



What counts as investment? Productive and unproductive expenditures

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Abstract

There have been significant changes in what economists include in the category of investment over the last six decades. The US government agency that compiles national income data, the Bureau of Economic Analysis, has tried to keep up with these changes, but it has not succeeded. The resulting tension between economic theory and official data can be overcome by adopting a different theoretical lens. Work on social reproduction and social investment suggests a more coherent definition of investment than that offered by mainstream economists. The paper then contrasts the measurement of investment in the government data with a calculation of investment derived from this new approach. The results show that business investment is dwarfed by the combined investment made by government and households. This finding suggests that business investment is not the key engine that powers the economy. This has significant implications for economic and social policies.

Keywords Economic sociology · Investment · Intangible capital · Social reproduction · Social investment

Economic sociology reemerged as a field of academic inquiry in the 1980s, and for over forty years, scholars have explored a broad range of topics including studies of wealth inequality, bankruptcy, globalization and the organization of financial markets. It is striking, however, that there has been very little attention in the field to definitions of what is counted or not counted as investment in economic analyses and economic data. This neglect is particularly surprising in that both mainstream economists and government statistical agencies have been engaged in an active process of redefining what counts as investment over the last six decades.

One would think that when economists are debating among themselves about defining one of the key concepts in their framework, the disagreements would invite engagement from scholars in neighboring disciplines. Up to now, however, this has

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not happened. Perhaps this is another sign of the theoretical hegemony that economists have wielded in the social sciences. But whatever the explanation for this neglect, the present paper is an attempt to trespass into this domain of economic expertise.¹

Moreover, this issue is not only of academic interest. The conceptualization of investment has significant implications for economic policy. This paper will show that there is a close link between the existing measures of investment and the powerful arguments for austerity that continue to restrain levels of public spending.² With a different conceptualization of investment, the intellectual supports for austerity policies become very much weaker.

Investment is generally defined by economists as the production of goods that will be used to make other goods.³ To define an expenditure as investment is to elevate it over other spending because investment outlays have the potential to provide a flow of services or outputs over multiple years. Investment outlays are contrasted with intermediate goods that are used up in the process of production, such as the steel and glass used to make automobiles as well as the company's use of bookkeeping services. Investment is also distinguished from consumption activity that simply uses up the flow of goods and services that investment creates. It follows that when an expense that was previously defined as either an intermediate good or a consumption good is redefined as an investment, it increases Gross Domestic Product (GDP). GDP is the sum of investment *plus* the total amount of goods and services that are consumed by final users *plus* government spending *plus* the balance of international trade.⁴ In short, investment expenditures are productive whereas consumption simply uses up what has been produced elsewhere; intermediate goods are necessary but do not have the generative power of investments.

Every economic paradigm makes its own distinction between productive and unproductive activities. The Physiocrats—18th century precursors to modern economists—insisted that only agriculture was productive and both commerce and industry simply used up resources produced by agriculture (Mazzucato, 2018). Folbre (1991) shows that housewives were coded as productive early in the 19th century but were defined as unproductive by the end of the century. Through most of the 19th century, economists defined banking activity as unproductive, but in the second half of the 20th century, it was redefined as productive (Christophers, 2013). Disagreements about the proper operationalization of the investment category are, in fact, arguments about what is productive and what is not productive.

Over the last century, economic transformations have created problems for mainstream economics in how it constructs and justifies its definition of investment. There

¹ The paper is a contribution to a literature that critically examines key economic indicators. See Block and Burns (1986); Alonso and Starr (1987); Stiglitz, Fertoussi, and Durand (2019).

² For discussions of austerity policies, see Blyth (2013) and Shefner and Blad (2020).

³ Kevin Hassett, "Investment." <https://www.econlib.org/library/Enc/Investment.html>. Both the goods used for production and the goods that are produced can be both tangible and intangible. A software program is an intangible investment and its output could be something intangible such as a strategy for trading stocks.

⁴ More precisely, government spending other than what is counted as investment.

has been an accumulation of what Thomas Kuhn (1962) referred to as anomalies in the paradigm, as different economists have proposed significantly different measures of investment and the government agency in the US responsible for the national income accounts has not been able to align its concept of investment with the views of most economists. Since 1996, the Bureau of Economic Analysis (BEA) in the Department of Commerce has made a series of revisions in its definition of investment. However, these changes have not resulted in a measurement scheme that is theoretically coherent.

The argument here is that both mainstream economists and the Bureau of Economic Analysis are working with inadequate schemes for measuring the total amount of investment in the economy. Their inability to develop and implement a theoretically coherent measurement scheme suggests an urgent need for a different paradigm that defines investment in a more consistent and coherent way. The foundations for this alternative paradigm have already been constructed by two different group of analysts. The first are feminist theorists of social reproduction and the second are scholars who have argued that significant parts of social welfare spending can be reconceptualized as social investment. The contribution of this article is to use data from the US national income accounts and other sources to show how this alternative paradigm facilitates a more persuasive account of what activities are productive and what are not. This exercise revises our understanding of the relative role of business, government, households, and nonprofits in the economy. Moreover, it calls into question the familiar arguments in favor of austerity policies that have exerted extraordinary influence over the past four or five decades.

The data for this study are drawn from the United States, but the argument is relevant to other developed market societies as well as to developing nations that have moved beyond an economy dominated by the production of raw materials. However, the empirical results would be even more dramatic for many European nations where social spending programs are considerably more generous than in the United States.

The argument of the paper is developed in five parts. The first part traces changes in the way that investment has been measured in the US National Income and Product Accounts. It shows that while most economists believe that expenditures to educate and train current and future employees should be counted as investment, neither the US accounts nor the System of National Accounts (SNA)—the global standard developed by the United Nations for measuring national income—recognize such expenditures as investments. The second section explains the social reproduction and social investment frameworks. The third section compiles data to contrast how the two different paradigms arrive at distinctly different patterns of investment across sectors. The fourth section explores the implications of how we measure productive and unproductive spending in the economy. The final part is a conclusion.

Official measures of investment

Debates about the boundary line between productive and unproductive expenditures go back centuries, but we will start with the development of national income accounting in the US and the UK in the 1930s and 1940s. In those decades, a very

large percentage of the labor force were working on farms or in factories producing tangible products that were loaded on trains and trucks to be delivered to consumers. That economy was very different from today's, which is dominated by the service sector and where fewer than 10% of employees work in factories or on farms. In that earlier period, it was common sense to define investment narrowly as private expenditures on tangible items such as buildings, machinery, and vehicles. This was the operationalization used in the first U.S. national income accounts published by the Bureau of Economic Analysis in 1947.

Complexities of measuring investment

Before reviewing how this definition changed over time, it is important to look more closely at several of the complexities of the investment category. First, the decision to code something as an investment is independent of the actual outcome. People, for example, routinely spend large sums of money to remodel and equip retail stores or restaurants that fail within six months. This expenditure still counts as investment in the national income accounts even though it ultimately proved to be unproductive. In boom periods, businesses commonly produce too many office buildings or single-family homes or lay too much fiber optic cable. This counts as investment since resources have been diverted from consumption. In short, the definition of investment does not require that the expenditures are actually productive or that they earn some particular rate of return. The point is simply that the expenditure has the potential to contribute to a flow of services over time.

Second, analysts also distinguish gross investment from net investment. Net investment is equal to gross investment minus depreciation or capital consumption. Investment goods such as buildings, machinery, and vehicles will deteriorate over time and eventually become obsolete so some portion of gross investment is simply offsetting or compensating for this deterioration. In theory, only net investment—what is left after depreciation is subtracted—is actually increasing the economy's total productive capacity. While this distinction makes sense, operationalizing the concept of capital consumption is fiendishly complex. To avoid this complexity, this paper examines only gross investment flows.⁵

A third big issue involves the relationship between measurements of investment and the conceptualization of capital or the total stock of productive assets. While some recent scholarship has focused on refining conceptions of capital, most of it does not address the complicated issues of measuring investment flows. In his influential book, *Capital in the 21st Century*, Thomas Piketty (2014) devotes only a few pages to defining capital. He states that domestic capital includes the land,

⁵ Calculating depreciation is so difficult because different capital goods deteriorate at very different rates, and analysts are forced to estimate average service lives based on surveys. Moreover, it is particularly difficult to estimate the service lives of intangible investments such as expenditures for computer software, research and development, or outlays to upgrade the skills and capabilities of workers. In fact, there is remarkably little economic literature on the difficulty of calculating depreciation of intangible assets. For a typical treatment, see Haskel and Westlake (2018, pp. 56-57.)

infrastructure, machinery, computers, and patents owned by government and business firms (p. 119), but he does not probe more deeply into which specific assets belong in the investment category.

Other recent scholars have broadened the concept of capital beyond land, buildings, and machinery to include human capital, cultural capital, and social capital. However, it seems that neither cultural capital nor social capital are produced through investments that can be quantified in dollar terms. Cultural capital (Bourdieu, 1986) appears to be created as a byproduct of socialization in the family and social capital (Putnam, 2000) can be produced through almost any activity that constructs social ties. It has been suggested, for example, that connections formed when Chinese young people mobilized as “red guards” during the Cultural Revolution later served as social capital when China opened up opportunities for entrepreneurship.

To be sure, whatever definition of investment one uses, there has to be a close connection between annual flows of investment and the creation of a stock of assets. However, measuring that stock of assets necessarily must cope with the issue of depreciation. Since we have put that issue to one side for purposes of this discussion, that means that we will not be able to address the total stock of productive assets or the total value of capital at a particular point in time.

History of the official data in the U.S.

In the initial accounts in 1947, government outlays on roads, bridges, highways, and ports were not included in the investment category. The conventional view at the time was that government was part of the machinery through which society consumed what was produced by the private sector. Although John Maynard Keynes and his followers insisted in the 1930s and 1940s on the value and importance of government investments (Crotty, 2019), the accounting scheme continued to define government spending as part of consumption.

Similarly, all household spending was defined as consumption. While the analysts knew that households could finance both new construction and significant remodeling of existing structures, they chose to simplify the accounts by attributing all residential construction activity to the business sector. Homeowners were treated as renters who were paying rent to themselves. This methodological choice essentially defined households as economically unproductive.

Once this initial framework of analysis was put in place in 1947, very little in the US national income accounts changed for nearly half a century. This can be understood as a result of the inertial pressures that government statistical agencies face. When such an agency changes its definition of a key category or changes the way that it operationalizes the category, it could just draw a line under a given year and indicate that numbers before and after that line are not strictly comparable because of the change in procedures. However, that strategy undermines the value of the data for users who are relying on comparable historical data. The other option is to apply the redefinition or new operationalization back to all of the earlier years, so that data continuity is maintained. However, that choice involves extensive research work

since it is usually the case that relevant data for earlier years will be difficult to find. As a result of this kind of inertia, it was not until the Clinton Administration in the 1990s that the BEA began to reconsider its initial definition of investment.

Over nearly fifty years, the BEA was effectively ignoring two important shifts in mainstream economics. First, Keynes' recognition that some government spending should count as investment was increasingly accepted by economists. The obvious economic importance of the Eisenhower Administration's outlays in creating the National Highway System made it difficult to defend the idea that government outlays were unproductive. Second, Robert Solow's (1957) article showing that increases in economic output could not be explained simply by increased inputs of physical capital and labor focused the attention of the discipline on intangible inputs into production such as technological advances and improvements in employee skills. This was quickly followed by work by Schultz (1961) that argued for the importance of human capital—employee skills-- as an input into the production process.

In fact, scholars who had worked closely with the Bureau of Economic Analysis published major works that expanded the investment category well beyond what the BEA included (Denison, 1974; Kendrick, 1976; Eisner, 1989). Nevertheless, it was not until a comprehensive revision in 1996 that the BEA began the process of revising its initial concept of investment. The first step was to include governmental expenditures—at local, state, and federal levels-- on buildings and equipment as part of the investment category (BEA, 1996). A second step was taken in 1999 when spending on computer software by both business and government was counted as investment rather than as intermediate goods (Parker & Grimm, 2000). This meant going back and reclassifying both purchases of software and the payment to in-house programmers as investment outlays.

A third key revision occurred in 2013 when the BEA introduced a new category of investment—expenditures on intellectual property (Soloveichik & Wasshausen, 2013). This included public and private R&D expenditures—estimated in 2015 at about \$500 billion. It also included estimates of what it cost to produce original works of art that were intended to have a long life such as books, movies, and original songs and recordings. This revision followed studies that emphasized the rising importance of these types of intangible investment (Corrado et al., 2005, 2009).⁶

Critique

While the agency has promised further revisions (Landefeld et al., 2020), there is still no indication that it plans to include outlays on education and training in its measure of investment. The likely reason for this resistance is a concern about data continuity. One recent study, for example, conservatively estimated that this type of spending in 2019 would increase domestic investment from \$4.5 trillion to \$7 trillion (Abraham & Mallatt, 2022). This would add \$2.5 trillion to total GDP.

⁶ See also the later study by Haskel and Westlake (2018).

The reluctance might also be linked to a lack of consensus among economists about the proper way to measure human capital investments. One method focuses on tallying up the costs of society's investments in improving the quality of the labor force (Abraham & Mallatt, 2022). The other method seeks to estimate the value of education and training by assuming that the compensation that individuals receive is the flow of services from their accumulated skills. (Jorgenson & Fraumeni, 1992). There are two serious problems with this methodology. First, it starts by assuming that the distribution of wage and salary income is a proper reflection of each individual's contribution. So, for example, if compensation at the low end of the labor market is reduced because of exploitation or the market power of employers, this method would significantly overstate the returns on education and training. Second, Abraham & Mallatt, (2022) effectively show how sensitive the results are to different assumptions. For example, different predictions about whether or not people who have recently dropped out of school will reenroll have very significant impacts on the resulting estimates.

Moreover, I will argue that there are other significant outlays beyond formal education and training that should be considered investments. There is, for example, the paid and unpaid labor of raising children from infancy to adulthood. There are government transfer programs to families with children that help them with the work of childrearing. There are both physical and mental health services that can play a substantial role in expanding people's capabilities.

Also, the BEA does not include household purchases of consumer durables such as automobiles and appliances in the investment category. This flows logically from their early decision to treat homeowners as though they are renting their homes. But these consumer durables obviously produce a flow of services over multiple years for the people who purchase them. Without these appliances, there would be a dramatic escalation in the amount of unpaid labor necessary in the home.

Since most economists recognize the importance of human capital as an economic input, there is a significant gap between their idea of investment and what the BEA measures as investment.⁷ I see this gap as a symptom of a paradigm crisis since mainstream economists are not able to align their theoretical conceptions with actual data provided by the government's highly respected statistical agency (Kuhn, 1962). Since most econometric studies rely on the official data on GDP, practitioners are using a data set that they should recognize as problematic. This practice undermines the validity of many economic studies.

As suggested by Kuhn, when these kinds of anomalies accumulate, it can be a sign that a new paradigm is needed to make sense of what is actually going on. Fortunately, a significant part of that alternative paradigm has already been built

⁷ A number of economists argue that spending by businesses for marketing and branding and for creating distinctive business models should also be counted as intangible investment (Haskel and Westlake, 2018). This would mean that outlays for design of products, advertising, and management consultants would count as investment. I find this argument unpersuasive since these expenditures are generally intended to improve a firm's market share relative to competitors rather than increase overall output.

by two groups of scholars. The first are those who have elaborated the concept of social reproduction. Social reproduction is usually defined as those activities necessary to produce and sustain the actual human beings who exist in a given society. The second are analysts who have redefined a significant part of public spending as social investment that expands the economy's ability to produce. Combining these two lines of argument point to a new way to conceptualize investment in contemporary economies. Parallel to the Classical Economists critique of the Physiocrats, this alternative paradigm challenges mainstream economists view of what is productive and what is unproductive.

Social reproduction and social investment

Feminist theorists immersed in Marxist thought began in the 1970s to argue that both orthodox Marxism and mainstream economists inappropriately privilege the work of production over the work of social reproduction—the process by which human beings are born, nurtured, socialized, and supported over the life course. They argued that this privileging is part of a masculinist worldview that devalues and ignores the types of work that have predominantly been performed by women. They argued that production is always dependent on reproduction; without effective arrangements for reproducing the human population, production would grind to a halt.

Much of the initial work articulating this approach was done by an international feminist group that raised the demand that wages be paid to women for doing housework (Toupin, 2018). Among the principal figures were Silvia Federici, Mariarosa Dalla Costa, and Selma James. Their point was that capitalism produced two distinct types of exploitation. There was the extraction of surplus value from wage workers and the extraction of work effort from unpaid family members. They argued for political strategies that addressed both types of exploitation. These insights were later elaborated more systematically in a book by Lise Vogel (1983) that is often considered the foundation of social reproduction theory.⁸

Over time, the theoretical framework has been further developed to emphasize that housework is part of a larger infrastructure of care work, largely undertaken by women, sometimes unpaid and often poorly compensated as with childcare workers and those paid to care for those with serious health issues (Folbre, 2012, Fraser, 2014, Fraser, 2017). Moreover, it is not just capitalists who benefit from unpaid or poorly compensated care work; beneficiaries include most men and some women. Nevertheless, this care work is central to social reproduction even though its existence has been hidden by liberal theories that assume that autonomous and

⁸ See also Bhattacharya (2017).

self-actualizing individuals have little need for care.⁹ Recent studies have shown that taking account of unpaid work in the home reshapes economic statistics (Folbre and Heintz, 2017; Heintz, 2019).

The concept of social reproduction is more capacious than the economist's concept of human capital. The latter focuses narrowly on the acquisition of skills by employees, the former recognizes that present and future workers live in families and communities and their ability to be productive and raise productive offspring depends on an elaborate social infrastructure that includes many hours of unpaid labor in the home by families of different types including single family households, communes, as well as heterosexual and queer couples. Without this infrastructure, employers would be hard pressed to fill vacancies whether for unskilled or highly skilled employees.

There are, however, tensions within analyses of social reproduction. In some versions, the goal is to undermine the binary that distinguishes "productive labor" from "unproductive labor" since this binary has worked to justify the subordination of women. In other versions, the intention is to demonstrate that work that has historically been devalued as unproductive is, in fact, economically productive. While challenging the binary is useful, the analysis developed here builds on that second strand of social reproduction theory.

Another tension in this body of work centers on questions of causality. Consistent with the Marxist roots of social reproduction theory, some argue that it is inherent in the nature of capitalism that reproduction will always be subordinated to the needs and priorities of production (Fraser, 2014, 2017). This means that the crisis of care will only be overcome by transcending capitalism. Others, however, point to significant variations in the public provision of care across developed market societies to suggest that reforms are possible (Kenworthy, 2019).

The social investment framework

Gosta Esping-Andersen's, *Three Worlds of Welfare Capitalism* (1990) provided a canonical text for the comparative study of social welfare spending by focusing on the degree to which different welfare arrangements reduced people's dependence on labor market earnings. However, in a later book, *Social Foundations of Postindustrial Economies* (1999), Esping-Andersen insisted that postindustrial transformations, including a knowledge economy and much higher rates of female labor force participation, required a reevaluation of social welfare spending. His argument was explicit in taking on board feminist arguments that mainstream analyses had obscured the importance of women's work, both paid and unpaid.

In the first decades of the 21st century, social welfare spending came under increasing pressure in many nations as neoliberals pressed for cutbacks. Scholars, mostly in Europe, responded by building on Esping-Andersen's argument to insist that in the emergent knowledge societies, many of these welfare outlays should be recognized

⁹ Ehrenreich (1987) analyzes familiar arguments that welfare spending is bad because it encourages dependence. She then goes on to show that this privileging of independence over dependence requires ignoring that human beings come into the world and leave it dependent on others.

as “social investments” that were contributing to future economic growth (Morel et al., 2012; Hemerijck, 2017; Garritzmann et al., 2022; Hemerijck et al., 2023). They argued, for example, that government spending for childcare both enhanced future learning for children and increased the availability of mothers for paid labor. Similarly, active labor market policies that provided assistance and retraining for the unemployed should be understood as investments in a skilled labor force. Paid family leaves that made it easier for two earner families to raise children were productive because they helped firms retain skilled employees and facilitated effective parenting.

Hausermann et al. (2022) usefully analyze three dimensions of social investment policies. There is the *creation* of human capital, skills, and capabilities, there is the *mobilization* of these skills and capabilities to be productive in the economy, and there is the *preservation* of these capabilities in the face of disruptions such as unemployment and the dissolution of family ties. Funding for quality childcare would count both for creation and for mobilization since it facilitates the employment of parents of young children. Child allowances can contribute both to the creation of capabilities and for their preservation.

The credibility of the social investment framework is linked to the economic successes of the Nordic nations—Sweden, Norway, Denmark, Finland, and Iceland—along with the Netherlands—all of which rank high in their capacity for innovation. These nations have invested in policies that support women’s labor force participation, including publicly funded childcare, along with active labor market policies, and income maintenance programs that leave very few children growing up in poverty (Kenworthy, 2019). The result has been a labor force with higher levels of adult literacy that has helped firms to compete effectively in the global market.

A new definition

Based on the insights of social reproduction and social investment theories, I propose a new definition of investment. Investment should be understood as *all of the expenditures of money and time required to enhance the capabilities of the population to be productive in the future*. In contrast to the BEA’s definition, this one recognizes the importance of education and training and other critical components of social reproduction, including measures to protect the welfare of children. This approach does not privilege reproduction over production; its aspiration is simply to recognize that production and reproduction are equally important and dependent on each other. It follows that all of the elements that are included in the BEA’s measure of investment would continue to be included. Outlays on buildings, machinery, expenditures for research and development, and for artistic originals are also important to assure that a high-capability labor force will be productive.

Operationalizing the alternative measurement scheme

Reorganizing categories

The first step in operationalizing this approach is to shift the categories of analysis. In the national income accounts, investment is either made by the private sector or

by government since the methodology precludes the idea that households engage in investment activity. The private sector includes the nonprofit sector. In this analysis we aggregate household investments with those in the nonprofit sector as community investments. These are then contrasted with those by business and government. The nonprofit sector's contribution to overall investment is relatively small, but it is appropriate to include it under the community category because its investments are not driven by the search for profits.¹⁰

In assessing expenditures on buildings, residential, commercial, or governmental, analysts make a distinction between repairs and renovations. Repairs such as a new roof or a paint job do not count as investment since they maintain the building as it is. Renovations, however, count as investments since they add new capacities to the building such as more space or better lighting. In practice, owners often combine repairs and renovations, and taxation systems generally treat investments outlays more favorably. Hence, business tax returns might overstate the dollar value of renovations. Nevertheless, the distinction between repair and renovation makes intuitive sense. It is even more obvious with machinery and vehicles. Repairs are not investments, while replacing an older machine or vehicle is obviously an investment.

With expenditures on human beings, the situation is more complicated. In place of the repair/renovation binary, I am using a three-part category scheme. The equivalent of repairs are maintenance activities required to sustain adult human beings including haircuts, routine medical visits, and various forms of housework including cleaning and meal preparation. As with repairs of physical capital, these are productive activities but they are producing intermediate goods that are used up in the process of production.

The equivalent of renovations are those activities that enhance the skills and capacities of people. This includes education and training expenditures for both children and adults. It also includes childcare outlays and time spent by parents on childrearing. Moreover, when children are in the household (defined here as people under eighteen), meal preparation and cleaning are necessary for the healthy development of the next generation, so these outlays of time and money are part of enhancing capabilities. The category also includes a portion of health care expenditures that restore or enhance capabilities by conquering debilitating illnesses or putting people back together after life-threatening injuries. Various social services that help families cope with major life problems also fall into this category.

The third category is protective maintenance—outlays needed to protect children from circumstances that would undermine their capabilities such as malnutrition or homelessness. Bouts of homelessness can lead to mental health issues that, in turn, undermine the individual's future employability. To be sure, the utility of physical capital can also be undermined by circumstances, such as running a machine continuously without proper lubrication. The difference is that the owners of the

¹⁰ To be sure, many of the largest nonprofits such as private universities and hospital chains are often managed in ways that are quite similar to profit-seeking corporations. However, nonprofits are subject to a tighter regulatory framework than corporations, and those regulations could be used to force nonprofits to behave differently than their corporate counterparts.

machinery usually have both a strong incentive to prevent that from happening and the resources to assure that their employees follow proper maintenance protocols. While children also have strong incentives to protect themselves, they can be powerless to protect against a degradation of their capacities. These expenditures count as investment because they allow children to continue developing their capacities.

This is why programs to maintain the income of households with children such as child allowances, unemployment insurance, food stamps, and Social Security payments to child survivors should be counted as investment. Without such support, children are likely to have inadequate nutrition which would impact their cognitive development and ability to learn. Also included here is time that volunteers spend on community organizations that provide services for families in need such as food banks.

It could be argued that protective maintenance outlays for adults should also be counted as investment since their capabilities are at risk for degradation during bouts of unemployment or homelessness. However, they are excluded because I am limiting investment to activities that enhance productive capacity. With children, protective maintenance allows them to continue learning and enhancing their capacities. In many cases with adults, these transfer payments are simply maintaining them as they have been.¹¹

Here and elsewhere, I am aiming for defensible consistency even if it ends up somewhat understating the total quantity of investment in the economy. For example, many people who are between nineteen and twenty-one or even older are still developing their capacities, but I am not counting the work of sustaining them as investment activity. I am assuming that they are capable of sustaining themselves, and so only the funds spent on their continuing education or training would be counted as investment.

Moreover, I am also excluding the dollar value of the hours spent either in school or doing homework by both children and adults. This could yield a very large number, but there is no way to estimate the dollar value of those hours since one cannot legitimately hire someone else to do that work. To be sure, passing on society's accumulated knowledge to the next generation is an important part of social reproduction, but not all of that work needs to be counted in the investment category.

There are also other ambiguous expenditures that I am leaving out of the investment measure. Expenditures by households for various self-improvement efforts such as pursuing hobbies that involve complex skills or teaching oneself a foreign language or a computer language. These could well provide benefits in the future in enhanced capacities, but it seems that the bulk of such outlays are properly seen as consumption expenditures comparable to going to the theater or a music festival.

To be sure, what we are left with is not a definitive list of all the elements that are involved in social reproduction. A case could also be made that some significant portion of the employees at state and local government levels play a critical role in social reproduction such as public health workers, building inspectors, and people in the judicial branch. But generating plausible estimates for these categories

¹¹ It follows as well that transfers to older people such as social security are not included as investments even though some recipients might be doing childcare or passing on skills to younger people.

is challenging, and the following seven elements are sufficient to reveal the scale of investment in this framework.

These elements are:

1. Outlays for education and training. This includes the costs paid by government, business, and households for education from kindergarten to advanced degrees. It also includes funds spent by these three entities for formal training of employees.
2. Transfer programs that support families with children. This includes both those programs that protect children from further impoverishment and those that help families raise their children.
3. Healthcare outlays. Some portion of total expenditures on healthcare by government, business, and households represents an investment in improving the capabilities of present and future workers.
4. Childcare outlays. This is an estimate of the dollars spent on providing out-of-home childcare.
5. Nonprofit services. This encompasses the outlays of nonprofit agencies that provide social services to families including food banks.
6. Volunteer time. This is an estimate of the dollar value of the labor time spent by people providing services to support their neighbors.
7. Unpaid labor time in families with children. This is an estimate of the total hours that family members spend on childcare and child maintenance activities such as meal preparation and cleaning.

In the end, the point of the new framework is that human beings are not robot-like entities that are inserted into workplaces. They are multi-dimensional beings with multiple social ties, family connections, and complex passions and interests. Moreover, their ability to be productive increasingly depends on this multi-dimensionality since many jobs now require some or all of the following capacities--the ability to cooperate effectively with others, problem-solving skills, and a talent for creativity.

A measurement exercise

The revised estimates provided in this paper are necessarily provisional and at times rely on “guesstimates”. In some cases, government sources provide reasonable estimates on certain types of outlays that I include as investment. In other cases, such as expenditures for health care, only a portion can legitimately be included as investment, but there is no obvious way to calculate what that portion actually is.

While this lack of greater precision is regrettable, use of guesstimates is a standard procedure in the history of economic measurement. Pioneers in economic accounting routinely included such guesstimates in their calculations with the idea that government statistical agencies with more staff and more resources would later on be able to refine those estimates. Those statisticians can add questions to their economic surveys to count outlays that were previously not reported. More recent scholars arguing for revisions in the official accounting scheme (Corrado et al., 2005, 2009; Haskel & Westlake, 2018) continue to utilize guesstimates. It follows

Table 1 Comparing the sources of investment—2019 (billions of dollars)

	Business investment	Government investment	Community investment
BEA Data	3826.3	740	0
Residential Investment	-798.5	+798.5	
Nonprofit Investment ^A	-213.7		+213.7
Consumer Durables ^B			+1413.4
Revised Total	2814.1	1538.5	1627.1

^AThis is from line 16, Table F.101 in the Federal Reserve, Flow of Funds Z.1, September 9, 2022.

^BThis is from line 33, Table F.4 in the same source.

that the comparison of the investment data as calculated by the BEA with estimates that operationalize this alternative framework is illustrative rather than exact. The intention is to suggest relative orders of magnitude of outlays by different sectors rather than providing some kind of precision.

Table 1 presents the current data for gross investment for these three sectors as assessed by the government statisticians. I make three adjustments to the BEA figures that are not directly connected to the new definition of investment. First, I shift \$813.9 billion of gross residential investment from business to government because most of this is financed by government lending programs that provided \$1.3 trillion in real estate loans in 2019.¹² Without this governmental support for the home mortgage market, new investment in residential real estate would be substantially reduced. Second, I move the investments made by the nonprofit sector from business to community since they are not driven by the profit motive. Third, I add purchases of consumer durables to the household sector since these are omitted from the BEA numbers. Both the second and third calculation rest on data from the Federal Reserve.

Note that already with these modifications, the revised total provides a very different understanding of the loci of investment than what is depicted in the top-level BEA number. Business gross investment is exceeded by the combined investments of government and the community sector. This suggests the wisdom of a point that John Maynard Keynes made back in 1936 in his *General Theory*. He wrote:

“I conceive, therefore, that a somewhat comprehensive socialization of investment will prove the only means of securing an approximation to full employment; though this need not exclude all manner of compromises and of devices by which public authority will co-operate with private initiative. But beyond this no obvious case is made out for a system of State Socialism which would embrace most of the economic life of the community. It is not the ownership of the instruments of production which it is important for the State to assume.

¹² “Fair-Value Estimates of the Cost of Federal Credit Programs in 2019.” Congressional Budget Office, June 2018. <https://www.cbo.gov/publication/54095>

If the State is able to determine the aggregate amount of resources devoted to augmenting the instruments and the basic rate of reward to those who own them, it will have accomplished all that is necessary. Moreover, the necessary measures of socialization can be introduced gradually and without a break in the general traditions of society” (378).

Keynes’ argument was that the private sector left on its own would not provide a high enough level of investment to achieve anything close to full employment of the existing labor force (Crotty, 2019). This view was based on the British experience in the years after World War I. Keynes, however, did not believe that government ownership of the means of production was the solution. He believed that through government use of “all manner of compromises and...devices,” the private sector could be induced to invest enough so that in combination with government investment, there would be sufficient total investment to reach full employment.

The devices that Keynes had in mind included use of government lending programs, such as those that undergird the mortgage industry in the U.S. and the Export-Import Bank that helps large firms finance exports. It also included government purchases from industry that come to close to \$800 billion per year now in the U.S. Then there are tax incentives such as the more rapid depreciation of investments that has significantly reduced the revenue from the corporate income tax as a share of GDP. Finally, there is something that Keynes might not have anticipated, namely the increased investments by the government in science and technology that have become increasingly important for private sector profits (Block & Keller, 2011; Mazzucato, 2013). In a word, governmental measures have been critical to produce the amount of business investment that we see in Table 1.¹³

In Table 2, we contrast the BEA data with data that is consistent with the new measurement paradigm. Line 1 is the bottom-line number from Table 1. (More details as to where additional data come from are provided in the footnotes to Table 2.) Line 2 adds expenditures for education and training by business, government, and households. The core item here are the estimates developed by Abraham & Mallatt (2022), but I have added estimates for employee training from other sources.

Line 3 adds income support programs for families with children such as Food Stamps, TANF, unemployment insurance, social security survivor benefits for children, and outlays to support housing for low-income people as reported in the OECD’s social expenditures data base. Line 4 adds health care expenditures from the National Health Expenditures report prepared by the Center for Medicare and Medicaid Services in the Department of Health and Human Services (Rama, 2020). It is well known that there is considerable waste in the U.S. health care system. Our spending per capita is substantially higher than other nations that have better health outcomes. Moreover, it is also estimated that perhaps 10% of all health spending is

¹³ It is relevant that bills passed in 2022 in the U.S. significantly increased the use of tax credits and loan guarantees to encourage private sector investments that would address climate change and U.S. production of computer chips (Keller and Block 2023).

Table 2 Comparing investment through the social reproduction paradigm—2019 (billions of dollars)

	Business investment	Government investment	Community investment
Revised Total—Table 1	2814.1	1538.5	1627.1
2. Education and Training ^a	468.1	1140.7	962.6
3. Income Support ^b		144.4	
4. Healthcare ^c	237.5	569.6	355.7
5. Childcare ^d	16.8	71.8	80.2
6. Nonprofit ^e			246.0
7. volunteer Time ^f			147.0
8. Unpaid Work in Home ^g			1855.2
Total	3536.5	3465.0	5273.8
% of total	29%	28%	43%

^aThe basic numbers are drawn from Abraham & Mallatt (2022) as provided in their online appendix. <https://www.aeaweb.org/articles?id=10.1257/jep.36.3.103>. These are relatively conservative estimates of actual outlays for education. Their estimate of the value of parental time was subtracted out to avoid double counting for unpaid labor in the home. The only addition was an estimate of the value of employee training including the compensation to employees during training periods. This is an estimate drawing on data from *Training Magazine* and *Credential Engine*, 2021. They estimate employer sponsored training including direct costs and the compensation for employees while being trained at \$516.1 billion in 2017. We increased the estimate to \$550 billion for 2019. Then these were apportioned between business and government by their shares of total employment. (<https://credentialengine.org/wp-content/uploads/2021/02/Education-and-Training-Expenditures-in-the-US.pdf>).

^bData are from OECD social expenditures database that include outlays by federal and state governments. <https://www.oecd.org/social/expenditure.htm>. For Temporary Aid to Needy Families and Social Security survivor payments for children, 100% of expenditures are included.

For unemployment insurance, housing assistance, and food stamps, only 40% is included to count only households with children. With the Earned Income Tax Credit, 90% is included because childless families receive only a small share of benefits.

^cThis represents one-third of the health care outlays by business, government, and households as reported in U.S. Center for Medical Statistics, National Health Expenditures, Table 5. <https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NationalHealthAccountsHistorical>.

^dPublic sector childcare outlays are from the OECD social expenditures database. Estimates of business and household childcare expenditures are explained in the text.

^eExpenditures of nonprofits delivering human services are provided for 2016 by Urban Institute, “The Nonprofit Sector in Brief 2019.” <https://nccs.urban.org/publication/nonprofit-sector-brief-2019#type>. The 2016 number was adjusted upward by 5% to account for growth to 2019. Note that the estimate for nonprofit outlays on human services represent less than a third of total outlays for all nonprofit entities.

^fThis estimate is based on data from a Current Population Survey and estimates of the value of each hour of volunteer time as provided by Independent Sector. https://americorps.gov/sites/default/files/document/2019%20CPS%20CEV%20findings%20report%20CLEAN_10Dec2021_508.pdf

^gThe BEA has created a satellite account that estimates the value of household production annually based on time use studies and a rather conservative rate of hourly compensation. <https://www.bea.gov/data/special-topics/household-production>. The figure here is 40% of their total since only about 40% of households have a child who is 18 or under.

dedicated to people in the last year of life. Also, some routine medical care should be counted as repair rather than renovation. It follows that only a fraction of total outlays should be counted as investment. To offer a conservative estimate of health

Table 3 Comparing three measures. Billions of dollars (Percent of total investment)

	Business investment	Government investment	Community investment
BEA Data (table 1)	3826.3 (84 %)	740 (16%)	(0 %)
Revised BEA Data (table 1)	2814.1 (47%)	1538.5 (26%)	1627.1 (27%)
Social Reproduction Data (table 2)	3536.5 (29%)	3465 (28%)	5273.8 (43%)

care investment, the figures on Line 3 represent only one third of total reported health care spending in the National Health Expenditures report.

Estimating spending for childcare services is extremely difficult for a number of reasons. There is tremendous variability in arrangements that run from licensed childcare centers to family day care that might or might not be licensed, and a multitude of informal arrangements that might or might not involve payment of money. There are also very substantial differences in cost across different states and the cost of care for infants and toddlers is greater than the cost for children three to five. Moreover, there is tremendous variation in the number of hours that children are in such care and that number might change repeatedly over the course of a year.

The problem is compounded by the fact that the government has not sought to systematize data collection on childcare spending. This is, in fact, the thrust of a recent working paper, “Measuring Care Provision in the United States: Resources, Shortfalls, and Possible Improvements” (Folbre et al., 2023) that proposes specific measures that would improve the available data. The estimate on Line 4 is a back of the envelope calculation. In 2019, there were 12 million children under five in some form of out-of-home day care.¹⁴ If we assume an average annual price of \$14,000, that equals \$168 billion.¹⁵ Employers probably cover 10% of this through subsidies and workplace childcare centers, and the OECD indicates that governments at all levels spends \$71 billion.¹⁶ The balance of \$80.2 billion is paid for by households.¹⁷

Line 5 provides the outlays of nonprofit organizations that provide human services. This category is distinct from health and education nonprofits, so it minimizes any possible double counting. Line 6 is an estimate of the value of volunteer time with nonprofit groups. Finally, Line 7 provides an estimate of the dollar value of unpaid labor in the home that is calculated by the BEA in a satellite account. These satellite accounts have been created to address inadequacies in the current accounting system without modifying existing estimate of GDP and its components. However, we have included only 40% of the BEA estimate of unpaid household labor since 60% of households do not include a person age 18 or younger. Moreover, in an earlier study, Suh & Folbre (2015) estimate the total value of non-market household

¹⁴ <https://www.childcareaware.org/our-issues/research/the-us-and-the-high-price-of-child-care-2019/>.

¹⁵ Detailed price data are provided by Landivar, Graf, and Rayo 2023.

¹⁶ The Bureau of Labor Statistics estimates that only 11% of employees have access to employer-sponsored childcare. (Bipartisan Policy Center 2021).

¹⁷ The \$14,000 a year figure might seem high as an average expenditure. However, I use that figure because this calculation leaves out two key areas of expense. More affluent families hire nannies who can be paid \$30 an hour (\$60,000 per year), and many families pay for after-school care for children between six and ten. Hence, the total childcare figure here is a conservative estimate.

work in 2010 to be \$5.3 trillion—almost 50% higher than the BEA estimate for that year.

When we add up all of those rows in Table 2, the results are striking. Gross business investment ends up being small relative to the combined investments of households and government. In Table 3, we can clearly see the contrast between these different measurements. The first line shows the BEA data for 2019 with business accounting for 84% of gross investment. The second line provides the BEA data with some adjustments that recognize the role of households and nonprofits and acknowledge the importance of government in financing residential investment. The third line shows the measurement under the social reproduction/ social investment paradigm. In this estimate, business investment constitutes less than 30% of total investment. Moreover, as we have seen, it has taken the full use of Keynes' compromises and devices to maintain even that level of business investment.

If we carried out this same exercise for a European country such as Sweden or Germany where levels of social investment are far higher than in the U.S., the results would be even more dramatic. OECD data, for example, shows that in 2019, Sweden spent close to 3.5% of GDP on public support for families with children (OECD Family Database: https://www.oecd.org/els/soc/PF1_1_Public_spending_on_family_benefits.pdf.) The comparable figure for the U.S. was about 1%. The U.S. would have to increase its spending on children by more than half a trillion dollars to catch up with Sweden.

Analysis

The category of investment determines the boundary lines that separate productive expenditures from those that are either unproductive or neutral—as with intermediate goods. For most of the history of modern economics from Malthus and Ricardo to the first national income accounts in the U.S. in 1947, there was a fairly broad consensus that only the outlays of profit-seeking firms could be counted as investment. It was this perspective that supported familiar arguments for imposing austerity on employees and on government.

Arguments for austerity insist that employees must restrain their demands for higher wages and increased benefits or else businesses will see declining profits that would reduce both the funds available and the incentive for business to make the critical investments required to support current living standards. Similarly, since government outlays are assumed to be unproductive, it follows that taxation represents a dead weight loss that diverts resources that the private sector could use productively. Ronald Reagan described this as government spending being comparable to eating the seed corn that was supposed to be used to produce next year's corn harvest.

However, the numbers in Table 2 suggest a very different story. If households and government are the source of most of the productive investment in the economy, then all of those arguments for austerity disappear. If government has more resources, it can make more productive investments in infrastructure, in R&D, and in strengthening the capacities of the workforce. If households are provided more

income, they can also expand their productive investments in their own capacities, those of their children, and those of their neighbors.

Moreover, it follows from Table 2 that investment expenditures by households and government do not “crowd out” private investment, but are more likely to encourage it. For example, government outlays on infrastructure such as highways and airports stimulated massive private sector investments. Similarly, research and development expenditures on computer technology and on medical research have stimulated major investments by high tech firms and biotech firms. More recently, we have seen that government investments in clean energy technologies have stimulated significant amounts of new private sector investment.

A similar point can be made about household investments. We know, for example, that the personal computer itself emerged out of an informal hobbyist subculture, rather than out of major investments by big firms (Freiberger & Swaine, 1984). Moreover, as the market for personal computers took off, there were few resources in the society that helped people master the various software packages that facilitated word processing, the creation of spreadsheets, the use of databases, and somewhat later, finding things on the internet. Very few firms had the resources or structures in place to teach people how to make the most effective use of these new tools. The reality is that people taught themselves either individually or in small groups, and their investments of time and energy then facilitated massive levels of business investment to capitalize on the possibilities of these technologies.

Conclusion

The findings of this study challenge the conventional wisdom on both the left and the right that take it for granted that private business investment is the engine that drives the entire economy. Defenders of the existing system argue that society owes an enormous debt to those who are willing to take the risk of investing since these outlays are indispensable for job creation and prosperity (Gilder, 1981). It follows that these risk takers deserve special deference when it comes to shaping public policies, and they deserve to become fantastically rich. If taxes are too high, regulations are too burdensome, or employees make unreasonable wage demands, there is a danger that society might kill or maim the geese that lay the golden eggs.

Critics of capitalism mirror many of these same arguments, while coming to different political conclusions. They argue that control over investment decisions that shape the level of employment and the health of the economy provide the capital class with disproportionate political power and influence (Block, 1977; Lindblom, 1977). These critics insist that capitalists are collectively able to exercise a veto even when measures have support from majorities of the electorate. In other words, private control over investment is in tension with true democracy.

To be sure, even if business investment is less than a third of total investment, it still matters for the overall health of the economy. But it is not the engine both because of its relative size and because it is so heavily dependent on the prior actions of government and households. I drew on John Maynard Keynes for the argument that governments have developed a host of different mechanisms to

subsidize and encourage business investment. Moreover, households produce both the labor force that business needs and the consumer demand for its products.

Moreover, the recent period of lockdowns to combat the global Covid pandemic was a kind of natural experiment to show that even when net business investment in the U.S. went to zero in the second quarter of 2020, expanded government measures were able to cushion most of the population from economic hardship. Nevertheless, when the Biden Administration pushed in 2021 for an ambitious “Build Back Better” bill that included billions of dollars of spending for the care economy, as well as for infrastructure and for clean energy, the initiative was significantly watered down in the U.S. Senate. The familiar arguments were mobilized that such spending would not be productive and would discourage vital private sector investment.

The analysis here suggests that such arguments are deeply mistaken. Our public policies continue to be shaped by obsolete theories of what is productive and unproductive.

The reality is that a significant portion of spending by government and households is, in fact, productive, and that increasing the resources available for government and for households could improve the economy’s performance in the future.

The analysis here has significant implications for taxation, benefit programs, and the structure of the financial system. As shown by the research of Thomas Piketty (2014, 2020) and his associates, the U.S. and other developed market societies have seen dramatic increases in income and wealth inequality. Many of these increases are the direct results of public policy changes that were designed to incentivize private sector investment such as weakening unions and cutting taxes on businesses and high-income households. Such policies were wrong headed and should be reversed.

Reforms to the tax system that provided more resources for government to spend on infrastructure, education and job training, childcare, research and development, affordable housing, and income maintenance would be economically productive. Some of these revenues could come from clawing back some of the vast wealth accumulated by the extremely rich. However, the U.S. also needs to adopt a broad-based consumption tax along the lines of the value added taxes that have been adopted in most European countries (Lindert, 2004).

With this additional revenue, the U.S. would be able to expand various benefit programs that help families cope with the financial and time costs of childrearing and the maintenance of income in the face of disruptions such as disability, unemployment, and the departure of a parent. Evidence from Scandinavia suggests that such programs can be effective in reducing class-based inequalities in educational outcomes and result in higher levels of adult literacy.

Finally, the current financial system continues to be heavily oriented towards the funding of big business investment even though the corporate economy is able to fund new investment out of retained earnings. The consequence is that there has not been sufficient funding at low interest rates for such vital activities as affordable housing, clean energy and energy conservation, infrastructure projects, investments by nonprofits and small businesses, including innovative startup firms (Block, 2019).

The way to deal with these needs is to expand dramatically the universe of nonprofit financial entities of varying sizes (Block & Hockett, 2019). Some steps in this direction have already been taken with the 2022 Inflation Reduction Act that significantly expanded public sector lending programs in support of combating climate change. However, far more extensive steps are necessary to create greater alignment between available low-interest financing and the productive investments that the economy needs.

All of these reforms will be fiercely resisted by entrenched business interests and their political allies. They will invoke the usual arguments that such changes would be wasteful and economically inefficient. What this article has sought to show is that such arguments rest on outdated ideas about what expenditures should properly be counted as investment. When investment is measured within a theoretically coherent framework, it becomes apparent that developed market societies can afford a reform agenda that promotes equality and full inclusion of groups that have been marginalized or impoverished.

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