THE INTERNATIONAL EXPERIENCE OF NON-FINANCIAL PRODUCED ASSETS EVALUATION AND WAYS OF ITS IMPLEMENTATION IN UKRAINE

МІЖНАРОДНИЙ ДОСВІД ОЦІНКИ НЕФІНАНСОВИХ ВИРОБЛЕНИХ АКТИВІВ ТА ШЛЯХИ ЙОГО ВИКОРИСТАННЯ В УКРАЇНІ

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The problems of non-financial produced assets evaluation in Ukraine are revealed and the ways of their leveling the experience of other countries and international organization are suggested. It is substantiated that the most expedient way of assessment of the non-financial produced assets largest element – stocks of fixed assets – is the implementation of the mixed system of perpetual inventory method estimates, developed in System of National Accounts, and direct measurements. The ways of the intangible assets evaluation improving are elaborated due to their increasing role in the economic development of countries and national wealth formation. It is proved that the important direction of evaluation of non-financial produced assets is to work out and implement in Ukraine the system of economic assessment of consumer durable goods as a part of non-financial produced assets[1].

Виявлено проблеми економічної оцінки нефінансових вироблених активів в Україні і запропоновано шляхи їх нівелювання з використанням досвіду інших країн та міжнародних організацій. Обґрунтовано, що найдоцільнішим способом оцінки найбільшої складової нефінансових вироблених активів – запасів основних засобів – є запровадження змішаної системи, що включає метод безперервної інвентаризації, розроблений у рамках системи національних рахунків, та метод прямого оцінювання. Запропоновано шляхи вдосконалення економічної оцінки нематеріальних активів з огляду на зростання їх ролі в економічному розвитку країни та формуванні національного багатства. Доведено, що важливим напрямом оцінки нефінансових вироблених активів є розробка та впровадження в Україні системи економічної оцінки споживчих товарів тривалого користування в складі нефінансових вироблених активів.

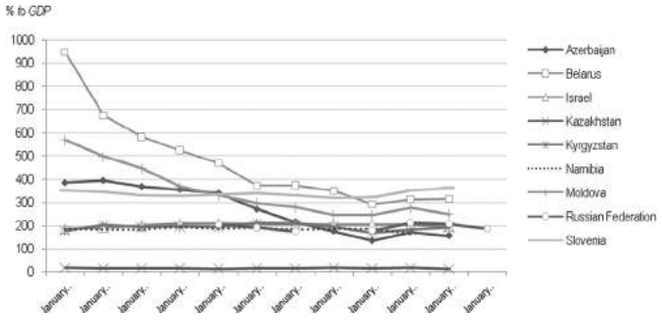
Non-financial produced assets, and especially fixed assets as their largest part, traditionally are considered to be one of the most important elements of the economic system and historically their stocks even were identified as the wealth of nations. Appropriate evaluation of stocks of fixed assets and other elements of non-financial produced assets nowadays is one of the key points of the objective analytical characteristics of the national wealth of countries in an international context. In Ukraine lately, these questions are getting even more importance due to the strengthening of globalization and integration processes and the necessity of unification of the substantive content of economic indicators.

Basically the attention of Ukrainian researches of this problem is concentrated on the questions of the fixed capital flows formation. For the first time a comparative analysis of fixed capital of the United States and the Soviet Union was made by A.Revenko, and its revealed shortcomings of the process of fixed capital formation at that time [11]. Recent studies of the fixed capital formation and its impact on economic growth in Ukraine were done by B.Kvasniuk, V.Heyets, L.Shynkaruk, O.Bolhovitinova [12–15] and other scientists. However, along with the flows, is no less important to research stocks of fixed assets, which representation by State Statistics Service of Ukraine is based on «soviet» methods [7], while the global world trend of estimates of fixed assets stocks, inventories and valuables are highlighted in the basic accounting framework of the System of National Accounts (SNA) [1; 4], and its modifications are revealed in different national and international publications and miscellanies [2; 3; 5; 16]. Despite of that, in Ukraine, the necessity of elucidation of non-financial produced assets as a part of the national wealth is not in doubt among scientists, the methodological approaches and application of the evaluation schemes of fixed assets stocks and consumer durable goods as a discussion item require essential research and transformations.

The purpose of this study is to investigate ways of the improvement of Ukrainian framework on evaluation of non-financial produced assets using the international experience.

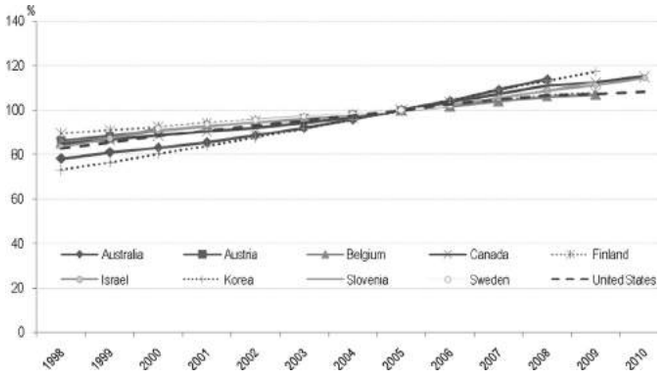
The most questions on evaluation of non-financial produced assets are concentrated in their largest part – stocks of fixed assets. The great variety of fixed assets forms and its value types determines the existence of a wide range of methods for their assessment. Moreover, the methodological basis of determination of certain type value is largely debatable. The official government departments in Ukraine currently estimate the stocks of fixed assets using methods, which involve the initial value of capital stock at the time of being classified on the balance sheet and the residual value – the difference between the initial value of fixed assets and their depreciation [7]. Foreign scientists while evaluating stocks of fixed assets as part of their efforts on measuring the national wealth, specify that stocks of fixed assets can be estimated either by direct measurement or perpetual inventory calculations [9, p. 23]. Perpetual Inventory Method (PIM), used in international practice of SNA, is the most perspective direction of development of methodology for assessing the fixed capital up to date. According to this method the value of stocks of fixed assets is calculated by adding of amounts of fixed capital formation (after deduction of fixed capital consumption) and re-measure for a sufficiently long period to cover the purchase of all the assets which create the researched stocks [17]. On the basis of this estimation the renewable residual value is calculated by using the straight-line depreciation or proportionally to their estimated useful lives to determine the amount of capital consumption, the cost of which is deducted from the total value of the asset for the determination of residual value. Their amount by the SNA, is a «… real net capital of individual sectors, which further summation allows to determine the real value of accumulated national wealth»

Figure 1. **Comparative Dynamics of Closing Stocks of Fixed Assets (Produced Assets) Volume Shares in GDP of Different Countries**, *% to GDP*



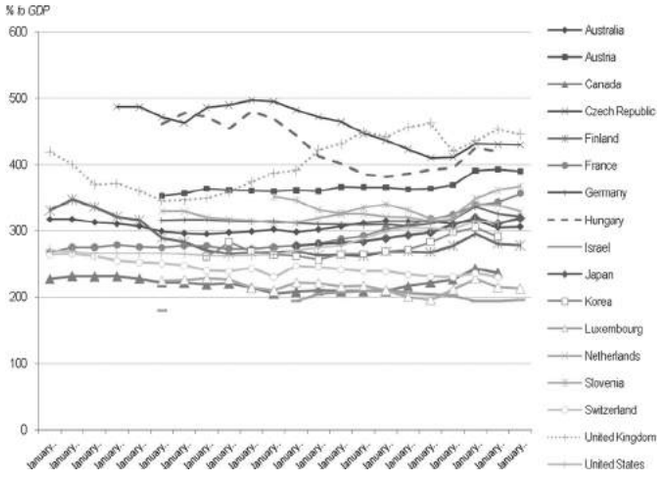
Source: calculated on the base of: National Accounts Statistics: Main Aggregates and Detailed Tables, 2011. – In V parts. – Part I–V. – New York: United Nations, 2012. – 685 p.; 742 p.; 721 p.; 740 p.; 748 p.

Figure 2. **Growth Rates of Net Capital Stock Volume in 10 OECD Countries (% to year 2005)**



Source: prepared on the base of: National Accounts at a Glance 2013. – OECD Publishing, 2013. – Access mode : <http://dx.doi.org/10.1787/na_glance-2013-26-en>.

Figure 3. **Comparative Dynamics of Stocks of Fixed Assets in 17 OECD Countries,** *% to GDP*



Source: calculated on the base of: OECD Statistical Extracts [Electronic resource] / OECD. – 2013. – Access mode : <http://stats.oecd.org/index.aspx?queryid=9185#>.

[18, p. 353–356]. However, it should be noted that theoretically logical construction of PIM does not guarantee its smooth practice application, due to the absence, even in developed countries, data on full-scale investments and disposals, as well as the real depreciation of fixed assets, variability hypotheses of an average lifetime of its elements and the need to account price changes during the period of its operation [19].

Historically, the prerogative on displaying international information about the value volumes of closing stocks of fixed assets (produced assets) at a certain time moments in the SNA framework belonged to the periodic statistical book «National Accounts Statistics: Main Aggregates and Detailed Tables». But even in the issues of this statistical book such information is very limited and by the end of 1990-ies of the past century it was represented only by seven countries: Norway, Finland, Germany, the U.S., United Kingdom, Japan and Sweden. At the edge of millenniums the representation of these data was adduced by: Austria, Australia, Azerbaijan, Belarus, Germany, Finland, France, Italy, Israel, Kazakhstan, Kyrgyzstan, Latvia, Namibia, Netherlands, Moldova. And since the mid-2000-s to the present time from 204 countries, who currently represent information in these international SNA issues, only 9 countries (Azerbaijan, Belarus, Israel, Kazakhstan, Kyrgyzstan, Namibia, Moldova, Russian Federation, Slovenia) perform data on closing stocks of fixed assets (produced assets) [4]. According to «National Accounts Statistics: Main Aggregates and Detailed Tables» data, between 01.01.2001 and January 2011 there was a sharp decrease in the ratio of stocks of fixed assets and GDP in Azerbaijan (from 384.5% to 157.0%), Moldova (from 570.0% to 250.9%) and Belarus (from 947.8% to 317.2%) (**Figure 1**).

Especially strong was the percentage of stocks of fixed assets and GDP over the studied period varied in Belarus. Since 1998, its ratio changed in waves: sharp decline in this indicator for 1998 (from 717.7% to 404.8%) was replaced by its rapid growth (more than twice) during the next year – to 950.5% at the beginning of year 2000 and then decreased to 317.2% until January 2011.

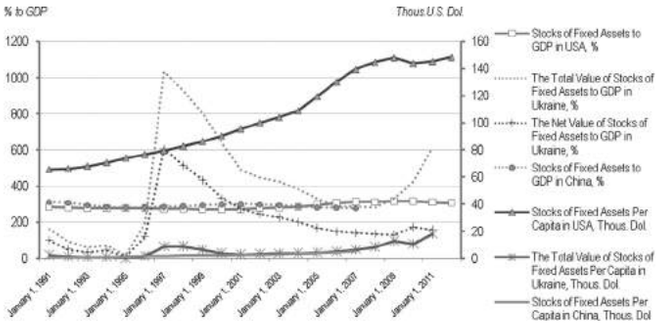
In other reviewed countries during 2000–2011 such a percentage remained more or less stable. Quite large this index left in Slovenia – 364.1% at 1/1/2011 and the lowest values were in Kazakhstan, which decreased from 19% in the January 2008 to 14.1% in beginning of 2011. In Russian Federation, Kyrgyzstan, Namibia, Israel the percentage of stocks of fixed assets and GDP during the studied period remained around 200%.

Regarding developed countries it should be mentioned that OECD periodic books «National Accounts at a Glance» display only growth rates of net capital stock of fixed assets and merely for 10 countries from 34 OECD member countries [20]. According to this data, in Australia, Austria, Belgium, Canada, Finland, Israel, Korea, Slovenia, Sweden and the United States the volumes of net capital stock from 1998 to 2010 were growing (**Figure 2**). But growth rates itself don't allow to the fixed capital stock to be seen as a part of the wealth of nations and to be compared at a specific time.

The information on volumes of stocks of fixed assets at current prices in some OECD countries at present is represented in the «OECD Statistical Extracts» databases [22]. When compared to GDP of OECD countries in current prices its revealed that this ratio (Stocks of Fixed Assets to GDP, %) for the most countries, which submit the stock value data in that database (Australia, Austria, Canada, Finland, France, Germany, Israel, Japan, Korea, Luxembourg, Netherlands, Slovenia, Switzerland, the United States), during 1991–2011 was in the range of 180–400% and didn't change significantly (**Figure 3**), which among others is an evidence of the stable efficient system of the economic evaluation of the stocks of fixed assets in these countries.

It should be noted that the limitations in representing data on stocks of fixed assets in international books, issues and databases for developing and developed countries are usually caused by totally different reasons. Thus, estimates in the international SNA framework in Ukraine never were provided because of the undeveloped system of such evaluations (State Statistics Service of Ukraine determines the initial (total) and residual (net) value of stocks of fixed assets). In contrast, the United States (which ratio

Figure 4. **Comparative Dynamics of Ratio of Fixed Assets Stocks and GDP** *(%, the left scale)* **and Fixed Assets Per Capita Stocks** *(Thous. Dol., the right scale)* **in Ukraine, USA and China**



Source: calculated on the base of: Fixed Assets and Consumer Durable Goods for 1925-2011 // Survey of Current Business BEA. – 2001; 2009; 2012. – Vol. 81; 89; 92.– P. 20; 31; 21; Національні рахунки України за 2011 р.: статистичний збірник / Держкомстат України. – К., 2013. – 172 с.; Основні засоби України за 2000–2010 рр.: [стат. збірник / відп. за вип. М.М.Собко]. – Держстатслужба України. – К., 2012. – 292 с.; GDP (current US$): Data by Countries [Electronic resource] / The World Bank Group. – 2013. – Access mode : <http://data.worldbank.org/indicator/NY.GDP.MKTP.CD>.

of stocks of fixed assets and GDP is approximately average among the OECD countries), has very powerful scientific and practical school of such assessments, which they have successfully use for many years. Therefore, the comparison of ratios of fixed assets stocks and GDP in Ukraine and USA can only be conditional, but even these comparisons are quite revealing. According to State Statistics Service of Ukraine data, the total value of stocks of fixed assets relatively to GDP in Ukraine varied undulating, rising from 16.6% as of 01/01/95 to 199.3% as at the beginning of 1996 (for 182.7 percentage points), exceeding 1000% as of 01/01/97 (up for 835.4 percentage points), down to 284.1% as in January 2008 and up to 614.2%% as of 01.01.2011 [6–8] (**Figure 4**).

Meanwhile in the U.S. the 1/1/1991-1/1/2012's ratio of fixed assets stocks and GDP was relatively stable, refraining at around 300%. As of 1/1/2011 the appropriate ratio in Ukraine was almost twice as large as in the United States, but in this case it is important to note that, in contrast to the relative ones, absolute values of stocks of fixed assets are much higher in the USA. Thus, per capita volumes of stocks of fixed assets in USA from January 1991 to the beginning of 2012 increased from 65.8 thous. of US dol. to 148.5 thous. US dol. Ukrainian per capita figures of the total value of stocks of fixed assets were much lower and diminished from 2.6 thous. US dol. in the beginning of 1991 to 0.2 thous. US dol. in January 1995, with the further increasing up to 18.3 thous. US dol. as of 1/1/2011. Quite interesting these trends in China, where dynamics of stocks of fixed assets per capita almost coincides with Ukrainian indexes (Chinese fluctuations are smoother though), but the dynamics of ratio of fixed assets stocks and GDP is closer to the respective indexes in the United States.

It should be noted that such differences in per capita volumes of stocks of fixed assets and its ratios to GDP in Ukraine, USA, and China were caused not only by changes in real values, but also by shortcomings of methodological approaches to their assessment. Obviously in Ukraine until 1996, the nominal value of fixed capital was much lower than its real cost, and only after the recession of large-scale redistribution of property in the mid 90-s of the previous century it was significantly revaluated. Analysis and comparison show a significant overstatement of volume indices of fixed assets and at the same time significantly lowering their cost in Ukraine currently, which causes low indices of their volume share in the national wealth structure [10].

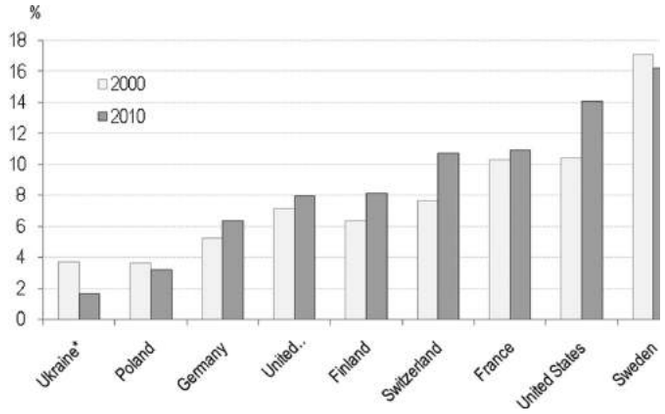
Most BEA (U.S. Bureau of Economic Analysis) estimates are based on the perpetual inventory method and its experts use company accounts to estimate asset lives. Company accounts almost always record stocks of assets at acquisition values as well as current price estimates of Gross Fixed Capital Formation (GFCF). So if data on GFCF can be converted to a gross basis by adding back depreciation, service lives can be estimated by comparing the gross stock in each year with the sum of investments during a varying number or previous years until finding how many years' cumulated investments most nearly equal each year's capital stock [5]. Other than the United States, this technique has also been used in France and Italy.

In developed countries, unlike in developing ones, limitations in representing the stocks of fixed assets data and sometimes by discrepancies caused by various flows in the SNA methodology of such estimates and difficulties in bringing data from different countries to a common denominator. Despite of that, some authors consider that if adherence to an international standard is not, and cannot, be rigidly enforced, and the systems used by some countries differ significantly from the standard, this is not a major problem [2, p. xvii], practice shows that such data cannot always be reworked to compile national accounts according to the United Nations standard. And the process of discussions about improvement and unification of SNA computations and assessments in different countries is going on actively even nowadays. But many steps are already completed on this path and Ukraine should receive positive experience which different countries already use in their practice to be able to provide sufficient economic analytic data in various spheres, including SNA balance sheet, in the international context.

One of the most important modern transformation trends of methodological approaches to economic valuation in SNA framework is to reconcile various dimensions of the economic assessment – flows, stocks and productivity as a difference in growth rates between outputs and inputs and, as such, is a source of economic growth. Useful for Ukraine in this regard may be the experience of Australia, where much of the government's economic policy is built around the 3P's framework – population, participation and productivity – which taken collectively are seen as the fundamental drivers of economic growth and any comprehensive analysis of productivity includes there an analysis of the role that capital plays in productivity. Australian Statistical Office developed a perpetual inventory model, which algorithm is a modification of perpetual inventory method. The perpetual inventory model involves the compilation of a «rolling» inventory of capital stocks; in any particular period investment in capital assets is added to stocks, and retired assets are deducted. The model uses three relevant capital stock measures: gross capital stock, which represents the initial, new, value of assets; net capital stock, which represent the «written down» value of capital due to consumption of fixed capital; productive capital stock, which represents the «written down» value of the asset in accordance with its change in efficiency. It would be helpful for Ukraine to also look at the data sources used in Australia to derive mean asset lives: implicit tax lives; weighted prescribed tax lives; asset lives used by businesses to calculate depreciation for their own purposes; survival rates for vehicles in the motor vehicle fleet derived from the motor vehicle census; technical information on the operating lives of various types of machinery from manufactures' specifications; asset life estimates from other comparable overseas countries [16]. But it should be noted that it is important to take into account the Ukrainian specialties in physical parameters of elements and types of fixed assets, peculiarities of their use and disposal, the impact of technological advances.

As it was mentioned before, stocks of fixed assets can be estimated also by direct measurement, thus making the U.S. experience very useful for Ukraine in this regards. The U.S. institute of direct assessment of the real estate is very effective and allows creating the basic reliable databases used by legal entities, individuals, governmental authorities and can be used for the wealth measurement. The key to successfully creating accurate

Figure 5. **Comparative Proportions of Intangible Assets in relation to the total GFCF in Ukraine and 8 OECD Countries,** %



*Note: * – The time periods for Ukraine are years 2005 and 2011.*
Source: calculated on the base of: National Accounts at a Glance 2013. – OECD Publishing, 2013. – Access mode : <http://dx.doi.org/10.1787/na_glance-2013-26-en>; Національні рахунки України за 2011 р.: статистичний збірник / Держкомстат України. – К., 2013. – 172 с.

assessments is to limit the margin of bias to a minimum in order to avoid contamination of the fixed assets pricing. In order to maintain this limited margin of bias, the general method is to obtain such assessments from independent assessors who are not biased to any company, individual, or organization. However, since a checks and balance system is required to ensure that the assessors are making accurate assessments, local governments have their own assessors who estimate fixed assets net worth as well as larger organizations such as banks, who are providing the financing for these fixed assets. Generally however the independent assessors' values are considered the most accurate due to the large amount of parameters that are observed in order to generate the values.

There are many parameters and factors involved in the assessment process in the U.S. in order to provide proof of the estimated value of the fixed asset. Some of these parameters and values include the condition of the fixed asset, its age, safety, location, current town or state tax appraisal values, etc. Even trivial values such as the view from the various angles, the quality of the given towns school system, proximity to a golf course, or the number of foreclosed assets in the given target area can play a role in determining an accurate appraisal estimates. Perhaps the most important parameter is the information on sale of other similar assets to get a fair estimate of the buyer market values. By forcing the assessors to look at other sales of assets with similar parameters, a fair estimate of the asset in that given market in that area can be justified because of the sharing of common parameters and what people are willing to pay for these various assets within the given parameters.

The checks and balance system in the U.S. allows the parties involved with the evaluation of the value of the fixed asset to require further appraisals if there is an apparent need. For example, the owner could participate in the process of re-evaluation by applying in the case of the disagreement for a re-assessment through a secondary independent appraiser. This way the U.S. system protects the right of the ownership as one of the key factors of economic development of the country, preventing unfair redistribution of the real estate and fraud.

Finally, the results of evaluations are considered public information and are represented at various town government web sites with public access, so everyone could see the owner of the property and its price, which serves as a defense against dishonesty during the selling process and excludes double or more possession of the same real estate. Further, all deeds and mortgages to the various fixed assets are also considered public information and are put into a centralized state-wide database. This also serves as a defense against various types of fraud and dishonesty, but not only that, it also shows the value changing over time as the fixed asset has gone through various financial transactions.

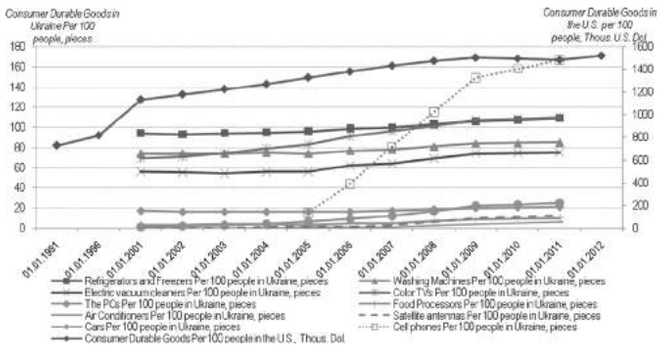
One of the important directions of the fixed assets valuation improvement is to develop the methodological approaches to the valuation of intangible assets, which also named «intellectual property products», in accordance with methodological standards of SNA-2008, and «intellectual assets»[2] as in OECD works. The importance of intangible assets in the world economy system grows rapidly. They even considered being a new source of the overcoming of 2008 global crisis consequences and a symbol of the new economy, which is associated with the establishment of ownership of knowledge in one form or another. It should be noted that investment in intangible assets recently matches and even sometimes exceeds investment in traditional capital such as machinery, equipment and buildings. Intensified global competition, information and communications technologies, new business models, and the growing importance of the services sector have all amplified the importance of intangible assets to firms, industries and national economies [21]. But, to date, the international statistical publications of the System of National Accounts (and national Ukrainian ones) don't distinguish the data on the amount of intangible assets as a stock. They are displayed only in the coordinate system of flows as a part of gross fixed capital formation and shows the cost of mineral exploration, computer software and other intangible fixed assets (as separate components of GFCF are also treated as major improvements to tangible non-produced assets including land and costs, associated with the transfer of ownership of non-produced assets).

According to the OECD statistical book «National Accounts at a Glance 2013» [20], the percentage of intangible assets in the total Gross Fixed Capital Formation of countries is quite high and has grown during 2000–2010 in many countries (**Figure 5**). The highest levels of intangibles volumes comparatively to fixed assets stocks in general among the reviewed countries in 2010 were in Sweden (16.2%), the United States (14.1%), France (10.9%) and Switzerland (10.7%). The relevant Ukrainian figure is diminished from 3.7 to 1.7% during 2005–2011, which reflected a minimal effectiveness of this element development at both – theoretical and practical levels.

Within the framework of elaboration of methodological approaches to intangible assets evaluation it is necessary to initially change the content of category of fixed capital formation by adding a value of «non-produced intangible assets» as they are defined according to the SNA methodology (patents, goodwill etc.), which included in intermediate consumption for now, and other important intangibles like innovative service conceptions, special educational and training programs, information technologies, scientific knowledge, brand building, organizational skills etc. Pioneering steps in this direction have already been made in some countries, including Switzerland. Experience with drafting in this country of additional tables of national accounts, which summarizes the costs of research and development aimed at the formation of capital (rather than intermediate consumption) may be used in Ukraine. According to preliminary calculations of Swiss specialists, taking into account the expenditure on research and development increased the total amount of non-financial assets during 2001-2004, depending on the scenario, of 2-5% [16, p. 70]. Implementation of these calculations, as the foreign practice shows, accompanied by considerable difficulties, but their overcoming is essential to achieve a new quality measure of socio-economic development.

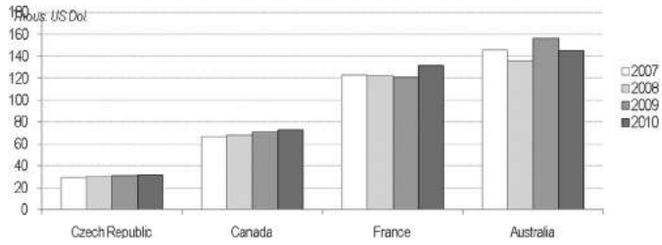
In general, the best method of intangible assets evaluation is to use data from their sale on the secondary market. If such data are not available, it is advisable to use the method of capitalization of future benefits, which in essence is rent flows. To increase the

Figure 6. **Comparative Dynamics of Consumer Durable Goods Volume per 100 People in Ukraine** *(Pieces, the left scale)* **and USA** *(Thous. U.S. Dol., the right scale)*



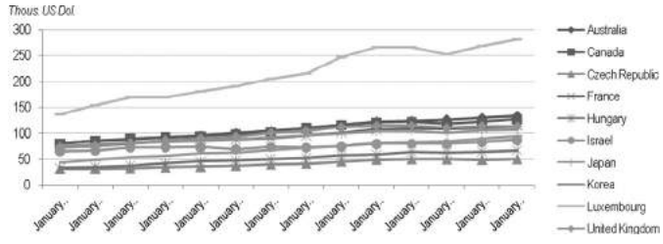
Source: calculated on the base of: Fixed Assets and Consumer Durable Goods for 1925-2011 // Survey of Current Business BEA. – 2001; 2009; 2012. – Vol. 81; 89; 92.– P. 20; 31; 21; Статистичний щорічник України за 2011 р. / Державна служба статистики України. – К.: ТОВ «Август Трейд». – 2012. – 559 с.

Figure 7. **The Dynamics of Non-Financial Assets of Households Per Capita in OECD Countries,** *Thous. US Dollars (taking into account the PPPs)*



Source: prepared on the base of: National Accounts at a Glance 2013. – OECD Publishing, 2013. – Access mode : <http://dx.doi.org/10.1787/na_glance-2013-26-en>.

Figure 8. **The Dynamics of Per Capita Volumes of Non-Financial Produced Assets in 10 OECD Countries, Thous. US Dollars (taking into account the PPPs)**



Source: calculated on the base of: OECD Statistical Extracts [Electronic resource] / OECD. – 2013. – Access mode : <http://stats.oecd.org/index.aspx?queryid=9185#>; National Accounts at a Glance 2013 [Electronic resource] / OECD Publishing, 2013. – Access mode : <http://dx.doi.org/10.1787/na_glance-2013-26-en>.

degree of harmonization of the evaluation of intangible assets with other components of fixed capital, it is necessary to use a scale of gradual decline in the value of assets over time used in the standard PIM to determine the value of tangible assets. But unlike the scale reduction value of tangible assets, reflecting their gradual reduction due to depreciation and amortization, reducing the value of intangible assets is caused by a gradual «scattering» of ownership of an asset: the more well-known and widespread a particular asset is, such as new technology or architectural training, the less benefit from it can get the owner.

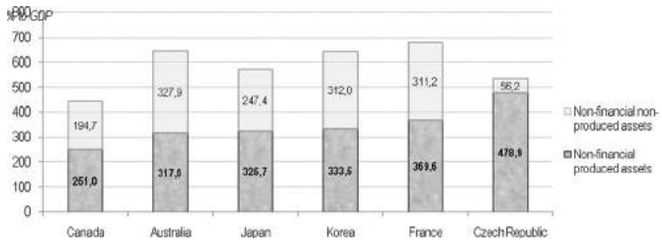
One of the most debatable questions on the evaluation of non-financial produced assets is whether to include in its structure the consumer durable goods value when their lifetime is more than a year. In methodological basis of SNA it is stated that durable goods should be included in the balance sheet, but their inclusion in the balance sheet would be appropriate if the system supposed that these products are gradually consumed in production processes, that is products of which consists of services. Consumer durable assets are not considered in the system that way currently. Their review as a part of non-financial produced assets will more fully describe the standard of living and the actual amount of capital accumulation. Another reason for such transformations is the growing value volumes of this element: in Russia, according to preliminary estimates, it is measured in trillions of rubles [18, p. 353-356]; in the U.S. the general amount of such goods value per 100 people during 1990–2011 has grown almost twice – from 729.6 thous. US dol. up to 1.5 mil. US dol. [3] (**Figure 6**). In Ukraine the quantity of consumer durable goods was measured only in pieces which shows their growing amount for the most part (including refrigerators and freezers, electric vacuum cleaners, the PCs, air conditioners, cars, washing machines, color TVs, food processors, satellite antennas, cell phones), but doesn't allow to view their value volumes as a part of the national wealth.

The information on the entire amount of non-financial produced and non-produced assets in the different countries of the world is even more limited than on their components. Important steps on the road to representing in SNA balance sheets the complete data on value volume of different elements of wealth of nations in general, and non-financial produced assets in particular, were made in the international OECD issue «National Accounts at a Glance». It is noted that they form an important part of overall wealth and can provide an important additional source of revenue; either through their sale or refinancing, or as income via rentals of residential property for example. Estimates of non-financial assets held by households also play an important role in economic analyses, such as studies of asset bubbles, and analyses living standards [20]. The currently represented information is quite specific though, as it is very limited and relates only to households. It includes non-financial assets held by households including both produced and non-produced non-financial assets and therefore consists of: dwellings and other buildings and structures and land improvements; machinery and equipment including livestock; intellectual property products, such as software and literary originals, and non-produced assets such as land and taxi-licenses. Except for dwellings, only those assets, owned by household, are included as non-financial assets, which are used in production[3]. Full-scale data is submitted only for four OECD countries: Australia, Canada, Czech Republic and France. The largest value volumes of non-financial assets of households per capita among these countries at 1/1/2011 was in Australia – 145.2 thous. US dol. and the lowest – in Czech Republic – 31.8 thous. US dol. (**Figure 7**). Value amounts of non-financial assets of households per capita during 2007–2010 have grown almost in all these OECD countries (except Australia).

The data on entire volumes of non-financial produced assets in current prices exist only for several countries and represented in «OECD Statistical Extracts». By taking into account PPPs, it allows to make cross-country comparisons of their per capita volumes. According to these databases from 1/1/1991 to 1/1/2012 in 10 OECD countries the amounts of non-financial produced assets, calculated considering the PPPs, had been gradually increasing in all represented countries with minor partial diminishing in post crisis year 2009 for some of them (**Figure 8**). The largest per capita volume of non-financial produced assets among represented countries in Jan 2012 was in Australia (134.9 thous. US dol.) and the lowest – in Czech Republic (50.6 thous. US dol.). In contrast, the ratio of non-financial produced assets to GDP at 1/1/2011 in Czech Republic (478.9%) was the highest among 6 countries, which represent data on non-financial assets in general (**Figure 9**).

The total value of non-financial assets compared to GDP among the observed 6 OECD countries exceeds 600 % in France, Australia and Korea. And in all countries, which submit such data, the proportion of produced non-financial assets volume to GDP was higher than the congruent proportion of non-produced non-financial assets.

Figure 9. **The Ratio of Non-Financial Assets (Produced And Non-Produced) and GDP in 6 OECD Countries at 1/1/2011,** *%*



Source: calculated on the base of: OECD Statistical Extracts [Electronic resource] / OECD. – 2013. – Access mode : <http://stats.oecd.org/index.aspx?queryid=9185#>; National Accounts at a Glance 2013 [Electronic resource] / OECD Publishing, 2013. – Access mode : <http://dx.doi.org/10.1787/na_glance-2013-26-en>.

Despite the limitations of such analytical information, it allows the use of elaborated schemes in obtaining and evaluating of non-financial produced assets as a part of national wealth as a whole in different countries, including Ukraine, with the purpose of creating a new detailed global look of the world socio-economic development and finding innovative solutions for its perspective improvement.

CONCLUSIONS

Ukrainian system of monitoring, evaluation and analysis of the economic indicators of the formation of non-financial produced assets and national wealth in general requires significant improvements and bringing it into line with international standards. And in order to become a full member of the international process of integration of national accounting, Ukraine has to take giant strides to take into account not only existing in this sphere international regulations, but also scientific and practical trends of their transformation in different countries.

The most expedient way of assessment of non-financial produced assets largest element – stocks of fixed assets – is the implementation of a mixed system of perpetual inventory method estimates, developed in SNA, and direct measurements. These methods would complement each other and greatly enhance the ability of an analytical presentation of the socio-economic development of countries (including Ukraine) in an international context. The most accurate way of evaluating fixed assets stocks, which is necessary to use in Ukraine where it is possible, is the direct measurement. In this regards the USA experience, which allows creating a reliable system of independent assessments with transparently accessible results, thus protecting the ownership and providing a basis for the fair redistribution of the property would be worth using.

Much more attention in further studies and evaluation improvement should be given to the analysis of the productivity as an important source of the economic growth. It would be very useful for Ukraine to consider the Australian experience of creating and implementing the perpetual inventory model, which takes into account linkages between flows, stocks and productivity dimensions.

The practical calculations in the framework of SNA balance sheet should be substantially extended. One of its elements, which has worldwide importance, – intangible assets – should be researched and changed according to the modern socio-economic processes. The list of the intangible assets should be expanded; methods of their evaluation have to be elaborated; «non-produced» intangibles (as like as patents, goodwill etc.) should be moved to non-financial produced assets because their creation requires definite skills, experience, and efforts of people. Some intangibles should be moved from the consumption block of indexes to the balance sheet as an accumulated asset, like expenditure on research and development, according to Switzerland experience.

The important direction of evaluation of non-financial produced assets is to work out and implement in Ukraine the system of economic assessment of consumer durable goods as a part of non-financial produced assets. Their specificity, terms of assets lives, and growing value volumes, make them significant in describing standards of living and the actual amount of capital stocks accumulation.

Further research also requires other elements of national wealth in Ukraine and other countries that will facilitate better identification of factors of economic development and determine their impact on the achievement of certain economic outcomes, which will increase the level of validity of forecast indicators and strategic action programs aimed at their improvement.

NOTES

[1] This publication was prepared within the scientific research work «Structural transformation in the economy of Ukraine: dynamics, contradictions and the impact on economic development» (the state registration number is 0111U002605).

[2] Termed «intellectual assets», intangible assets have been referred to as knowledge assets or intellectual capital. OECD experts classify groups of intangibles into three types: computerised information (such as software and databases); innovative property (such as scientific and nonscientific R&D, copyrights, designs, trademarks); and economic competencies (including brand equity, firm-specific human capital, networks joining people and institutions, organisational know-how that increases enterprise efficiency, and aspects of advertising and marketing) [21].

[3] For example a car used by a household purely for household transport is not a non-financial asset whereas a car used by a self-employed taxi driver is. Non-financial assets are valued in the balance sheets at the market prices of the time of the balance sheet, and are recorded net of depreciation [20].

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