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Abstract

Research on wealth inequality is much in demand, but greatly challenging owing mainly to a scarcity of data, particularly in developing countries. This paper, with the household living standard survey datasets, attempts to shed light on the evolution of the Vietnamese wealth distribution in the 2012–2020 period. Given an exclusion of financial assets, the household net worth comprising of home property, consumer durables, and liabilities shows its validity for analysis of inequality. The findings are threefold. First, wealth inequality was moderate and gradually decreased, which is confirmed by the identical trends when using income data. Second, the source-based decomposition uncovers that inequality is attributable to housing value and durables, whereas rural households, and the ethnic majority are key factors of inequality according to the population-based decomposition method. Third, the regression-based metric reveals that education, residential location, ethnicity, and livelihood diversification are the fundamental determinants of wealth inequality in Vietnam. The policy implication is discussed in relation to these determinants.

1. Introduction

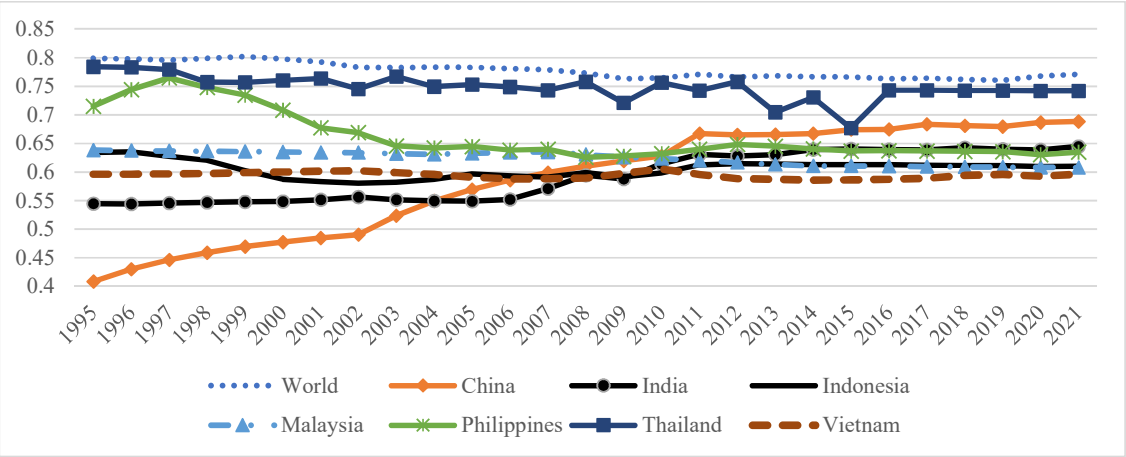
'Inequality of what?' raised in Sen (1995) remains extremely non-trivial in the realm of economics. Conventionally, either is income or consumption expenditure referred when responding to 'what' in this question, which is however far from a perfection. Are households having low-income but above average wealth worse-off than those having average income and low wealth? Consequently, what should welfare public policy target at in this scenario? All these questions inspire us to investigate whether inequality in income and wealth are compatible in the case of developing country (i.e. Vietnam). Along with income, wealth is much of importance when considering economic well-being although the correlation between them is significant (Burland, 2019; Pfeffer & Waitkus, 2021).

Wealth data are paramount for analysis of economic inequality, insofar as they are crucial to draw a more insightful picture of well-being, and thus strengthens the social and economic policies of household welfare (OECD, 2013a; 2013b; Pfeffer & Waitkus, 2021). However, a plethora of research on economic well-being unexpectedly shows great attention to income but not wealth. An adduced reason relates to problems of data paucity; tracking income sources seems to be simpler than wealth as wealthy households tend to undervalue their assets, even in advanced economies (e.g. Advani et al., 2021). Chancel et al. (2022) commented that distribution of wealth encounters even more pronounced inequality than that of income both at national, and global scales. Burland (2019) explained that individual wealth encompasses life-time accumulation of incomes, and plus the pass down of properties from the previous generations; therefore, it leads to permanent inequality as of personal wealth affected by intergenerational transfers, housing worth, assets, and debts.

Research on wealth inequality is high on the list of priorities for Vietnam thus far. As a lower-middle income economy, Vietnam shows increasing living standards in the 1995–2020 period due to an expansion in income and wealth. Yet, the wealth and income gap remained unchanged (World Inequality Database, 2023). While the bottom half of wealth distribution get very few at 4.5–5%, that of income distribution was threefold higher, hovering at 14%, and slightly expanded in the examined period. Importantly, the top percentile and decile have owned nearly a quarter and three-fifths, respectively since the mid-1990s (World Inequality Database, 2023). Thus, there is no evidence of wealth inequality trending down in Vietnam over time (Figure 1).

To put Vietnam's wealth inequality in international perspective, we compare inequality of wealth across Asian countries by showing a basic indicator, i.e. the share of the top 10%, provided in World Inequality Database (2023). The distribution of wealth in Asia tended to converge from the 2000s. At present, about 60% of national worth were possessed by the top one-tenth richest in the Southeast Asian countries, namely Indonesia, Malaysia, the Philippines, and Vietnam. This figure was lower than in China (at 70%), and Thailand (at 75%). Hence, Vietnam, in addition to Indonesia, Malaysia, experienced considerably mediocre inequality in comparison to other Asian counterparts, and below the world average.

Figure 1. Top 10% share of the national wealth in Asia



Source: World Inequality Database (2023)

In this study, our primary focus is to examine how the Vietnamese wealth and income distribution changed, and household characteristics shaped wealth inequality in 2012–2020. The most challenge faced by an investigating wealth inequality in a case of developing country arises from the data issues. Vietnam is unexceptional as no surveys exclusively designed for household wealth studies. Alternatively, as the best survey at hand, the Vietnam Household Living Standard Survey data (henceforth VHLSS) used in this study are still far from adequate information on household wealth. With data available, we compute wealth inequality for the year 2012, 2014, 2018 and 2020. Further, we carry out inequality decomposition to understand the extent to which household endowments and socioeconomic conditions contribute to wealth inequality, and thus can explain the evolution of wealth inequality in the 2010s.

The remainder of the research proceeds as follows. Section 2 provides a brief review of the literature on the household wealth inequality, with an emphasis on a developing country context. Data, variables, and methodologies are described in Section 3. The discussion of research results is reported in the following section. The paper ends with a concluding remark in which policy implications are also provided.

2. Literature Review

The literature on household wealth and its distribution is emerging, despite data shortage. Among the first economists focusing on socioeconomic inequality in the context of advanced economy, Marx (1887) emphasized that private ownership of wealth is the core reason of economic, social and political inequalities as the top wealthiest cohorts become wealthier simply because of dividends from their properties. In line with this argument, Piketty (2014) simply explained that inequality is on the increase if the rate of returns to wealth exceeds the income growth of non-wealth sources (i.e. labour). Meaning that, interests from saving, dividends from security, rent from land should be the fundamental drivers of economic inequality. With the higher saving rates, income generated by capital is increasingly accumulated, and thus the divergence between wealth-based and non-wealth income accrues to the accumulation of wealth.

Davies et al. (2011) highlighted a very high concentration in household wealth at the global scale, and intensified privatisation of wealth could be a main cause; therefore, study on wealth inequality should pay more attention to individual endowments (Frémeaux & Leturcq, 2020). Gokan and Turnovsky (2023) interestingly found that government expenditure may raise or minimise wealth inequality depend upon the Taylor rules; in the case of declining real interest rates or ‘passive’ Taylor rule, the government expenditure reduces inequality. In contrast, it raises inequality.

Narrowing down our looking at developing countries, the literature uncovers a diverse aspects of wealth inequality; however, may studies found inequality is on the rise (e.g. Zhuang, 2023). By means of compiling micro and macro data, Chatterjee et al. (2022) illustrated the excessive and ever-increasing inequality in all forms of assets in South Africa even after the end of apartheid. Mishra and Bhardwaj (2021) examined the wealth expansion and inequality in India, 1991–2012. While the country experienced an increased wealth, varied net worth accumulation across the population subgroups and the returns on household resources cause a rising inequality. These two authors commented that this situation reflects a larger wealth share of the poorest and of the most prosperous quantile, while those of the middle quintiles remained constant. In the case of China, Li and Wan (2015) found an inequality soar; the level of inequality quadrupled within the first decade of the twenty–first century. Park and Shen (2015) reported that the Gini coefficient of wealth was 0.69, but Li and Wan (2015) explored a climb up to 0.74 in 2010.

Regarding the dimensions of inequality, Wang et al. (2020) critiqued a higher level of wealth inequality in rural rather than in urban China. However, the urban families gain capital income at a faster pace, thereby increasing the urban–rural wealth inequality. Vo and Ho (2023) investigated the determinants of wealth dispersion between male and female-headed households in Vietnam. They showed that female-headed households possessed greater values than their male-headed counterparts. Land ownership is the key determinant of gender-related wealth inequality. However, this finding is in contrary to the results in Vo et al. (2021) who suggested that public policies ought to give more support to female-headed families.

For further discussion about wealth disparity in detail, a consensus is that house property is the greatest component of the household wealth and wealth inequality in China which shares identical economic transitions to Vietnam (Knight et al., 2022; Li & Wan, 2015; Xie & Jin, 2015; Wan et al., 2021). Park and Shen (2015) delineated that the driving forces of house wealth is the housing prices which rapidly rose after the reformed housing policy. About half of the national wealth belonged to the richest quantile of the population, which was tenfold greater than that of the bottom 20%.

As home worth is a great determinant of household wealth in developing country, to quest for the reasons behind housing asset inequality facilitates our comprehension of wealth inequality. La et al. (2019) found a wide gap between immigrants and locals in owning housing in urban Vietnam. However, compared to non-migration rural families, households with migrant(s) to urban areas show their financially better-off (Nguyen et al., 2015), which could positively impact the household wealth accumulation, but persists the economic dispersion within rural communities.

3. Data and Methodology

3.1 Data

The core data for this study are the household-level microdata extracted from the Vietnam Household Living Standard Survey (VHLSS) throughout the period 2012–2020. VHLSS were initially conducted by the General Statistics Office of Vietnam (hereafter GSO) in 1993, but the information on wealth data were only surveyed since 2012. Even so, the financial asset module, which is a crucial component of household worth, is not a part of VHLSS. Another difficulty arising from household survey is that the sample sizes have been rotated wave-by-wave, meaning that it does not allow data to be longitudinal with a prolonged time-series. Additionally, recorded asset values are possibly overestimated because of the endowment effects although self-reported home assets provide good proxies for studies on wealth inequality (Tomal, 2022). Thaler and Sunstein (2008) described that individuals tend to exaggerate the values of their owned things compared to the same items that they do not possess. The very top wealthiest

households are also less likely to be reachable, thereby causing non-response failure (Advani et al., 2021; Costa & Pérez-Duarte, 2019).

Irrespective of those shortcomings, with the technical assistance from the World Bank in terms of standardising the survey format and data processing, VHLSS is prominent for studying income and wealth in Vietnam as it offers official datasets. For studies on wealth, along with household liability, VHLSS provides key information on real assets embracing durable goods and housing wealth which are indispensable compositions of the overall household wealth in developing countries (Davies et al., 2011).

We strive to investigate the extent to which dividends generated from financial assets (saving, bonds, shares, lending) matter to household income over the period 2012 – 2020. The data show that only a tiny fraction of households earns from these sources of financial assets. In 2012, only 11 out of 9,399 families (0.11%) have the incomes from these items. In 2020, despite rising to 0.5%, this form of income was still far from a regular basis for almost Vietnamese families. These facts confirm an assertion of immature financial sector, the dominance of agriculture and the physical worth in the national wealth in developing countries (Davies et al., 2011; Mishra & Bhardwaj, 2021; Park & Shen, 2015). Finally, to make wealth, income, and their components comparable over time, they are deflated with 2014 price levels.

3.2 Variable and Methodology

3.2.1 Calculation of household wealth

The household wealth is theoretically defined as the total market value of household assets including financial (deposits, bonds, shares, equity, and pension) and non-financial assets (consumer durables), and deducted by payable liabilities (OECD, 2013). For the household-level analysis, in some cases, assets sometimes broadly consist of financial assets, human capital, social capital (social networks and assistances), and cultural capital (cultural and spiritual beliefs) (e.g. Cazzuffi et al., 2020; Phan & O'Brien, 2019). However, in the case of Vietnam, we confine the household wealth to non-financial assets and liabilities because of missing financial asset data. With the data available, we compute household wealth on yearly basis. VHLSS give only information on non-financial assets, embracing owner-occupied housing and consumer durables. Although the consumer durables such as cars or other means of commuting, home appliances, and computers are not assets as defined by the System of National Accounts' production boundary, they are necessarily added as non-financial assets from the microeconomics perspective (OECD 2013). The inclusion of household durable goods is reasonable and consistent with the liability data. An example for application of this approach to household wealth is in Wan et al. (2021) who analysed the evolution of wealth inequality in China.

For owner-occupied housing wealth, a household may possess multiple real estate properties (i.e. the other houses or land properties), in addition to their primary accommodation. For example, in VHLSS 2018, 3,275 out of 45,816 (7.15%) households said 'yes' when asked 'Apart from this accommodation, do you have any other land plots or houses/flats?'. Yet, the worth of these premises is not surveyed thus far; therefore, only the value of the principal residential home is taken into consideration. More importantly, the housing wealth is replaced by zero if the households do not privately own their home based on the question: 'Who owns the main housing accommodation that your household lives in?'. Then, we identify the remaining housing value using the responses to question: 'If the whole accommodation were now put on sale, how much do you think it would be worth?'. Finally, it is noteworthy that our calculations of housing wealth herein differ from those in Vo and Ho (2023). Since the VHLSS questionnaire describes land values as a part of the house worth, to add this item into the whole seriously overestimates the total value.

With liability data, we exploit the results from the responses to the questions: 'Has your household borrowed money or goods (including seed and fertilizer) over the last 12 months?' and 'Currently, how much debt does your household still owe, including principal and interest of this loan?'[1].

Finally, with the consumer durables, VHLSS records more than 30 items using the questions: 'Could you please let us know if you have any of the following things?' and 'Remaining value at current prices'. We simply aggregate the remaining values of the selected seventeen items (Appendix Table A1) since they hold a vast majority of the total durable value. We care with also the number of each item owned by a household; thereby, aggregating the total values as follows:

$$Dur\_value_{ht} = \sum_{i=1}^{i=17} \sum_{d_{(k=1)}}^{d_{km}} price_{dk}\,(item_{it|dk})$$

where:

Dur_value_{ht} is the total durable value owned by the household *h* at year *t*;

$price_{dk}(item_{it|dk})$ is the remained value of the thing *d* of the item *i* at year *t*;

3.2.2 Measurements of wealth inequality

The Gini coefficient is a renowned estimate of inequality despite it being not free from limitations. Research on wealth inequality will suffer from a colossal mistake if applying the original Gini coefficient without being aware of the existence of non-positive values in wealth distribution. An assumption of non-negative home net worths is unusual as a fraction of families could experience financial difficulties at certain times. In a case of negative wealth, inequality measured by the Gini coefficient may exceed unity, and thus puzzles us in relation to interpretation of the results (Chen et al., 1982; Raffinetti et al., 2015). To overcome this technical deficiency, the Gini coefficient is normalised to allow some negatives in the distribution (Chen et al., 1982). In this current research, we apply *ineqdec0*[2] – a statistical command for calculating inequality (Jenkins, 1999) – which can solve the problems of non-positive wealth. The Gini coefficient here is:

$$Gini = 1 + \frac{1}{N} - \frac{1}{2N^2\bar{y}} \sum (N - i + 1)\, y_i \qquad (1)$$

Cowell and Flachaire (2023) also warned that with the Gini coefficient, an increase in the wealthier individuals' wealth may reduce inequality, and therefore does not obey the *transfer* and *monotonicity* principle[3]. To check whether the Gini coefficient of inequality gives a consistent indication of wealth distribution, in addition to the p90/p10 percentile ratio, the share of the top 10%, and 1%, this current research also applies half the squared coefficient of variation which can be computed based on Generalised Entropy metrics as in Equation (2):

$$\text{Generalised Entropy}(\varepsilon = 2) = \frac{1}{2}\left(\sum f_i \left(\frac{y_i}{\bar{y}}\right)^2 - 1\right) \qquad (2)$$

[1] Because the samples of the liability module about half of the full household survey, it tremendously reduces the total number of observations.

[2] Van Kerm's (2009) *sgini* Stata command also provides an identical solution to negative and null values.

[3] The principal of transfer states that if wealth is transferred from a richer to a poorer individual, inequality decreases (Dalton, 1920). For the monotonicity principle, any increase (or decrease) in individual wealth causes rises (or fall) in the national wealth as a whole (Amiel & Cowell, 1994).

where: N is a sample size including *n* households; f_i is equal to $\frac{w_i}{N}$, if data are unweighted, $w_i = 1$ and N = n; y_i is the income/wealth per capita of household *i;* $\bar{y}$ is the arithmetic mean income/wealth; ε is the sensitivity parameter which is sensitive to the tails of wealth distribution, the higher ε the more it is sensitive to the changes in the top wealth subgroups.

3.2.3 Inequality decomposition

Inequality can be disaggregated based on two approaches: source-decomposition, subgroup-decomposition (Cowell & Fiorio, 2011). However, there exist several decomposition metrics that can be categorised in three groups, namely mathematical arrangement, statistical tools, and game theory (Takeng et al., 2023). Brewer and Wren-Lewis (2016) reclassified them in two groups. The first one is the 'priori approaches' which base their measurements on theoretical axioms and trace inequality back to income sources or sub-groups. Another method of inequality decomposition belonging to a priori approach is the Shapley value. The second one – 'regression models' – estimates counterfactuals with an econometric model. Because each approach provides different extent of inequality factors, it should be better to present all results from these measurements to draw a more holistic picture of wealth inequality (Brewer & Wren-Lewis, 2016).

In this current study, the Shapley value is applied to decompose inequality. According this approach, inequality components are treated as game players, who can either play independently or interact with any of the other participants. Thus, its advancement is to exactly decomposes inequality into given factors. In other words, distributional effects of a variable are jointed from two parts simultaneously, that is, its marginal contribution, and its weighted sum of pairwise interactions embedded in residuals (Araar, 2006).

To disaggregate inequality, firstly, we opt the Gini coefficient decomposition by wealth sources and subgroups. Then, we apply the regression-based decomposition which embraces causal factors of wealth inequality.

3.2.3.1 The Gini coefficient decomposition of wealth inequality

Given a vector W_x which encompasses *n* wealth-generating factors *x*, the decomposition of wealth inequality is described as in Equation (3a):

$$G(W) = \sum_{k=1}^{k=n} S_k \, G_k \qquad (3a),$$

where:

$G(W)$ is the Gini coefficient of household wealth;

S_k is the share in total wealth of the asset/liability k ;

C_k is the Gini index.

When it comes to the population-decomposition, the wealth inequality is decomposed as in Equation (3b):

$$G(W) = G_{withi} + G_{between} \qquad (3b).$$

The within-group inequality *is* $G_{withi} = \sum_{j=1}^{j=m} P_j W_j \, G_j$, where P_j is the population share of group j^{th}; W_j is the wealth proportion owned by the group j^{th}; G_j is the Gini coefficient of wealth of the group j^{th}.

3.2.3.2 Regression-based decomposition of wealth inequality

Regression-based decomposition uses an econometric model to attribute inequality to its observable factors. Wan et al., (2021) criticised the two drawbacks of the component- and the population-based decomposition are seen. First, the component- and the population-based inequality decomposition mathematically breakdown inequality, but they do not imply these attributes are the causal factors. Second, with these two methods, because all wealth covariates are not included in the metrics together, their results do not leave a clear message of the causality behind inequality, and nor facilitate the ways of taking practical actions against inequality. The regression-based resolves these deficiencies.

For the regression-based method, let y be the total wealth of a household, and x_k are the wealth determinants at a certain time, a wealth equation can be addressed as follows:

$$y = \gamma_0 + \sum_{k=1}^{n} \gamma_k x_k + \xi \qquad (4).$$

At the right-hand side of Equation (4), γ_0 is the constant wealth level, γ_k is the weight or contribution proportion associated with x_k, and ξ is the residual. If $\hat{y}$ is the predicted value of y, then

$$\hat{y} = \gamma_0 + \sum_{k=1}^{n} \gamma_k x_k \qquad (5).$$

Therefore, the residual ξ is yielded by a simple subtraction of $\hat{y}$ from y. Next, wealth inequality, $I(y)$, can be decomposed as follows:

$$I(y) = I(\hat{y}) + I(\xi) \qquad (6)$$

In Equation (6), the greater the contribution of residual, $I(\xi)$, the less significant of x_k in terms of explaining for inequality.

4. Household Wealth and Inequality in Vietnam, 2012–2020

4.1 Descriptive Statistic Analysis

The 2012–2020 period evidences a drastic growth in household net worth and income in Vietnam. Table 1 displays a great importance of housing property in the earlier stage and a dominance of durables in the household wealth in the later 2010s. Roughly over half of total assets were owner-occupied housing in 2012. In spite of decreased contribution, its share was still more than 40% in 2020, which contrasts to a negligible fraction from the liabilities at the same time. In addition, the housing wealth and durable values rose by 10.65% and 83.27%, insofar as they all together induce an acceleration of wealth by 37.51%.

Further, expansions in household net worth are striking with respect to the geographical, gender, and ethnicity perspective. Looking at the spatial dimension, wealth per capita in rural areas extended at the rate about twice as fast as at the national average, and in the urban areas. An increased wealth is also drastic when examining the ethnicity dimension. In 2012–2020, wealth per capita rose more than 45% for the majority, and this figure was even more dramatic for the minority groups. Regarding the gender aspect, a slower wealth rise for the female-headed households, at about 23%, compared to 37% for male-headed counterparts.

Nevertheless, wealth gaps across the country, regions, and the demographic strata are considerable. Astonishingly, the striking results relate to the gender dimension. Table 1 shows that individuals in the female-head households even wealthier in comparison to those in the male-headed families. This fact requires in-depth analyses of gender inequality. The wealth differentials are widest with respect to the

ethnicity dimension. Average income of the minorities was about half, but their wealth was even just one-third of the majority. That means the ethnic wealth gap should be placed among the top priorities when implementing equality-related policy.

With a wealth-against-income ratio, Table 1 reports a great divergence between wealth and income, hovering around at 11–12 times. Regarding the household assets, the housing property and durable values of urban families were approximately threefold as many as those of rural counterparts. Nevertheless, income grew at modest rates in the urban but at the faster paces in rural gradually narrowed the urban–rural income gap from 1.69 to 1.39 times in 2012–2020. Therefore, the wealth differentials are much more pronounced than the income dispersions. These figures starkly differ from in World Inequality Database (2023) which indicates that wealth-to-income ratio was 4.25 times in 2020. Durable values, which accounts for at least two-fifth of the total wealth, could be a reason for a substantially high wealth-to-income ratio in our estimated results.

Table 1. The Vietnamese household wealth and income, 2012–2020 (in million Vietnamese dong (VND))

Year	Home asset	Durable asset	Debt	Household wealth	Household wealth per capita	Income per capita	Wealth-to-income ratio (times)
Panel A: whole country							
2012 (N=9,550)	668.652 (54.16%)	568.172 (46.01%)	-2.047 (-0.17%)	1,234.777 (100%)	335.837	27.341	12.28
2014 (N=9,488)	615.823	637.420	-16.629	1,240.623 (100%)	347.277	29.167	11.91
2018 (N=26,906)	697.076	893.107	-46.797	1,373.992 (100%)	359.786	31.982	11.25
2020 (N=22,085)	712.785 (41.97%)	1,041.291 (61.33)	-56.105 (-3.3%)	1,697.971 (100%)	445.171	34.727	12.82
2012–2020 change (%)	10.65%	83.27%	2,623%	37.51%	32.55%	27.01%	4.39
Panel B: by spatial							
Urban							
2012 (N=2,732)	1,363.695	1,407.616	-0.914	2,410.396	665.764	39.556	16.83
2014 (N=2,601)	1,284.295	1,211.967	-19.677	2,476.585	696.323	41.552	16.76
2018 (N=4,839)	1,095.592	1,955.575	-100.103	2,951.063	764.011	46.261	16.52

Year	Home asset	Durable asset	Debt	Household wealth	Household wealth per capita	Income per capita	Wealth-to-income ratio (times)
2020 (N=4,137)	1,406.208	2,136.127	-92.896	3,449.439	902.795	44.932	20.09
2012–2020 change (%)	3.12	51.75	10,063.68	43.11	35.60	13.59	19.37
Rural							
2012 (N=6,818)	389.954	376.000	-2.509	763.563	203.596	23.339	8.72
2014 (N=6,887)	396.096	420.431	-15.689	773.839	215.454	24.659	8.74
2018 (N=22,067)	401.756	657.522	-34.977	1,024.302	270.156	28.816	9.38
2020 (N=17,948)	552.951	788.932	-47.624	1,294.259	339.689	32.375	10.49
2012–2020 change (%)	41.80	109.82	1,798.13	69.50	66.84	38.72	20.30
Panel C: By gender							
Male-headed household							
2012 (N=7,297)	626.216	565.627	-2.240	1,192.779	312.601	27.405	11.41
2014 (N=7,203)	585.725	649.542	-18.187	1,217.080	327.145	28.198	11.60
2018 (N=21,253)	525.134	924.351	-49.376	1,400.109	355.722	31.749	11.20
2020 (N=17,638)	699.323	1,037.903	-57.795	1,679.430	429.131	34.499	12.44
2012–2020 change (%)	11.67	83.50	2480.13	40.80	37.28	25.89	9.03

Year	Home asset	Durable asset	Debt	Household wealth	Household wealth per capita	Income per capita	Wealth-to-income ratio (times)
Female-headed household							
2012 (N=2,253)	795.798	576.412	-1.449	1,370.761	411.074	29.835	13.78
2014 (N=2,285)	727.982	599.207	-12.353	1,314.837	410.740	32.734	12.55
2018 (N=5,707)	537.166	776.757	-37.191	1,276.732	374.920	32.849	11.41
2020 (N=4,447)	766.180	1,054.731	-49.400	1,771.150	508.787	35.634	14.28
2012–2020 change (%)	-3.72	82.98	3309.25	29.21	23.77	19.44	3.63
Panel D: by ethnicity							
Ethnic majority							
2012 (N=7,921)	757.106	641.628	-1.509	1,397.225	381.871	30.689	12.44
2014 (N=7,822)	705.098	726.782	-17.852	1,414.029	398.796	32.133	12.41
2018 (N=19,649)	634.894	1,091.049	-56.187	1,669.756	438.001	36.962	11.85
2020 (N=15,716)	881.355	1,312.145	-68.930	2,124.569	557.743	40.648	13.72
2012–2020 change (%)	16.41	104.50	4467.93	52.06	46.06	32.45	10.29
Ethnic minorities							
2012 (N=1,629)	237.744	210.553	-4.698	443.904	111.727	14.795	7.55

Year	Home asset	Durable asset	Debt	Household wealth	Household wealth per capita	Income per capita	Wealth-to-income ratio (times)
2014 (N=1,666)	220.373	217.853	-11.762	426.465	105.390	15.944	6.61
2018 (N=7,311)	239.535	361.122	-21.560	579.098	149.575	18.597	8.04
2020 (N=6,369)	296.825	372.939	-24.458	645.306	167.390	20.118	8.32
2012–2020 change (%)	24.85	77.12	420.60	45.37	49.82	35.98	10.20

Source: VHLSS 2012–2020

Note: Age and Gender variable are suppressed as their correlation coefficients are insignificant at 10%; Exchange rate effective as of December 31, 2014: 1 USD = 21,405 VND.

4.2 Wealth inequality and its components

Vietnam experienced a moderate and gradually declined wealth inequality in 2012–2020 regardless of what measurements are used (Table 2). The Gini coefficient of wealth per capita decreased slightly from 0.630 to 0.613 in this period. Particularly, inequality marginally diminished until 2018, followed by a weak recovery afterward. It is noteworthy that inequality in wealth were relatively high compared to that in income. This trend is consistent with the Gini coefficient of income per capita that set itself back from 0.401 to 0.389 at the same time. The results from the other calculations, namely half the squared coefficient of variation, the p90/p10 ratio (i.e. the proportion between the top and the bottom 10%), the shares of the lower-half population, the top decile and percentile wealthiest group are also very robust to this estimate. For instance, the bottom 50% individuals enjoyed a larger contribution from 10.51% in 2012 to 11.63% in 2020 while the top 1% and 10% richest diminished their proportion, albeit with a small pattern, in the years 2012–2020. These opposite movements could explain for an obvious reduction in the p90/p10 ratio from nearly 26 to 20 times.

For the household asset components, inequality in consumer durables and home worth were also displayed in Table 2. Surprisingly, the most unequal distribution occurred in the value of durables, followed by in the home worth. The Gini index of durable value levelled off at around 0.7 over time while that of residential property dropped and below 0.6 in 2020. An identical pattern of wealth inequality is also confirmed when using the other estimating methods.

For a detailed description of the urban and rural wealth distribution separately, the Gini coefficient of wealth per capita is displayed in Table 3. Obviously, both rural and urban areas encountered nearly similar trends in wealth inequality which were below 0.6, except in 2018. Considering the ethnicity differences, wealth inequality in the minority were substantially higher than in the majority community. Note that, however, the population shares of the rural and the ethnic majority are about three-fourths of the total population, thereby differently contributing to inequality across the nation when it comes to the decomposition perspective.

Let us concentrate on the subgroup- and component-based inequality. As presented in Table 4, regarding the spatial inequality, the within-rural inequality contributed the lion's share of the overall levels, ranging from a half to three-fifths in 2012–2020. In contrast, within-urban and the urban-rural accounted for around a quarter of the wealth inequality nationally. These results can be explained by the vast majority of the population resided in rural areas. Finally, Table 5 reports the results of inequality decomposed by wealth components. Wealth inequality is utterly attributable to home property and consumer durables which all together accounted for more than 99% over time.

Table 2. Inequality in wealth and income per capita in Vietnam, 2012–2020

Year	Home asset	Durable asset	Household wealth	Income
2012				
Gini coefficient	0.640	0.708	0.630	0.401
Half the squared coefficient of variation	1.899	6.626	2.342	0.595
p90/p10 ratio	28.571	50.060	25.753	6.662
Top 10% share	50.56%	58.23%	49.87%	30.11%
Top 1% share	13.94%	29.28%	17.01%	7.51%
Bottom 50% share	9.72%	7.08%	10.51%	23.10%
2014				
Gini coefficient	0.633	0.694	0.622	0.394
Half the squared coefficient of variation	2.496	5.238	2.509	0.475
p90/p10 ratio	24.000	45.667	22.898	6.577
Top 10% share	50.51%	56.81%	49.41%	29.38%
Top 1% share	16.93%	25.56%	17.47%	6.78%
Bottom 50% share	10.52%	7.66%	11.05%	23.41%
2018				
Gini coefficient	0.573	0.686	0.607	0.399
Half the squared coefficient of variation	2.048	5.900	3.011	0.795
p90/p10 ratio	19.944	38.059	19.973	6.061
Top 10% share	43.46%	56.46%	47.92%	30.32%
Top 1% share	13.20%	25.62%	18.22%	8.61%

Year	Home asset	Durable asset	Household wealth	Income
Bottom 50% share	12.96%	8.22%	11.92%	23.36%
		2020		
Gini coefficient	0.577	0.699	0.613	0.389
Half the squared coefficient of variation	1.178	4.069	2.006	0.410
p90/p10 ratio	20.000	34.161	20.933	6.169
Top 10% share	43.43%	59.40%	48.30%	29.15%
Top 1% share	11.15%	22.40%	15.34%	6.58%
Bottom 50% share	12.53%	8.09%	11.63%	23.78%

Table 3. The Gini coefficient of wealth per capita in urban and rural areas, 2012-2020

Variable	2012		2014		2018		2020	
Panel A: Urban vs. Rural								
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
Wealth per capita	0.561	0.589	0.589	0.559	0.604	0.552	0.551	0.568
Population share (%)	28.61	71.39	27.41	72.59	17.99	82.01	18.73	81.27
Panel B: Majority vs. Minority								
	Majority	Minority	Majority	Minority	Majority	Minority	Majority	Minority
Wealth per capita	0.599	0.694	0.594	0.631	0.564	0.639	0.570	0.607
Population share (%)	82.96	17.04	82.44	17.56	72.88	27.12	71.16	28.84

Source: VHLSS 2012–2020

Note: A marked difference between VHLSS 2012, 2014 and the latter two waves are the urban population proportions. This relates to the sampling methods when collecting the liability data, and not necessarily reflect the trends in urbanisation. In fact, in the raw data the urban population were 30% and 32% in 2018 and 2020 respectively.

Table 4. Gini decomposition of wealth per capita by the population subgroup

Panel A: Urban vs. rural						
			Within		Between	Nationwide
		Urban	Rural	Total		
2012	Ab	0.144	0.318	0.462	0.168	0.630
	%	22.84	50.44	73.28	26.72	100
2014		0.143	0.312	0.455	0.167	0.622
	%	23.12	50.10	73.22	26.78	100
2018		0.102	0.383	0.485	0.121	0.607
	%	16.85	63.13	79.98	20.02	100
2020		0.102	0.399	0.501	0.112	0.613
	%	16.62	64.98	81.60	18.40	100
Panel B: Ethnic majority vs. minority						
			Within		Between	Nationwide
		Majority	Minority	Total		
2012		0.487	0.080	0.567	0.063	0.630
	%	77.27	12.63	89.91	10.09	100
2014		0.482	0.069	0.551	0.071	0.622
	%	77.47	11.03	88.50	11.50	100
2018		0.396	0.120	0.517	0.090	0.607
	%	65.26	19.91	85.18	14.81	100
2020		0.393	0.114	0.507	0.106	0.613
	%	64.00	18.70	82.70	17.30	100

Source: VHLSS 2012–2020

Table 5. Decomposition of the Gini coefficient of wealth by income components

		Housing worth	Consumer Durables	Debt	Total wealth	Gini of income
2012	Absolute	0.342	0.287	0.001	**0.630**	**0.401**
	Share (%)	54.26	45.60	0.14	100	
2014	Absolute	0.311	0.309	0.002	**0.622**	**0.394**
	Share (%)	50.09	49.59	0.32	100	
2018	Absolute	0.204	0.400	0.003	**0.607**	**0.399**
	Share (%)	35.59	65.86	0.55	100	
2020	Absolute	0.224	0.387	0.002	**0.613**	**0.389**
	Share (%)	36.51	63.06	0.43	100	

Source: VHLSS 2012–2020

4.3 Why did wealth inequality go slightly down in Vietnam?

As the majority of families possess their home, and the dominance of housing property in the household wealth, the reduced inequality in housing wealth results in a more equalised wealth distribution. For example, VHLSS 2018 raw data show that the number of households possess their own residential is 44,437 out of 45,816 (96.99%). These indicators are in line with the results from the 2019 Vietnam Population and Housing Census revealing that 99.53% households have accommodation and 88.1% of residentials are private dwelling by households (GSO, 2020). Most presently, results from a survey conducted by PropertyGuru Vietnam (i.e. Batdongsan.com.vn) showed that 80% of the population owned a home asset, and 92% of that want to buy a home even when they already possess at least one (Le, 2022). This proportion is higher than in any other Southeast Asian countries. These figures imply that a one-fifth of the Vietnamese families are vulnerable in terms of accommodation when the house prices escalate. This circumstance thus persists housing as well as wealth inequality in the coming years. Our findings align with the research results in Gough and Tran (2009) who explored a severe disparity in residential asset owing to reformed housing policy enacted in the 2000s.

Further, to examine the extent to which household characteristics and productive factors impact wealth inequality, we use the regression-based decomposition. Figure 2a points out that human resources, economic activities, and the individual characteristics are major determinants of wealth inequality. Educational qualifications stringently impact on inequality, but their importance eroded over time. This finding lends credence to the literature that increasing in returns to education plays a key role in increasing income and wealth irrespective of the country context (e.g. Davies et al., 2017; Mishra & Bhardwaj, 2021; Wang et al., 2020). In 2020, human resource only explained for 22%, down from 52% at the beginning. Another key contributor to

inequality is the geographical element. Household settling in urban areas increasingly determined and become the most influenced factors of wealth disparity in 2020.

Regarding household endowment, accounting for 17% of total inequality explained in 2020, the ethnicity points out a soaring weight of contribution to inequality while the number was just 5% in 2012. Analogously, started with an insignificant proportion of inequality, the role of off-farm business in generating inequality is emerging as indicated in Figure 2a. Yet, marital status, household size, migration, household with employed member(s) show their very few roles in determining wealth inequality.

For a comparison, we demonstrate the results of regression-based income inequality with the same factors as in the wealth inequality regression (Figure 2b). The ethnicity difference herein became the most important causes of inequality, explained the proportion of inequality twice as many as in wealth inequality regression. Household size was also a more influential determinant of income inequality.

Since wealth-based income such as interests from saving or lending, rents from properties, dividends from equity and security are crucial to worsen wealth inequality (Knight et al., 2022), we also scrutinise the extent to which income from wealth contributes to wealth inequality. However, a very tiny fraction of households having this type of income (less than 20 households said that they have a positive income even in the VHLSS 2020). This could an adduced reason for a stable inequality in 2012–2020.

Figure 2a. Main determinants of wealth inequality, 2012–2020

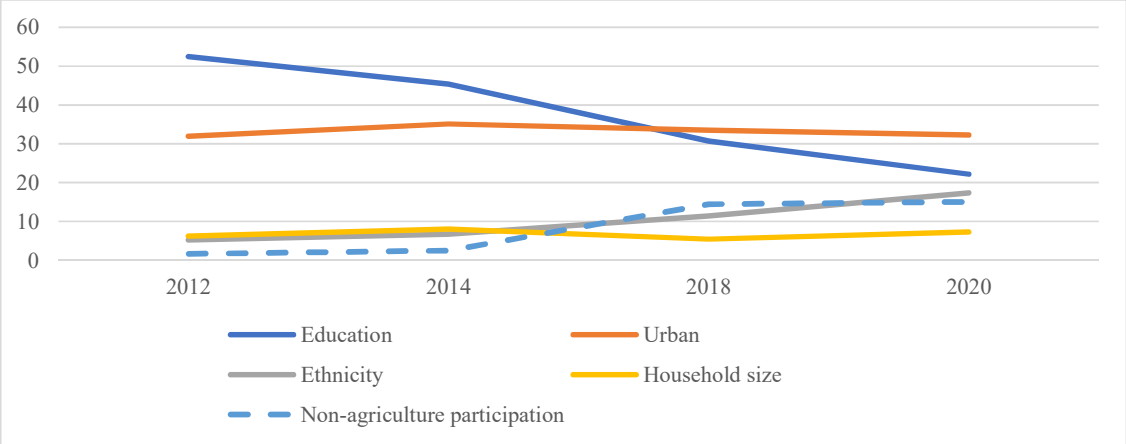
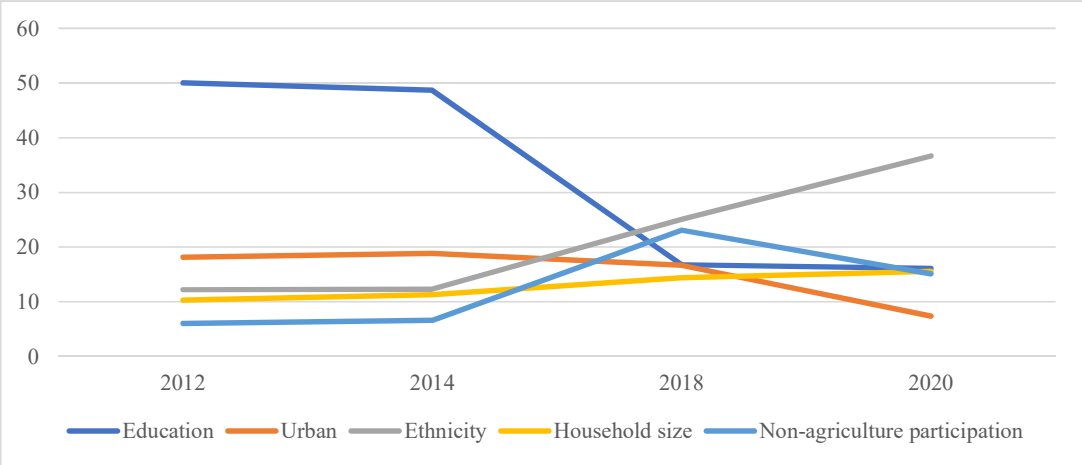


Figure 3b. Main determinants of income inequality, 2012–2020



Source: VHLSS 2012 - 2020

5. Conclusion and Policy Implication

Inspired by the questions whether inequality is high, and how can wealth data be computed with the multi-purpose household survey data, this research among the first constructs household wealth and examines the evolution of wealth inequality in Vietnam in the latest decade of the twenty–first century. First, the most challenge to compute wealth variable relates to data scarcity; VHLSS data do not allow to include financial assets. Therefore, household wealth comprises two asset components, that is home worth and consumer durables and liability. In case of developing country, this way of aggregating household asset could be acceptable as the financial assets are far less important compared to in developed countries (Wan et al., 2021). Second, we find that Vietnam experienced a moderate and decreased wealth inequality. The Gini coefficient of wealth moved down from 0.630 to 0.613 in the examined period. The findings are confirmed by using income data and with various metrics.

Third, for a further discussion on inequality, we break inequality down based on various criteria. The source-based decomposition shows that home and durable values overwhelmingly contribute to wealth inequality. Population-based decompositions reveal that within-majority and within-rural communities are the two key determinants to total inequality. A surprising result is that female-headed families were wealthier than the male-head families. Fourth, we find that educational qualifications, geographical difference, ethnicity, household size, and non-agricultural activities are the fundamental causes of wealth inequality.

Because residential property is a core component of household wealth and wealth inequality. The public policy on housing development and distribution is crucial for decreasing inequality. Development of affordable housing, particularly for urban immigration families should deserve attention for further sustained development (Seo & Kwon, 2017). As the country is on the fast urbanisation progress, the need of payable accommodation is of importance to achieve the dual targets of 'growth and equity' in the coming years. For this extent, World Bank (2015) advised that Vietnam should concentrate on three pillars, namely provision of financial assistance to housing development for low-income families, stimulating the supply of rental-purpose housing that remains the stable house rents, and encouragement of building across the country, especially urbanised areas. In relation to housing policy, Resolution No.02/NQ-CP (Government of Vietnam, 2013) and most presently Resolution No.33/NQ-CP (Government of Vietnam, 2023), in addition to the 2013 Land Law evidence the attention of the government to boost the housing markets as well as equitable housing distribution. However, ineffective policy implementation causes many distortions and speculations, especially in the distribution of social houses, and finance subsidised for the poor. Thus, more effective housing policy is highly in need by making it applicable. In the case of housing resettlement, Seo et al. (2022) noted that governments should care about the behavioural differences between households with and without housing property rights. While individuals with the ownership of house property prefer compensations in cash and self-relocation while those without land use right wish to be assisted to upgrading their existing settlements plus legalising property right or moving to new 'site-and-service' location.

In addition, education is key to generate income, and wealth, but worsens inequality. Therefore, improvements in knowledge and skill of the poor are noteworthy to closer the wealth gap. Analogously, non-agricultural raise inequality, thereby participating in off-farm livelihoods is likely to decrease wealth inequality.

This study deserves some limitations. Research on wealth inequality suffers from the problem of data shortage, particularly of financial assets. Analysis of intertemporal inequality using panel data is meaningful, but impossible presently thanks to insufficient data also. Therefore, it prevents us from drawing a more insightful picture of household wealth and inequality in Vietnam over time and covering various aspects. These deficiencies also request an inclusion of the information on the financial module and a deeper time-series of household surveys in the future.

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APPENDICES

Table A1. List of items used for calculation of durable value, 2012–2020

Order	Items
1)	Cars
2)	Motorbike
3)	Bicycles
4)	Ship(s), boat(s), junk(s), outer part with a motor
5)	Pumping machine(s)
6)	Electricity generator(s)
7)	Printer(s)
8)	Mobile phone(s)
9)	Colour TV(s)
10)	Computer(s)
11)	Refrigerator(s)
12)	Air conditioner(s)
13)	Washing machine(s), (clothes-) drying machine(s)
14)	(Bath) water heater(s)
15)	Electric cooker(s), electric rice cooker(s), pressure cooker(s)
16)	Cupboard(s), cabinet(s), wardrobe(s) (of various kinds)
17)	Bed(s)

Table A2. Variable description

Variable	Description
Household wealth per capita	The sum of the housing value, the value of consumer durable as described in the preceding table, minus all the liabilities of households, and then divided by household size
Housing wealth per capita	The value of the house used as the primary accommodation of households divided by household size
Education	The highest qualification obtained by any household member; is treated as continuous variable, ranges from zero (without a completion of any educational level) to eleven (obtaining a Doctoral degree)
Age	The age of household head
Gender	Dummy, equal to 1 if the household head is male; = 0 otherwise)
Marital status	Dummy, equal to 1 if the household head is married; = 0 otherwise
Ethnic majority	Dummy, equal to 1 if a household head belongs to the majority group; =0 otherwise

Employed	Dummy, equal to 1 if the household has any employed member; equal to 0 otherwise
Agricultural sector	Dummy, equal to 1 if the household participates in agricultural activities, equal to 0 otherwise
Non-agricultural sector	Dummy, equal to 1 if the household participates in non-agricultural activities, equal to 0 otherwise