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FOR REFERENCE

NOT TO BE TAKEN FROM THIS ROOM

THE DEPRECIATION PROBLEM IN TURKEY

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PREFACE

Present applications of depreciation methods in Turkey have certain defects from the standpoint of modern accounting and financial concepts. The purpose of this study is to analyze the present system mainly with regard to the financial aspect of depreciation in Turkish enterprises and to the effect of taxation upon this function of depreciation.

Methodology and Limitations

Material for this paper was attained from two types of sources:

1. General published material available on the topic in the Robert College Library, and in the Library of Istanbul Chamber of Commerce. These materials are:

- a. Accounting and financial books related to the topic,
- b. Turkish Code of Taxation and The Tax Procedural Law, and,
- c. Other sources of information.

2. Interviews:

Formal interviews were made with:

- a. İsmail Özarslan, Secretary to General Secretary of Istanbul Chamber of Commerce and Associate Professor of Accounting in Istanbul Economic and Commercial Sciences Faculty.

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b. Beysan Keyder, Director of Bonds, Stocks and Participations in Industrial Development Bank of Turkey.

Informal interviews were made with the accounting department staff of some transportation companies such as, "Transmak Beynelmilel Nakliyat Limited Şirketi" and "Tuzcuoğlu Nakliyat Anonim Şirketi".

The sources mentioned above were used throughout the paper whenever necessary. Footnotes have been provided to indicate the sources of borrowed ideas. A list of all sources is given in the bibliography section of this paper.

In general, accounting and financial books and other sources of information are used in the preparation of Chapters I, III, and IV. The Turkish Code of Taxation and The Tax Procedural Law are used in preparation of Chapter II and partly of Chapter III. Interviews were useful in preparing Chapters III and IV.

In writing this paper, certain inevitable limitations occurred. An important limitation was the reluctance of interviewed companies to give information about the structure of and the investments in their capital assets. The other limitation is that there are no available statistical information on the structure of the capital assets of business entities in different branches of industries, published by official institutions.

Chapter I

THE CONCEPT OF DEPRECIATION

The Nature of Depreciation

Production goods can be divided into two categories: those consumed during the current period, and those consumed during current and future periods.

Examples of the former goods are raw materials and supplies. They require expenditures whose costs are reflected only in current operating statements. The latter goods include tangible items such as building, machinery and equipment, furniture and fixtures, transportation vehicles and intangible items such as patent, trademark, goodwill, franchises. They are "capital" expenditures, and their costs are spread over current and future operating statements. They are acquired for the purpose of providing a stream of useful services. As their service potential is used up, they are transferred to current expenses. Thus, they may be regarded as relatively long-lived deferred charges to operations.

Capital assets have limited service lives due to physical deterioration and obsolescence. Physical deterioration arises through the asset's use, the passage of time and accidental damage and results in a decline in the quantity of output or service obtainable in the future through the use of the asset. One may think that the service capacity of the asset can be held constant by its maintenance and repair. But beyond some point or time,

maintenance expenditures increase and become so large that replacement of the asset with a new one becomes necessary.

Obsolescence is usually a more important factor than physical deterioration in impairing and eventually terminating the useful service lives of capital assets. Improvements in technology and changes in consumers' tastes may require producers to introduce new products, or to change present methods of production. Such changes require new capital expenditures for fixed assets.

Physical deterioration and obsolescence reduce the net economic value of future service potential of capital assets. This loss in the value-creating ability of capital assets constitutes the true nature of the problem of depreciation.

The Concept of Depreciation

The idea of depreciation arises out of two features of capital assets:

- a. They have limited useful lives.
- b. The owner of capital assets can benefit from them only within their useful service lives.

Therefore, the basic idea of depreciation can be viewed as a process of the allocation of costs to accounting periods in recognition of the limited useful lives of the capital assets.

Definition of Depreciation

The term "depreciation" means decline in value, while the term "amortization" means a gradual reduction to zero, from the Latin

word "ad mortir". In Anglo-Saxon countries, the term "depreciation" is used to indicate the decline in the potential service ability of tangible capital assets, and the term "amortization" for those of intangible capital assets. But in the countries under French or Latin influence, such as Turkey, there is no distinction between them, and the term amortization is used for tangible and intangible capital assets. No matter the literal meaning of the terms, there are various definitions of depreciation and amortization which are found in accounting and financial literature. To indicate the problem of communicating in this area, several definitions are given below:

a. Depreciation and amortization are the "funds" retained in business by enterprises to "overcome" the decline in the values of capital assets because of time, usage and other economic factors.(1)

b. Depreciation and amortization are accounting processes which aim to show deterioration of fixed assets by usage and time, and to replace them with new ones.(2)

c. Depreciation and amortization are the "funds" assigned to replace partly or completely capital assets.(3)

d. Depreciation and amortization are processes of allocating the cost of capital assets, or prepaid expenses, in portions to the periods during which services provided by the assets are rendered.

-
1. Cevat Yücesoy, Envanter ve Bilânço, (İşıl Matbaası, Istanbul, 957) p.50
 2. R. Homburg, Vocabulaire Juridique, (Librairie Dalloz, Paris, 960) p.49
 3. Quesnot Administration Financieres (Payot, Paris, 1928) p.42

e.

Investment in plant and equipment with a limited useful life constitutes a deferred charge of operations, a prepaid expense. As the services constituting the asset are used up or expire from the lack of use, a corresponding portion of the investment is transferred from the plant and equipment account to operations. The process of transferring is called 'depreciation' when applied to tangible fixed assets.(4)

Differences in the definitions above are due to different functions assigned to depreciation as will be shown in the sections below rather than to disagreements concerning its nature.

Functions of Depreciation

In analyzing the functions of depreciation one can distinguish four distinct aspects of the problem:

1. Expense Allocation Function, which allocates the costs of fixed assets to the periods benefiting from their use.

2. Cost Function, which enables the determination of costs applicable to specific periods, and thus the determination of expenses and cost of production by considering depreciation as part of product costs.

3. Financial Function, which emphasizes the cost to be recovered in the sales prices of goods and services and thus to be recouped by the firm in sales revenue.

4. Moonitz and Jordan, Accounting: An Analysis of Its Problems,

(New York: Holt, Rinehart and Winston,
Vol.1, 1963.) p. 378

4. Appraisal Function, which is used in determining the values of depreciable assets at the balance sheet date which are applicable to future periods.

When we trace the development of the concept of depreciation through the history of accounting, we shall see that the importance given to each function has changed over time.

Briefly, the appraisal function of depreciation was emphasized in the earliest approaches to the problem. The purpose was to determine the net value of fixed assets at a certain time. This approach has changed, and the cost function and expense allocation functions have gained importance.

Continuous rise in price levels, the serious decline in the monetary value of money, and the development of technology through the last hundred years focus attention on the financial function of depreciation. These factors have created a controversy regarding the financial and accounting aspects of depreciation.

Development of the Concept of Depreciation

Prior to the Industrial Revolution, the main types of capital assets (other than land) were buildings, mostly warehouses, and wooden sailing vessels. Warehouses were regarded as permanent by the nature of their construction and recorded at their construction costs. Only in the case of their significant deterioration or destruction (such as in case of fire) were they charged off as losses. Sailing vessels were often charged off against the first voyage, where the practice was justified by the

risk of the voyage involved. In either case, the concept of charging off was instantaneous recording of the significant loss occurred by the use, decay or deterioration of fixed assets and reflecting it in the calculations of enterprise profit rather than allocating systematically the cost of fixed assets to benefiting periods.

In the earlier stages of the Industrial Revolution, the relationship of fixed assets to the creation of products or providing services was recognized. But the common practice of recording depreciation was dependent upon the current level of earnings before depreciation and upon arbitrary decisions of managers. So against the early concept of depreciation as "loss by deterioration", the "cost recovery concept" was introduced.

The cost recovery concept states that the objective of depreciation should be recapturing in revenues a sufficient amount of funds to provide for replacement of the capital asset at its retirement date. Consequently, depreciation accounting should be viewed as a periodic amortization of prior investment made in capital assets to reflect the gradual conversion of that prior investment into periodic charges against revenues.⁽⁵⁾

A second version of this concept states that the objective of depreciation accounting should be to deduct a sufficient amount

5. Littleton and Zimmerman, Accounting Theory: Continuity and Change,
(N.J. 1962, Prentice Hall, Inc.
Englewood Cliffs.) p. 159

from the periodic revenue to recover the original investment, that is, the acquisition cost of the fixed asset.

Since costs are not recovered nor are replacement funds available from revenues unless revenues exceed operating costs (excluding depreciation), the application of this concept may lead to a recording of depreciation only when current revenues exceed operating costs (other than depreciation). This concept views depreciation as a broad managerial provision related to the replacement of capital assets rather than as a measure of the contribution of fixed assets to the operations of the current periods. It supported the belief that the concept of depreciation was more a problem of finance than of financial accounting.

Later, the estimated amount of depreciation of fixed assets, especially of machinery, began to be considered as part of product costs, and the strongest impulse for depreciating the investment in fixed assets as periodic expenses arose from the development of cost accounting for manufacturing activities.

Undoubtedly, the most fruitful development of the concept and of the practice of depreciation accounting has occurred in the United States since the beginning of the twentieth century.

The development of cost accounting for manufacturing activities and the accounting practices of American railroads created a flexible idea of fixed asset depreciation. Yet, the development of cost accounting in railroad companies was inadequate compared with manufacturing activities.⁽⁶⁾ Fixed assets accounts could be

6. Ibid. p.160

charged for new property and betterments if a replacement represented an improved form of asset. In 1913, the Interstate Commerce Commission justified fixed asset depreciation for better reporting, and in the same year a new income tax law was passed allowing tax deductions for depreciation.⁽⁷⁾ The same Commission permitted the practice of fixed asset depreciation for the railroad companies in 1930.

In 1922, the National Association of Utility Commissioners expressed their belief that "the amortization of invested cost over the life of the fixed assets was inappropriate for power companies, probably because unpredictable obsolescence was a determining factor."⁽⁸⁾ Although in 1936 the Federal Power Commission allowed depreciation of fixed assets as an expense, the depreciation expense was restricted to a specifically limited base.

In contrast to regulated public utility companies, competitive manufacturing and service companies had enough freedom to develop different ideas and practices in fixed asset depreciation.

The concept of depreciation also became a topic of discussion by the academic community and by the accounting profession. The Committee on Accounting Procedure of the American Institute of Certified Public Accountants states the objective of depreciation as follows:

7. id.

8. id.

The cost of a productive facility is one of the costs of the service it renders during its economic useful life. Generally accepted accounting principles require that this cost be spread over the expected useful life of the facility in such a way as to allocate it as equitably as possible to the periods during which services are obtained from the use of the facility. This procedure is known as depreciation accounting, a system of accounting which aims to distribute the cost or other basic value of tangible assets, less salvage value (if any), over the estimated useful life of the unit (which may be a group of assets), in a systematic and rational manner. It is a process of allocation, not of valuation.(9)

This statement implicitly, but clearly, rejects the recovery of replacement funds as the purpose and the basis for the determining the periodic depreciation charge. Depreciation does not have the purpose of measuring realizable values and replacement costs of fixed assets. These are important issues for management in planning for the future, but they are quite separate from the problem of depreciation.

Depreciation is an operating cost or expense to be recognized, measured, and recorded for calculating periodic profit. We cannot know the net profit figure unless we include all measurable costs and revenues involved in generating that profit. Depreciation is one of these measurable costs.

Depreciation appears as an expense item in the income statement, and depreciation of a fixed asset during a period reflects the share of the asset's total service potential that has expired

9. Accounting Research and Terminology Bulletins, (AICPA Publication, N.Y. 1961) p.76

during the period. So the purpose of depreciation is to determine the loss of useful service capacity of fixed assets.

Any method of cost allocation which is systematic and rational is acceptable for depreciating fixed assets. Choosing one of the alternative methods (such as straight line, sum of years' digits, declining balance or other methods) depends upon which method reflects best the expiration of the potential service capacity of the specific asset over its useful life. The alternative methods allocate to product cost no more than total invested cost. The idea of higher depreciation allocations in early years of use and lesser amounts in later years is justified by the low maintenance costs in early years and high maintenance costs in later years.

A continuing rise in price levels since 1940 has caused dissatisfaction with the present application of depreciation accounting on plant and equipment, and demands were voiced by some accountants that basic changes be made in the existing practice of depreciation accounting. The demands concentrated on recognizing depreciation in the income statement in terms of current values instead of on the basis of historical cost. Based on the fact that sharp increases in price levels necessitate the replacement of old assets at prices greater than their original acquisition costs, these accountants claimed that depreciation in terms of current values in calculating income permits retaining sufficient funds within the business to replace productive capital assets at market prices. Such an accounting practice was sharply protested and considered unacceptable by the U.S. Internal Revenue Service

and by the Securities and Exchange Commission. The Committee on Accounting Procedure of AICPA⁽¹⁰⁾ stated that:

"no basic change in the accounting treatment of depreciation of plant and equipment is practicable or desirable under present conditions to meet the problem created by the decline in the value of the dollar."

The Committee further stated that:

"such a change would confuse readers of financial statements and nullify many of the gains that have been made toward clearer presentation of corporate finances."

"Any basic change in the accounting treatment of depreciation should await further study of the nature and concept of business income."

However, six members of the committee dissented to the opinions above and expressed their own belief that:

"plant may continue to be carried in the balance sheet at historical cost with deduction for depreciation based thereon. But, in addition to historical depreciation, a supplementary annual charge to income should be permitted with corresponding credit to an account for property replacement and substitutions, to be classified with the stockholders' equity."

Computing fixed asset depreciation is on the basis of cost. If the values of fixed assets are appraised due to rapid rises in price levels, the amount of depreciation must be calculated on the appraised value of fixed asset. That is, when a company increases the value of its fixed assets by appraisal, periodic depreciation charge and therefore periodic income must be based on the appraised value of the fixed assets. The Accounting Principles Board of

10. Ibid. p.68

AICPA believes that:

"property, plant and equipment should not be written up by an entity to reflect appraisal, market or current values which are above cost to the entity. This statement is not intended to change accounting practices followed in connection with quasi-reorganizations or reorganizations. This statement may not apply to foreign operations under unusual conditions such as serious inflation or currency devaluation. However, when the accounts of a company with foreign operations are translated into United States currency for consolidation, such write ups normally are eliminated. Whenever appreciation has been recorded on the books, income should be charged with depreciation computed on the written up amounts."(11)

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11. Opinion Nr.6. "Status of Accounting Research Bulletins",
Revision of Paragraphs 1 and 2, in ARB 43
Chapter 9B, (The Journal of Accountancy,
November 1965, p.56)

Chapter II

APPLICATION OF DEPRECIATION IN TURKEY

The Tax Procedural Law includes articles on the valuation basis of capital assets, the meaning of depreciation and its application, and the rates of depreciation to be used for each specific capital asset, or for specific groups of capital assets. The law was passed on June 7, 1949 by law number 5432, and the articles on the valuation of capital assets and on the subject of depreciation still regulate business entities under the jurisdiction of the law. In 1961, new provisions were added to the law relating to the declining-balance method of depreciating capital assets.

Valuation of Capital Assets

Valuation of capital assets is primarily based on their acquisition costs. All immovable assets (real estate and property) of business enterprises are valued at cost. According to the law, other capital assets are valued just as immovable assets:

1. Permanent attachments of immovable assets,
2. Sailing vessels and other transportation vehicles,
3. Machinery and equipment. (Article Nr. 253)
4. Tools, furniture and fixtures. (Article Nr. 257)

The law permits some special expenditures to be included in the costs of capital assets stated above. They are:

1. Custom duties, transportation and assembly costs for machinery and equipment, tools, furniture and fixtures,
2. Expenditures for demolishing a purchased building and for excavating a vacant land. (Article Nr. 254)
3. Expenditures (beyond the normal maintenance costs) to enlarge or to increase the economic value of capital assets. (Article Nr. 256) For leased immovable assets, such expenditures are valued as special costs and must be shown separately from the capitalized expenditures above.

Enterprises are free to include those related costs for notary, surveying office, lawsuits, official appraisal, commission and brokerage fees, to the costs of capital assets or to treat them as periodic expenses. (Article Nr. 254) Expenditures for constructing building and vessels, for manufacturing machinery and equipment, tools, furniture and fixture are treated at their acquisition costs. (Articles Nr. 255 and 257)

Capitalized organization costs of enterprises are valued at their registered amounts, which cannot exceed the total costs for the organization. It is voluntary to capitalize organization costs. (Article Nr. 264)

If the costs of capital assets cannot be determined by their own measurements, building and land are valued at their taxable values, and others are valued at their equivalent current market prices. (Article Nr. 271)

Depreciation and Its Application

Depreciation means eliminating gradually (by charges against revenues) the values of those capital assets, stated below, during their estimated useful service lives:

1. Immovable assets and attachments,
2. Machinery and equipment,
3. Sailing vessels and transportation vehicles,
4. Tools, furniture and fixtures,
5. Motion pictures. (Article Nr. 295)

Land and vacancies are not subject to depreciation, except:

1. Cultivated land used in agricultural enterprises such as orchards, vineyards, gardens and farms,
2. All types of roads and water canals within the territories of enterprises. (Article Nr. 296)

The law differentiates between two kinds of depreciation:

1. Normal Depreciation (straight-line method). The capital assets, classified above, are depreciated at fixed rates determined and issued by the Ministry of Finance, upon the consideration of other related ministries, Chambers of Commerce and Industry, and Bourses. To determine the rates of depreciation, the type of business activity and average useful service lives of the specific capital assets are considered. (Article Nr. 237)

2. Extraordinary Depreciation. The depreciable assets may,
 - a. Have partially or completely lost their values due to natural catastrophies, like fire, earthquake and flood,

- b. have become partially or completely obsolete as their productivity and value creating ability is reduced due to innovations, or
- c. have deteriorated or exhausted before the end of their estimated useful service lives.

In such cases, they can be depreciated at extraordinary rates to be determined by the Ministry of Finance, according to the nature of the business and of the specific assets. But the owner of such assets, as a taxpayer, must first refer to the ministry related to his business and get its consideration.(Article Nr.299)

The law views the application of depreciation from two points

1. Rates. Taxpayers may calculate the periodic depreciation charges at their own estimated rates, without exceeding the rates stated and issued by the Ministry of Finance. Once they begin to apply these rates in a specific period, they cannot change them before the succeeding three periods. (Articles Nr. 300 and 301)

2. Duration. Duration of depreciation begins in the period in which the assets are capitalized in the accounts of the enterprises. The estimated useful lives of the assets, in number of years, is the reciprocal of the applied rate of depreciation. (This implies no scrap value.) The amount of depreciation allowable for a specific period can only be used within that period. Duration of depreciation cannot be extended if any amount of depreciation for a specific period is not charged, or if it is charged at a lower rate within that period.(Article Nr. 302)

Capitalized organization costs may be depreciated over the first

five years of operation on a straight-line basis.(Article Nr. 308)

The accounting treatment for the periodic amount of depreciation may either be deducted from the value of the asset, or credited to an "allowance for depreciation" account.

The law considers two special cases for the application of depreciation:

1. Sale of depreciable assets. In such cases, the difference between the sales revenue and the net book value of the assets is charged or credited to the profit and loss statement. The same treatment is applicable for the transfer of depreciable assets. (Article No. 309)

2. Insurance indemnity of depreciable assets. If insured depreciable assets have lost partially or completely their values due to catastrophies covered by insurance policies, the difference between the amount of indemnity obtained and their net book value is charged or credited to the current period. (Article Nr. 310) It may be necessary to replace these assets with new ones. If, in such a case, the amount of indemnity obtained is greater than the net book value of the assets, the difference is temporarily credited to a special liability account in order to cover replacement expenditures.(Article Nr. 310) A new provision, added to this article in 1961, states that the difference must be credited to a special liability account and can be kept there only for three years. The unused portion of the credit must be transferred into the income statement as a revenue at the end of the three-year period. The same treatment is also applicable for the sale of depreciable assets if the sales revenue exceeds the

net book value of the assets. (Law Nr. 205)

The declining-balance method of depreciation is a liberal provision added to the law in 1961. According to the provision, business entities who practice double-entry bookkeeping on the accrual basis may apply declining-balance method of depreciation to their capital assets.

The application of this method can be summarized as follows:

1. A fixed percentage rate is applied to the declining book value of depreciable asset. For the first year of application, the base is the cost or equivalent value of a newly acquired asset or the net book value of an already existing asset. The base in succeeding years is determined by deducting the amount of depreciation charge from the net book value of the asset.

2. The fixed rate of depreciation, without exceeding 25%, equals two times the normal rate for the specific asset.

3. Duration of depreciation (estimated useful life of the asset) in this method equals the number of years calculated on the basis of normal depreciation rates.

4. The net book value (balance) of the fixed asset left in the last year of the duration period is completely charged off within that year. An example is given below for the purpose of illustrating and comparing the two alternative methods:

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<u>Capital asset</u>	<u>Initial value (T.L.)</u>	<u>Normal rate</u>	<u>Rate to be applied in declining-balance m.</u>	<u>Estimated useful life</u>
A	100,000	20%	25%	5 years
B	100,000	12.5%	25%	8 "
C	100,000	10%	20%	10 "

For A. Normal (straight-line) Declining-Balance

<u>Years</u>	<u>Base</u>	<u>Rate</u>	<u>Depreciation charge</u>	<u>Rate</u>	<u>Base</u>	<u>Depreciation charge</u>
1	100,000	20%	20,000	25%	100,000.00	25,000.00
2	"	"	"	"	75,000.00	18,750.00
3	"	"	"	"	56,250.00	14,062.50
4	"	"	"	"	42,187.50	10,546.88
5	"	"	"	100%	31,640.62	31,640.62
			<u>100,000</u>			<u>100,000.00</u>

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For B.

<u>Normal (straight-line)</u>				<u>Declining-Balance</u>		
<u>Years</u>	<u>Base</u>	<u>Rate</u>	<u>Depreciation charge (TL.)</u>	<u>Rate</u>	<u>Base</u>	<u>Depreciation C.TL.</u>
1	100,000	12.5%	12,500	25%	100,000.00	25,000.00
2	"	"	"	"	75,000.00	18,750.00
3	"	"	"	"	56,250.00	14,062.50
4	"	"	"	"	42,187.50	10,546.88
5	"	"	"	"	31,640.62	7,910.15
6	"	"	"	"	23,730.47	5,932.62
7	"	"	"	"	17,797.85	4,449.46
8	"	"	"	"	13,348.39	13,348.39
			100,000			
						100,000.00

For C.

<u>Normal (straight-line)</u>				<u>Declining-Balance</u>		
<u>Years</u>	<u>Base</u>	<u>Rate</u>	<u>Depreciation charge (TL.)</u>	<u>Rate</u>	<u>Base</u>	<u>Depreciation C.TL.</u>
1	100,000	10%	10,000	20%	100,000.00	20,000.00
2	"	"	"	"	80,000.00	16,000.00
3	"	"	"	"	64,000.00	12,800.00
4	"	"	"	"	51,200.00	10,240.00
5	"	"	"	"	40,960.00	8,192.00
6	"	"	"	"	32,768.00	6,553.60
7	"	"	"	"	26,214.40	5,242.88
8	"	"	"	"	20,971.52	4,194.30
9	"	"	"	"	16,777.22	3,355.44
10	"	"	"	100%	13,421.78	13,421.78
			100,000			100,000.00

For a capital asset, only normal or declining-balance methods of depreciation can be applied. If normal rates of depreciation are used at the outset, they cannot subsequently be changed to declining-balance method of depreciation. But, it is possible to switch from declining-balance method to the normal rates of depreciation. In that case, the change must be disclosed in the balance sheet, and the asset must be depreciated in equal portions over the remainder of its estimated useful life.

Depreciation Rates

Depreciation rates are specified by the Tax Procedural Law and are summarized in general and special schedules. Depreciable assets are broadly classified in the general schedule under 10 headings with their corresponding depreciation rates. The special schedules are constructed in 24 tables according to the different branches of industrial activities, mining and agricultural enterprises. The following is a summary of the principal items and rates included in the general schedule:

<u>Items</u>	<u>% Rate</u>
1. Buildings:	
a) Administrative, professional, warehouses, etc.	
Of concrete, masonry, iron, steel	2
Of half-masonry, half timber (including wooden buildings sprayed with concrete or like coatings)	3
Of timber or sun-dried bricks	4
When the dominant material is sheet iron, zinc and tin plate	6

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% Rate

Temporary sheds, building and site constructions	6
Building whose dominant material is glass . . .	5
Cisterns and the like	2

b) Factories, stations, terminals, power pumping, etc.	
Of concrete, masonry, iron, steel	4
Of half masonry	5
Of wood	6
Of sun-dried bricks	8
When the dominant material is sheet iron, zinc or tin plate	10

2. Landing-places, wharfs, pools:

Of concrete, masonry	5
Of iron and steel	6
Of wood	10
Pools (stationary or moving)	2

3. Roads:

Railroads and narrow gauge	4-6
Concrete and asphalt roads	6
Paving (regular)	10
Causeways and rough paving	12

4. Bridges:

Of concrete, masonry, steel	6
Of wood	12

5. Canals and waterbrakes 10-20

6. Enclosing walls, dams, regulators, wells and pounds. . 4-6

7. Installations:

x	a) Gardens, parks	5
	b) Lighting, heating, refrigerating, telephone, radio wireless, loading and unloading installations, etc.	6
	c) Aerial lines and poles, elevators, fences, cooling ponds	8
	d) Air-conditioning and ventilating installations. .	12
x	e) Wheeled and caterpillar cranes, extracting cranes	14

x Additions to the general schedule in 1961.

		<u>% Rate</u>	
8.	Means of Transportation:	Urban	Inter-Urban
a)	Cars, busses, carriages and others.	15 (20)	20 (25)
b)	Vehicles circulating on rails and cables	10	10
c)	Small locomotives transporting ore	10 (12)	10 (12)
d)	Motor trucks	15 (25)	20 (33)
e)	Pack animals	20	20
f)	Ships and tankers		5-7
x g)	Airplanes and helicopters		25
9.	Furniture:		
a)	Iron and steel safes		2
b)	Furniture, cabinets, telephone apparatus, etc. . .		6
x c)	Carpets, rugs, sewing and grinding machines, etc.		8
x d)	Typewriters, calculating machines, ventilators, etc.		12
x e)	Refrigerators, radio receivers, lab. instruments .		10
x f)	Curtains, shades, shutters and other accesories .		20
x g)	Bags, canvas, baskets, hose and the like		50
10.	Energy distributing machinery and equipment		6

The special schedules classify very extensively the particular capital assets of the industrial branches and give specific rates of depreciation for each of the capital assets. The classification of industrial branches by the special schedules are shown on the following page.

x Additions to the general schedule in 1961

Rates of depreciation before 1961 (in paranthesis)

Classification of Industrial Branches in the Special Tables:

1. Lignite, coal and other mining industries.
- x 2. Petroleum industry.
3. Textile industry
 - a) Woollen textile,
 - b) Cotton textile,
 - c) Knitwear,
 - d) Viscose,
 - e) Silk,
 - x f) Rug making, and
 - x g) Fishing-net making industries.
4. Cement industry.
5. Roof-tile and brick industry.
6. Tile, china, pottery and ceramics industry.
7. Bottle and glassware industry.
8. Iron and steel industry.
9. Metallic wires, nuts, bolts and chains industry.
10. Ladder and tanning industry.
11. Footwear products industry.
12. Chemicals and pharmaceuticals industry.
 - x a) Nitrogen products,
 - x b) Chemical fertilizers,
 - c) Pharmaceutical products,
 - x d) Soap and detergents,
 - x e) Gunpowder and the like industries.
13. Wood industry.
 - x a) Lumber products,
 - x b) Plywood,
 - x c) Synthetic wood, and
 - d) Wooden furniture industries.

x Indicates the additional classification in 1961.

- 14. Cellulose industry.
- x 15. Paper, carbon paper and paper packing industry.
- x 16. Rubber products industry.
- 17. Food industry
 - a) Sugar and pastry products,
 - x b) Flour and starch,
 - c) Glucose, macaroni and canned foods,
 - x d) Vegetable oil and margarine industries.
- 18. Miscellaneous industries.
 - a) Match, liquors, tobacco and cigarettes,
 - x b) Plastic articles and artificial plastic sheetings,
 - x c) Electric bulbs, batteries and accumulators,
 - x d) Dyeing and finishing industries.

Practice of Investment Allowance in Turkey

Although the subject of Investment Allowance has no direct relationship to the depreciation problem under study, it is helpful to indicate the practice of Investment Allowance in order to understand the financial use of depreciation practice, which will be studied in the next chapter.

The Investment Allowance was instituted in 1963 by a new provision added to the Turkish Code of Taxation. (Law Nr. 206, Article Nr. 16)

Investment Allowance is a tax relief for commercial and agricultural incomes of tax payers for certain investments.

The investments covered under this law must meet the following conditions:

1. The investment must be in conformity with the development plans of the State Planning Organization.
2. The investment must serve one of the following purposes:
 - a) Develop production.
 - b) Increase productivity.
 - c) Develop exports.
 - d) Improve the quality of grown or manufactured products.
 - e) Raise the level of culture.
 - f) Be in scientific and technical research work.
 - g) Attract foreign tourists.
3. It must aim at creating new assets such as buildings (except housing other than for personnel), machinery, installations, equipment, means of conveyance and the like. Investments acquiring land and spare parts do not come within the scope of this paragraph.
4. The tax payer's profits must be established on the accrual basis.
5. The amount of investment must not be less than,
 - a) 250,000 T.L. for investments specified above,
 - b) 50,000 T.L. for investments in agriculture, and
 - c) 125,000 T.L. for investments coming under the regional development plans of the State Planning Organization and the branches of activity admitted by the High Planning Board as presenting special importance and character as regards the national economy.

The plans, projects and financial calculations of the investment and the time required for completion of the project will be examined by the Ministry of Finance in consultation with the State Planning Organization.

The allowance applies only to the portion of the investment assured or covered by the essential capital. This means that the cost of the investment must be either met from the company's existing working capital, or from funds introduced as new capital. It does not apply to investments financed by loans. The only exception to this rule is that credits granted to farmers by certain public institutions and banks may be considered essential capital. Resources obtained by issuing debentures are considered to be essential capital.

The allowance is only applicable to commercial and agricultural profits connected with the investment and is limited to 20% of the profits obtained in any one business year. The unused balance may be carried forward to the following years. The restriction limiting the investment allowance to 20% of the net profits obtained in any one year expires in January of 1969. If cost of the investment is greater than the amount of essential capital, the tax payer can only benefit from investment allowance calculated on the basis of essential capital.

The rate of allowance to be deducted in computing the tax on approved investments is:

- a. 50% for investments favoring regional development,
- b. 40% for investments favoring agriculture, and
- c. 30% for all other investments.

If the assets are transferred or sold after completion or after use or production, there are no further formalities. If the assets are transferred or sold before the investment is completed or before commencing use or production, the tax relief of the allowance must be refunded to the tax department. The purchaser can acquire the unabsorbed investment allowance with the asset provided that he continues to use the asset as part of a permitted investment.

A separate accounting in the corporation's books must be made for the investment allowance. The allowance must also be indicated separately in the annual tax return.

The example below is given in order to illustrate the investment allowance. The rate of allowance is assumed to be 30%.

<u>Years</u>	<u>Essential capital</u>	<u>Amount of Investment</u>	<u>Annual Profit</u>	<u>Calculated Allowance</u>	<u>Actual Allowance</u>	
1964	100,000	150,000	30,000	30,000	6,000	20% of prof
1965	150,000	180,000	50,000	45,000	10,000	"
1966	200,000	250,000	80,000	60,000	16,000	"
1967	300,000	200,000	100,000	60,000	20,000	"
1968		-	200,000	-	40,000	"
1969	<u> </u>	<u> </u>	<u>250,000</u>	<u> </u>	<u>133,000</u>	
	750,000	780,000	710,000	195,000	225,000	x

x 30% of 750,000 T.L. (because in this case essential capital is less than total amount of investment.)

Chapter III

ANALYSIS OF THE TURKISH SYSTEM

Application of Depreciation up to 1961

In the early years of the application of depreciation by business entities in Turkey, the country was faced with a change in its overall economic policy and structure. In 1950, a liberal economic policy was adopted by the new government giving more emphasis to investments in the agricultural and industrial sectors both from public and private sources. The so-called 'economic etatism' policy, practiced by the old government, was partially abandoned, and the private sector was encouraged to import capital goods and raw material from abroad and to establish new enterprises within the country. The liberal attitude of the government towards the private sector was a good incentive for private entrepreneurs to invest their capital in entirely new fields of activities, or to increase their investments within existing business entities. In Turkey where aggregate demand far exceeded the aggregate supply of consumption and production goods profit margins were high. As a result, the number of private business entities increased rapidly within the first years of this liberalism. The table below, shows the increase in number of large public and private business enterprises between 1950 and 1961:

Table I

<u>Years</u>	<u>State Enterprises</u>	<u>Private Enterprises</u>	<u>Total</u>
1950	103	2515	2618
1955	156	4106	4262
1956	169	4443	4612
1957	183	4449	4632
1958	195	4926	5121
1960	219	5284	5503
1961	226	6638	6894

Source: Investment Guide to Turkey, (Union of Chambers of Commerce Industry and Commodity Exchanges of Turkey, Ankara 1964.)

At first sight, this increase in the number of large enterprises may seem to indicate that Turkey was beginning to achieve a steady economic growth and development. This view is questionable. First of all, the economic policy of the government was not based on sound planning, and it was assumed that both public and private enterprises would regulate themselves under somewhat perfect price and market mechanisms and would achieve means for optimum allocation of resources.

During the early years of this liberalism, it was agreed that Turkey could improve its agricultural production, and the export of crop surplus obtained by the agricultural sector could very well balance the import of consumption and capital goods from abroad.

Even the other European countries considered Turkey a main agricultural producer to meet their demand for crops. In return they could export manufactured goods to Turkey. As Turkey's agricultural production exceeded the estimates (an extraordinary crop yield was obtained) in 1951, 1952 and 1953 due to good climatic conditions, they reaffirmed their belief in the subject. But in 1954, Turkey's agricultural production was far below the expected annual yield, and the government had to realize that Turkey could not achieve desired economic development and the rate of growth in gross national product by depending mainly on the agricultural sector. This sector could not supply optimum allocation of resources due to the lack of technical efficiency in production, soil erosion, hidden unemployment in the sector and diminishing marginal returns on the capital employed. So a certain degree of development in the industrial sector was necessary.

The Government also realized that the private sector could not achieve the desired degree of industrialization by itself. The following reasons explain this attitude of the Government:

a. Domestic demand for consumption goods was above the domestic supply. It was more profitable for private enterprises to import consumption goods from abroad and sell them in the country with high profit margins in the short-run than to invest in capital goods and obtain relatively lower profits in the long-run.

b. Most Turkish enterprises did not have enough technical know-how and methods of production to establish new industrial branches and to operate them as profitably as in the consumption

goods import business.

c. There was inadequate market research for the products of new industrial branches.

The Government was in a difficult situation, and as a remedy it increased the limitations on import of consumption goods and encouraged the private sector to invest in capital goods. The table below, shows the contribution of agricultural and industrial sectors to the net national product (at 1961 factor prices) and the growth of production in both sectors.

Table 2

<u>Years</u>	<u>Contribution of agr. sec. to N.N.P.(%)</u>	<u>Contribution of ind. sec. to N.N.P.(%)</u>	<u>1948=100</u> <u>Agricultural</u> <u>prod. index</u>	<u>Industrial</u> <u>prod. index</u>
1948	52.3	15.5	100	100
1950	44.1	14.7	97	109
1951	46.2	13.9	117	119
1952	50.3	15.4	125	128
1953	49.8	15.3	137	142
1954	43.8	17.6	110	148
1955	44.5	17.3	120	154
1956	45.3	17.3	134	165
1957	43.7	17.2	133	176
1958	41.9	17.6	133	189
1959	42.6	17.7	141	198
1960	42.8	17.0	147	197
1961	41.5	17.2	140	195

Source: First Five Year Development Plan 1963-1967, State Planning Organization. (Doğus Matbaası, Ankara 1963) p.14

The table above indicates that the agricultural sector had the greatest contribution to N.N.P., and it still has the leading position in N.N.P. accumulation. The contribution of the industrial sector was increased in 1954 and remained almost constant up to the end of 1961, although production almost doubled (in index numbers) in the ten-year period.

The table below, shows the annual gross investments (in million T.L.) in the industrial sector between 1950 and 1960.

Table 3

<u>Years</u>	<u>Machinery and equip.</u>	<u>% of total</u>	<u>Con-struction</u>	<u>% of total</u>	<u>Total</u>	<u>Gross invest. as a % of G. N. P.</u>
1950	325.0	32.5	675.0	67.5	1000.0	9.63
1951	497.6	39.5	762.8	60.5	1260.4	10.27
1952	791.7	43.1	1044.1	56.1	1835.8	12.82
1953	718.3	34.4	1369.4	65.6	2087.7	12.41
1954	750.6	29.8	1767.0	70.2	2517.6	14.71
1955	847.9	28.2	2158.2	71.8	3006.1	14.27
1956	864.4	26.5	2395.8	73.5	3260.3	13.40
1957	886.4	22.1	3130.6	77.9	4017.0	13.16
1958	1375.4	27.3	3667.4	72.7	5042.8	13.47
1959	2389.0	34.0	4600.0	66.0	6989.0	15.63
1960	2875.0	37.0	4904.0	63.0	7749.0	15.89

Source: Investment Guide to Turkey, (Union of Chambers of Commerce, Industry and Commodity Exchanges of Turkey, Ankara 1964)
p.96

Although gross investments in the industrial sector were increased about 8 times during the period, the ratio of the gross investments to G.N.P. varies between 12% and 15% in Turkey. Since a part of the investments were financed through external sources such as grants and credits, domestic savings vary between 9% and 13% of the G.N.P. Private domestic savings accounted for 6-7% of G.N.P. and for about 40% of total investments during this period.¹²

Table 3 also shows that total industrial investments were more directed to construction activities than to machinery and equipment. The ratio of investments in machinery and equipment to the total investments shows fluctuations among different years, and their average is about 34%. We must also indicate that Turkey had a serious inflation during this period, and the significant decline in the purchasing power of Turkish money resulted in a devaluation in the exchange rates from 2.80 T.L. to 9.00 T.L. for a U.S. dollar. As a result, enterprises in newly organized industrial branches found it relatively expensive to import raw materials and capital goods. They had serious shortages in their liquidity position and found it difficult to pay back their debt to foreign exporters from whom they purchased capital assets on credit.

Towards the end of the period the government imposed more limitations upon credit extension by domestic banks to these

12. First Five Year Development Plan 1963-1967, State Planning Organization, (Doğuş Matbaası, Ankara 1963) p.15

enterprises. The enterprises in turn, had to depend more on self financing, at least as a means of continuing their operations if not their expansion. Under these conditions private enterprises gave more attention to funds obtainable from revenues equal to depreciation charges as a possible way of self financing. Since periodic depreciation charges are tax deductible, businesses would pay less taxes and have more funds if the laws would allow higher depreciation charges in the early years of the acquisition of capital assets. Although the law allowed extraordinary rates of depreciation for capital assets under special circumstances, the rates were not adequate to meet the present problems of self financing.

The rates of depreciation determined and issued by the Ministry of Finance applicable to capital assets were subject to certain criticism.

1. The rates were established for the general classification of capital assets and were inadequate to differentiate among the particular capital assets of newly organized industrial units. Yet new enterprises had to apply existing rates for capital assets, if they were unable to obtain permission to apply extraordinary rates from the Ministry of Finance. The rates should be revised, and more differentiation is needed among the rates applicable to particular capital assets of enterprises in newly founded industrial branches.

2. Since most of the capital assets (machinery and equipment) provided by these enterprises were being used for the first time

in Turkey, there was a general lack of knowledge of the estimated useful lives (service potential period) of these particular assets.

3. High demand for consumption and production goods and for semi-finished products generated by some sectors of industry and a low ratio of investments in additional capital assets created the problem of running at maximum capacity for these enterprises. In such cases, capital assets are exhausted or deteriorated before the end of their estimated useful lives based on normal operations. Extraordinary rates applicable in such cases are not adequate to solve the problem.

4. Normal rates of depreciation do not supply additional tax benefits during the early years of the acquisition of capital assets.

The criticisms above focus attention on two points:

1. The rates of depreciation in the code should be revised in a way to differentiate more specifically among the particular capital assets of different sectors in industry. Specific service potential and useful lives of new types of capital assets used by enterprises should be considered.

2. An accelerated method of depreciation should be permitted which would make possible more rapid self-financing for enterprises, especially new ones. If an accelerated method of depreciation is used:

a) Tax-savings obtained during the early years of the application of the accelerated method creates an opportunity to

reinvest these savings within the business or to meet working capital needs during these years. Although the enterprise will pay relatively more taxes during the later years of the application of this method, since relatively less depreciation charges will be deducted from the net taxable income (before depreciation), the present value of these savings in early years will probably exceed the excess amount of taxes to be paid in later years when discounted at a time adjusted rate of return.

b) A more important factor is that tax-savings obtained by this method are somewhat like loans supplied at a zero rate of interest. New enterprises, whose financial positions are weak in the early years of their establishment, obtain non-interest bearing and relatively long-term credits from tax-savings instead of getting the same amount of credits at high interest rates from outside sources.

Revisions in 1961

The Ministry of Finance was not unaware of the growing importance of these matters. It revised the schedule of rates of depreciation after consulting with the Union of Chambers of Commerce and Industry and with particular branches of businesses. It also allowed the declining-balance method of depreciation for business entities from 1961 on.

The major changes in the schedules of depreciation rates were as follows:

a. Rates of depreciation for air transportation vehicles and

extensive differentiation among furniture were added to the general schedule.

b. New branches in the industrial sector such as petroleum, chemicals, lumber and furniture, paper products, metal and machinery industries and rates of depreciation for their particular capital assets were added to the special schedules. Also, more differentiation of depreciation rates among the capital assets of already existing industrial branches was supplied, such as for the textile industry.

The proposed advantage of the use of the declining-balance method of depreciation by Turkish business enterprises and by the Ministry of Finance should be discussed more fully.

Turkey is a developing country, and it needs a certain amount of capital formation to achieve a desired rate of growth. To insure Turkey's development at the desired rate of growth and to get the best advantage from the human, natural and productive sources of the nation, the government prepared an organized plan of development in 1962, to be implemented over 15 years in three stages of five years each. The First Five Year Development Plan (1963-1967) defines those areas of development that will be the State's responsibility (primarily infrastructure and public services investments) and those requiring the participation of private domestic and foreign interests, primarily in industrial investments. Part of the plan aims to increase investment activities and to finance an increasing portion of these investments through domestic savings. Capital formation through private business reinvestments and

savings constitutes an important percentage of the total. The declining-balance method of depreciation is an indirect method of inducement by the government to encourage private business savings. It supplies tax-savings by deducting higher depreciation charges from taxable income during the early years of its application. For newly founded companies this method provides the following benefits:

a. If profits (before depreciation and tax) are high during the early years of operation, they have to pay relatively more taxes in these years, whereas cash collections from credit sales may exceed a period of one or two years. This situation creates a shortage in the liquidity position of the enterprises. If there are low profits during the early years of operation the problem of tax payments in cash becomes more serious. The declining-balance method of depreciation reduces the level of taxable income in the early years of operation by charging higher amounts of depreciation to the periodic income (before depreciation and tax) and permits retaining higher amounts of cash in the business to meet the working capital needs of the enterprises.

b. If there are losses during the early years of operation, they can be transferred to the succeeding years' incomes in the first five years of foundation. Depreciation charges are one of the element in the "loss figure" and relatively more depreciation charges by the declining-balance method during the early years of its application provides less tax payments in succeeding years. Therefore, the results of the application of the declining-balance method are:

1. Creating better means of self-financing within the enterprises.

2. Paying less taxes during the early years of operation, by deducting more depreciation charges from taxable income.

3. Levelling out abnormal profits or spreading losses in the early years of operation.

To illustrate the effect of declining balance depreciation, let us assume that a Turkish enterprise invests 100,000 T.L. in a capital asset with 10 years of estimated useful life (normal rate of depreciation is 10%). We further assume a tax rate of 40% and that the company can borrow outside funds at 10%. The table on the following page shows the difference between the present value of tax-savings obtained by using declining-balance and straight-line methods of depreciation.

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Table 4

Declining-Balance Method

<u>Years</u>	<u>Book value of the asset</u>	<u>Annual depre. charge</u>	<u>Tax savings (40%)</u>	<u>Discount factor at 10%</u>	<u>Present value of savings</u>
1	100,000.00	20,000.00	8,000.00	.90909	7,272.72
2	80,000.00	16,000.00	6,400.00	.82645	5,289.28
3	64,000.00	12,800.00	5,120.00	.75131	3,846.71
4	51,200.00	10,240.00	4,096.00	.68301	2,797.57
5	40,960.00	8,192.00	3,276.80	.62092	2,034.89
6	32,768.00	6,533.60	2,613.44	.56447	1,476.29
7	26,214.40	5,242.88	2,097.15	.51316	1,075.84
8	20,971.52	4,194.30	1,677.72	.46651	734.49
9	16,777.22	3,355.44	1,342.18	.42410	569.09
10	13,421.78	13,421.78	<u>5,368.71</u>	.38554	<u>2,072.32</u>
			40,000.00		27,172.02

Straight-Line Method

1	100,000.00	10,000.00	4,000.00	.90909	3,636.36
2	90,000.00	"	"	.82645	3,305.80
3	80,000.00	"	"	.75131	3,005.24
4	70,000.00	"	"	.68301	2,732.04
5	60,000.00	"	"	.62092	2,483.68
6	50,000.00	"	"	.56447	2,257.88
7	40,000.00	"	"	.51316	2,052.64
8	30,000.00	"	"	.46651	1,866.04
9	20,000.00	"	"	.42410	1,690.40
10	10,000.00	"	<u>"</u>	.38554	<u>1,542.16</u>
			40,000.00		24,970.34

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It may be seen from the table above that the excess present value of tax-savings obtained by the declining-balance method is 2,201.68 T.L. (27,172.02 - 24,970.34).

If the estimated useful life of the asset is 5 years, the effect of the application of declining-balance method would be as follows:

Table 5

Years	Declining-Balance Method (at 25%)			Normal Rate (at 20%)		
	Annual depr. charges	Tax savings (40%)	P.V. of savings at 10% discount fact.	Annual depr. charges	Tax sav. (40%)	P.V. of sav. at 10% d.f.
1	25,000.00	10,000.00	9,090.90	20,000	8,000	7,272.72
2	18,750.00	7,500.00	6,198.38	"	"	6,611.60
3	14,062.50	5,625.00	4,226.12	"	"	6,010.48
4	10,546.88	4,220.00	2,882.91	"	"	5,464.08
5	31,640.62	12,656.25	<u>7,859.53</u>	"	"	<u>4,967.36</u>
			30,257.84			30,326.24

The excess present value is (68.40) T.L. (30,257.84- 30,326.24). In this case, using declining-balance method is not advantageous.

The tax-savings obtainable by the application of declining-balance method of depreciation instead of the straight-line method depends upon the following factors:

1. High accelerated rates during the early years of the application provides more tax-savings.

2. Term of delay for the payment of relatively more taxes in later years increases as the estimated useful life of the fixed asset increases.

3. The excess present value of these tax-savings increases as the discount factor (corresponds to the rate of interest payable to the funds obtained from outside sources) rises.

4. The present value of these savings becomes more significant as the net income before depreciation and taxes rise through progressive income tax brackets.

5. The present value of these savings becomes more important when the value of money declines steadily.

We can evaluate the tax-savings achieved by the application of declining-balance method in Turkey according to the factors indicated above. The rate of depreciation for declining-balance method is two times the normal rate, without exceeding 25%. For assets which have estimated useful lives of 8 years or less (with normal rates of depreciation of 12.5% or more), the effect of declining-balance method in obtaining tax-savings declines since the applicable rates cannot be double the normal rates. Table 5 indicates this decline in the tax-savings ability of the declining-balance method. Even for the assets which have 8 years or more estimated useful lives (normal rates of depreciation of 12.5% or less) the excess present value of tax-savings do not constitute a considerable percentage of the total amount invested in these capital assets. We see from the illustrative example that the excess present value of tax-savings equals only 2.2% of

the total cost of the capital asset at a 10% discount rate.

Before constructing a correlation between the excess present value of the tax-savings and the discount factor (which represents the rate of interest payable on borrowed funds), there is one more thing we must indicate about the tax rates on corporate income in Turkey. The corporation tax rate is 20%. However, a further tax of 20% of the net profits must also be withheld by corporations after deductions have been made of the 20% corporation tax. This additional tax is withheld on the assumption that residual profits of the corporation will be distributed to stockholders as dividends. This tax is assessed regardless of whether distribution of such profits are actually made. The amount withheld is credited to the shareholders on the payment of their individual income taxes. Therefore, the effective net corporation tax is 36% in Turkey. This fixed rate is applicable to all corporate profits regardless of the volume of net income before tax. This fact explains why corporations in Turkey can only obtain 36% tax-savings from annual depreciation charges.

The table below, shows the correlation between the excess present value of tax-savings and the effective rates of interest on borrowed funds:

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Table 6

<u>Estimated useful years</u>	<u>Dec.B. Meth. P.V. of depr. charges on 1 T.L. of ini- tial investm.</u>	<u>Normal Rate P.V. of depr. charges on 1 T.L. of ini- tial investm.</u>	<u>(a) Differ- ence</u>	<u>(b) Tax rate</u>	<u>100+(a+b) Excess P.V. Index</u>
At 6%					
8	.82145	.87613	(.05468)	.36	98.03
9	.80148	.75574	.04844	"	101.74
10	.78716	.73601	.05115	"	101.84
11	.77104	.71700	.05404	"	101.95
12	.75519	.69865	.05654	"	102.04
At 8%					
8	.77369	.71857	.05339	"	101.92
9	.75326	.69410	.05916	"	102.13
10	.73308	.67101	.06207	"	102.23
11	.71412	.64900	.06512	"	102.34
12	.69568	.62800	.06768	"	102.44
At 10%					
8	.73118	.66686	.06432	"	102.32
9	.70783	.63977	.06806	"	102.45
10	.68528	.61446	.07082	"	102.55
11	.66430	.59046	.07384	"	102.66
12	.64407	.56781	.07626	"	102.75

Table 6 (Cont'd)

<u>Estimated useful years</u>	<u>Dec.B. Meth. P.V. of depr. charges on 1 T.L. of ini- tial investm.</u>	<u>Normal Rate P.V. of depr. charges on 1 T.L. of ini- tial investm.</u>	<u>(a) Differ- ence</u>	<u>(b) Tax Rate</u>	<u>100+ (a+b) Excess P.V. Index</u>
At 12%					
8	.69250	.62095	.07155	.36	102.68
9	.66711	.59202	.07509	"	102.70
10	.64284	.56502	.07782	"	102.80
11	.62043	.53980	.08063	"	102.90
12	.59901	.51620	.08281	"	102.98
At 14%					
8	.65740	.57986	.07754	"	102.79
9	.63049	.54960	.08089	"	102.91
10	.60498	.52161	.08337	"	103.00
11	.58160	.49570	.08590	"	103.09
12	.55944	.47170	.08774	"	103.16
At 16%					
8	.62545	.54295	.08250	"	102.97
9	.59741	.51183	.08558	"	103.08
10	.57105	.48332	.08773	"	103.16
11	.54705	.45710	.08995	"	103.24
12	.52449	.43310	.09139	"	103.28

Source: Bracken Jerome and Christenson Charles, Tables for the Analysis of Capital Expenditures, (Harvard Business School Publication, 1961) pp. 14-24

The table indicates that additional tax-savings obtained by using declining-balance method of depreciation do not constitute more than about 4% of the initial investments in fixed assets which have estimated useful lives between 8 and 12 years, at 6% to 16% rate of interest (which represents the effective borrowing rate of interest in Turkey). The greatest effect on the method is only during the early years of its application.

Depreciation Practices in Selected Countries

1. Canada.⁽¹³⁾

Fixed assets can be revalued on the basis of the report of an independent appraiser. In that case, full disclosure of the appraisal in the balance sheet is necessary. The appraisal amount is shown underneath the historical cost of the fixed assets. Depreciation must be computed and charged to income on the appraised value for financial statement purposes, but for tax purposes it must be computed on the basis of cost.

The Canadian Income Tax Act classifies fixed assets into 12 categories, each consisting of different types of fixed assets with the same estimated useful lives. The act permits special depreciation allowance deductions from taxable income. They are called 'capital cost allowances' and are determined by applying specific rates on the diminishing-balance method, based initially

13. Professional Accounting in 25 Countries, (AICPA Publications, 1964) p.18

on the cost of the specific asset. The maximum annual allowance applicable to each class of asset is set out in the regulations of the Income Tax Act. It is within the discretion of the companies to apply these specific rates to their capital assets whenever they wish. The claimed depreciation amount for tax purposes may not agree with the depreciation recorded for financial statement purposes.

2. Germany. (14)

Right after World War II German enterprises were in need of replacing their destroyed capital assets. A more important problem was financing these replacement activities. In order to strengthen the self-financing ability of business firms, the Government permitted accelerated extraordinary rates of depreciation.

Enterprises investing in new capital assets (except building) were allowed to deduct depreciation charges at 50% of the original cost of fixed assets within the first two years of their acquisition (25% in each year or 50% in the first or in the second year) up to the amount of 100,000 D.M. Extraordinary rates were allowed for the assets of heavy industrial sectors such as coal mining, petroleum, machine manufacturing and ship construction industries. Even today, accelerated rates of depreciation up to 2.5 times the normal rates applicable to capital assets are permissible for tax purposes, under the regulations of a special law passed in 1952.

14. Amortisman ve Vergi Arasındaki Münasebetler, Dr.N. Bursal, Maliye Enstitüsü Konferansları, (Istanbul Üniversitesi Yayınları, 1961.) p.114

These highly accelerated depreciation rates constitute a much better means of self financing than the practice applicable in Turkey.

3. United Kingdom. (15)

Although revaluation of fixed assets is allowed for financial reporting purposes, depreciation is based solely on historical cost, at the rates prescribed by the revenue authorities for each specific capital assets. Reducing-balance method of depreciation or the straight-line method may be used. In order to encourage investments in certain fields, extraordinary rates of depreciation are allowed within the first year of investment in a range from 15% to 40%. This initial allowance is 15% for buildings, 30% for machinery and equipment and 40% for ship construction.

4. Sweden. (16)

Up to the end of 1955, the application of depreciation was extremely liberal in Sweden. In 1938, enterprises were allowed to write-off their capital assets, except buildings, in the first year of their acquisition. However, this practice came under severe criticism. It was feared that such a practice would lead to inefficient investments and possible tax evasions. At the end of 1955, the Government annulled the articles permitting such freedom.

15. Professional Accounting in 25 Countries, (AICPA Publications, 1964) Chapter 19, p.19

16. Ibid., Chapter 16, pp. 20-24

Fixed assets are valued basically at cost. If their true values are materially different from their book values, special depreciation allowances are provided, unless an increase in the depreciation rates can be considered as sufficient to meet the problem. Depreciation on buildings is limited to a range of 2 to 4% per annum. But depreciation on machinery and equipment is guided by liberal rules.

There are two permissible methods namely 'book depreciation' and 'planned depreciation'. The book depreciation provides only maximum allowable depreciation charges in any year, which is 30% for the declining-balance method and 20% for the straight-line method. The taxpayer may take less than the maximum allowable charges in any year and thus postpone deductions to a later year. He is not required to follow the same method of depreciation in each successive year. For machinery and equipment only, cost can be written off over the first five years on the straight-line method, and 51% of their costs can be written off in the first two years under the declining-balance method.

The planned depreciation is a straight-line method based on the estimated useful lives of the various classes of assets. This method is useful when an enterprise is having losses or small profits, because any planned depreciation in any year in excess of the amount required to reduce taxable profit to zero can be carried forward indefinitely until a net taxable profit is shown. There is no requirement for the disclosure of the method of computing depreciation except the change of the method itself. Such liberal

rules in the application of depreciation in Sweden can be attributed to highly progressive income taxes and special taxes on investments in capital assets up to 12%.

5. France. (17)

Inflation of currency in France since 1920, and especially since 1945, has forced various government-sponsored methods designed to cushion its effects upon business. In 1959, enterprises were allowed to revalue their capital assets on a price-index principle, the resulting write-up being credited to a revaluation reserve and taxed at 3%. In case of such revaluations, annual depreciation charges are to be calculated on the net increased values of capital assets. Prior to 1960, only the straight-line method of depreciation was allowed for tax and for financial statement purposes. At that time the declining-balance method of depreciation was permitted for machinery and equipment and for hotel buildings. Other capital assets continued to be depreciated at straight-line rates.

Declining-balance rates vary from 1.5 to 2.5 times the straight-line rates, depending upon the estimated length of the service life, as follows: (18)

<u>Estimated useful life</u>	<u>Multiple applied to straight-line rate</u>
Three or four years	1.5
Five or six years	2.0
Over six years	2.5

17. Ibid., Chapter 12. p.25

18. Ibid., " 12. p.28

Depreciation rates normally accepted for tax purposes are: (19)

Industrial buildings, such as factories, warehouses, etc.	5%
Commercial buildings, such as offices	2%-5%
Plant equipment (machines) and tools	10%-15%
Office furniture	10%
Autos and trucks	20%-25%

Extraordinary rates of depreciation are allowed for abnormal deterioration or for obsolescence of capital assets upon permission of the tax authorities. It is also possible to shift to straight-line from the declining method. Special treatment for gains on the sale of depreciable assets are quite similar to the corresponding practice in Turkey. In fact, the practice of depreciation and the related articles in the Tax Procedural Law are deeply influenced by the application of depreciation in France, although they are not as liberal as French practice.

Chapter IV

CONCLUSION AND RECOMMENDATION

We have seen that the application of depreciation under the regulations of the Tax Procedural Law has been improved by the additional provisions in 1961. Declining-balance method of depreciation is regarded as an indirect inducement to encourage private investments by the state authorities and as a useful instrument for self-financing. There is an increasing tendency among large business enterprises, and especially among newly founded large corporations, to use the declining-balance method of depreciation; whereas, most of the small business enterprises do not employ it. Charges obtainable from depreciation have very limited use as a means of self-financing and tax-savings under present practice where large enterprises have the option of benefiting from investment allowance. Investment allowance is a much more useful means of self-financing and tax-savings when its ability to relieve taxes (at least 20% of periodic profit) is compared with the corresponding ability of depreciation.

Depreciation allowances as a means of self-financing is more effective for non-corporate enterprises which are subject to progressive income tax rates, but the actual situation is that most of these small enterprises are not aware of its use. The only complaint from the big enterprises about the rates of depreciation might be that their capital assets deteriorate before the

end of their estimated useful lives due to operating at maximum capacity and both the accelerated and extraordinary rates of depreciation allowed cannot overcome this problem.

The present practice of depreciation gives more emphasis to the financial side of depreciation than to financial accounting. In the first chapter of the study, it was indicated that depreciation charges are part of product costs and that the true purpose of depreciation accounting is allocating the costs of tangible fixed assets as 'equitably' as possible to the periods during which services are obtained from their use, while their service potential is gradually diminishing to zero (complete deterioration). In that sense, depreciation accounting aims to distribute the exhausted portions of tangible capital assets (in terms of their costs) to the costs of products which are created and sold by the contributions of these assets. The allocated costs of these assets will be recovered in the sales price of products or services and thus come back to the firm as sales revenues.

While the present practice of depreciation in Turkey gives more emphasis to the self-financing and tax-savings abilities of the applicable methods, the cost allocation and the product costs concepts are undervalued in terms of current costs. This tendency of the present application is partly attributed to lack of adequate systems of cost accounting in business enterprises and partly to significant increases in replacement costs of tangible fixed assets. Unfortunately, most Turkish business enterprises practice

very crude forms of cost accounting, and the laws do not require extensive cost accounting computations for legal purposes. Only in recent years, a small number of large private enterprises encouraged the development of cost accounting by their own efforts, though to a limited degree. The increase in the replacement costs of capital assets are due to general rises in price levels and to the devaluation of Turkish Lira since 1950. These events caused enterprises to focus attention on the financial side of the application of depreciation. Although the government took measurements to prevent these problems, price levels are still rising at an increasing rate.

The following aspects are recommended for further development in the application of depreciation in Turkey:

1. Almost all of the European countries practicing various methods of depreciation have some sort of certified public accountants associations. 'Wirtschaftsprüfer Kammer' (Chamber of Accountants) in Germany⁽²⁰⁾, 'The Institute of Chartered Accountants' in United Kingdom⁽²¹⁾, 'Foreningen Auktoriserade Revisorer' (The Authorized Public Accountants Association) in Sweden⁽²²⁾, 'Association des Experts Comptables et des Comptable Agrées' (Association of Expert Accountants) in France⁽²³⁾, and 'Soma Horokoton Logiston' (Institute of Certified Public Accountants) in Greece⁽²⁴⁾, are examples of such associations.

- 20. Ibid., Chapter 13, p.5
- 21. Ibid., " 19, p.9
- 22. Ibid., " 16, p.8
- 23. Ibid., " 12, p.16
- 24. Ibid., " 14, p.6

Turkey is lacking such an organization. In order to increase the creditability of the financial statements of the business entities and to provide public confidence in their activities, the establishment of such an organization is necessary. Such an institution helps the development of the application of depreciation by providing confidence in the financial statements of Turkish business enterprises. Thus, tax authorities can be assured that possible tax evasions do not arise from the application. These institutions also study the particular problems of depreciation and cost accounting and may help the enterprises to understand the true nature of depreciation accounting.

2. Selective accelerated rates of depreciation are necessary for the capital assets of different business activities. In order to encourage private investments in productive fields more accelerated rates must be allowed for particular capital assets of the enterprises in these fields.

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