the minimum sales price of the products:

$$\mathrm{Pr} = \frac{(C\,\mathrm{Pr} + CAd + CDist + COth)(1 + a\,(T_{\mathrm{Re}c} - TPay))}{N(1 - T_{return} \div 100)} \quad (16)$$

If the business operating costs are divided into fixed and variable (17), then the break-even point (18) can be calculated using the formula (15):

$$C + CAd + CDist + COth = Treturn + 3B_i \times N \quad (17)$$

$$\mathrm{Pr} \times N(1 - T_{return} \div 100) = (CFix + CVar_i \times N)(1 + a\,(T_{\mathrm{Re}c} - T_{Pay}))$$

$$N = \frac{CFix(1 + a\,(T_{\mathrm{Re}c} - T_{Pay}))}{\mathrm{Pr}(1 - T_{return} \div 100) - CVar_i(1 + a\,(T_{\mathrm{Re}c} - T_{Pay}))} \quad (18)$$

Thus, the minimum sale price of the products can be calculated using the formula (16) adding indirect taxes, and breakeven point – using formula (18).

Below, we will summarize the above for the business operating based on the simplified tax system - a single tax of 5 %.

We will calculate all costs:

$$COp = C\,\mathrm{Pr} + CAd + CDist + COth + C\% + T_{\mathrm{sin}\,gle\,5\%} \quad (19)$$

Formula (19) will look as follows taking into account the formulae (6, 12):

$$COp = (C\,\mathrm{Pr} + CAd + CDist + COth)(1 + a\,(T_{\mathrm{Re}c} - T_{Pay})) + \mathrm{N} \times \mathrm{Pr} \times 5\% \quad (20)$$

Formula (1) will look as follows taking into account the formulae (2, 20):

$$\mathrm{Pr} \times N(1 - 5\%) = (C\,\mathrm{Pr} + CAd + CDist + COth)(1 + a\,(T_{\mathrm{Re}c} - T_{Pay})) \quad (21)$$

Due to formula (22), the business can calculate the minimum sales price of the products:

$$\mathrm{Pr} = \frac{(C\,\mathrm{Pr} + CAd + CDist + COth)(1 + a\,(T_{\mathrm{Re}c} - T_{Pay}))}{N(1 - 5\%)} \quad (22)$$

If the business operating costs are divided into fixed and variable (17), then the break-even point (23) can be calculated using the formula (21).

$$\mathrm{Pr} \times N(1 - 5\%) = (CFix + CVar_i \times N)(1 + a\,(T_{\mathrm{Re}x} - T_{Pay}))$$

$$N = \frac{CFix(1 + a\,(T_{\mathrm{Re}c} - T_{Pay}))}{\mathrm{Pr}(1 - 5\%) - CVar_i(1 + a\,(T_{\mathrm{Re}c} - T_{Pay}))} \quad (23)$$

Thus, the minimum sales price of the products can be calculated using the formula (22), and break-even point – using formula (23).

Below we will summarize the above for the business operating based on the simplified tax system – a single tax of 3 %.

We will calculate all costs:

$$C = C\,\mathrm{Pr} + CAd + CDist + COth + Ex\% + T_{\mathrm{sin}\,gle\,3\%} \quad (24)$$

Formula (24) will look as follows taking into account the formulae (7, 12):

$$Ex = (C + ExAd + ExDist + ExOth)(1 + a\,(T\,\mathrm{Re}\,c - T_{Pay})) + \mathrm{N} \times \mathrm{Pr} \times 1{,}2 \times 3\% \quad (25)$$

Formula (1) will look as follows taking into account the formulae (2, 25):

$$\mathrm{Pr} \times N(1 - 1{,}2 \times 3\%) = (C\,\mathrm{Pr} + CAd + CDist + COth)(1 + a\,(T_{\mathrm{Re}x} - T_{Pay})) \quad (26)$$

Due to formula (26), the business can calculate the minimum sales price of the products:

$$\mathrm{Pr} = \frac{(C\,\mathrm{Pr} + CAd + CDist + COth)(1 + a\,(T_{\mathrm{Re}c} - T_{Pay}))}{N(1 - 1{,}2 \times 3\%)} \quad (27)$$

If the business operating costs are divided into fixed and variable (17), then the break-even point (28) can be calculated using the formula (26):

$$\Pr \times N(1-1{,}2\times 3\%) = (CFix + CVar_i \times N)(1 + a\,(T_{\mathrm{Re}c} - T_{Pay}))$$

$$N = \frac{CFix(1 + a\,(T_{\mathrm{Re}c} - T_{Pay}))}{\Pr(1-1{,}2\times 3\%) - CVar_i(1 + a\,(T_{\mathrm{Re}c} - T_{Pay}))} \quad (28)$$

Thus, the minimum sales price of the products can be calculated using formula (27), adding indirect taxes, and break-even point – using formula (28).

Findings. As a result of using the break-even theory, taking into account the current tax legislation and analyzing financial non-current debt ratios, we have developed the formulae enabling to determine accurately the minimum sales price and volume, including all costs arising from ordinary operations.

– for the businesses operating under general taxation system, minimum sales price is calculated based on the formula (16), and break-even point – based on the formula (18)

– for the businesses paying single tax of 5 %, minimum sales price is calculated based on the formula (22), and break-even point – based on the formula (23)

– for the businesses paying single tax of 3 %, minimum sales price is calculated based on the formula (27), and break-even point – based on the formula (28).

These critical indicators will allow a business to make better management decisions in the current economic crisis.

The proposed method requires further research in connection with constant changes in tax legislation, target market capacity and the state of supply and demand for certain products and services.

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