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CAPITAL, HOUSING AND INEQUALITY IN THE 21ST CENTURY.

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1. Shifting Fortunes, Changing Housing Policies.

Thomas Piketty's *Capital in the Twenty-First Century* (CTFC) (Piketty, 2014) has highlighted rising wealth inequalities in advanced economies. It has caught the attention of the press and public, permeated policy debates and stimulated a flow of academic writing on the political economy of capital accumulation and inequality. The merits and limits of CTFC have been dissected (Kunkel, 2014), critiqued (Bonnet et.al. 2014: Mankiw, 2015), and defended (Piketty, 2015a, 2015b). Major papers on the costs of inequalities and measures to combat them have also been developed (Stiglitz et.al. 2015; Atkinson, 2014).

Piketty's work has a direct relevance for housing researchers. Wealth and income inequalities shape many of the spatial segregations and segmented socio-economic structures apparent within housing systems (van Ham et al, 2012)). The evidence presented in CTFC gives even greater significance to housing outcomes as they appear to be a major reinforcer of wealth and income inequalities in some advanced economies. Remarkably, given that significant role and the emerging conclusions from research on housing wealth (Searle and Koppe, 2014; Ronald and Forrest, 2014), there has been relatively little discussion of Piketty's work in published housing research.

Housing policymakers show little sign of engaging with the insights of CTFC, not least the implication that core housing policies may be reinforcing rather than reducing inequalities within and between generations. Although there is recognition of the economic role of the housing sector in impacting employment and influencing cyclical instabilities, it is rarely recognised in debates about economic growth (Maclennan et.al. 2015). More widely, there is contraction and fragmentation in housing policies in many advanced economies.

In contrast, this paper starts with the perspective that, first, a wider understanding of the macro outcomes of housing systems is required to make sense of how global capitalism has developed since the 1980's and, second, that housing policy commitments across many OECD countries are now lagging behind housing needs and demands arising from associated processes of economic expansion, urbanisation and increased inequalities. Piketty's findings imply that rethinking both

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the role of housing systems and the efficacy of housing policies are central to shaping more effective forms of capitalism.
This paper aims to frame some of the key, possible connections between housing outcomes and Piketty's findings. The next section (2) of the paper considers the ways in which inequality and growth aspects of housing outcomes have become side-lined in contemporary policymaking. Section (3) then sets out the key features and achievements of Piketty's work. It is a far from complete review and it is intended as a prompt to a wider debate within housing research. Major empirical and theoretical debates about CTFC are then discussed (section 4) and more explicit attention to the housing sector then introduced (section 5). A brief conclusion is then presented (section 6).

2. Placing Housing in Piketty's Story.

The empirical stories in CTFC indicate persistent high historical levels of wealth inequality that began to fall after the early decades of the twentieth century with that reduction prevailing through Piketty's 'short twentieth century' until the1980's when a still continuing period of rising wealth inequalities commenced. Although there are now encouraging convergences in incomes **across** countries (Sachs, 2008), income and wealth inequalities **within** nations are now rising and in some of the OECD economies, such as the US, inequalities are rising back to the peak levels of the later Belle Epoque.

These broad phases of changing inequalities are correlated with the broad sweep of housing policies over the same period. That association might simply reflect policies reacting to growth and inequalities, but it might also arise because housing outcomes, and policies, also shape economic growth and urbanisation patterns. Housing systems and policies may be key mechanisms in shaping the inequalities Piketty observed and it is worthwhile noting these broad policy phases[3].

To the End of the Belle Epoque: active housing policies emerged in Europe in the later decades of the nineteenth century (in what Piketty refers to as the Belle Époque) amidst growing urbanisation, industrialisation and historically high inequalities (Hall, 1998). These inequalities pricked the consciences of paternalistic capitalists (Krugman, 2014; Glennerster et.al, 2004). Income inequality was seen to result in 'cruel habitations' for the poor (Gauldie, 1974) that blighted their prospects for wellbeing and progress. Private poverty was also quickly transformed into public squalor, and more affluent households faced the adverse health and other externalities that emanated from poor neighbourhoods. These 'neighbourhood' spillovers drove cities to initiate housing policies and also came to be seen as reinforcing inequalities arising from housing outcomes (Maclennan, 2013)

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[3] Housing researchers will be familiar with these broad patterns and indeed aware of the differences and nuances for particular countries. Beyond the realm of housing studies these broad patterns are not always understood but a knowledge of them is important in understanding how economies have developed over time.

After the Great War to the 1980's: after 1919, better housing for poorer households became a priority for governments. That interest was reinforced after 1945. For half a century at least, the provision of adequate and affordable homes for low income households became a core goal of governments of varied political complexions and a major element in public capital expenditure programmes. In welfare, corporatist and market societies alike, there was long, strong recognition of the importance of housing issues. Housing policies to address the wellbeing of the least advantaged mattered for much of Piketty's 'Short Twentieth Century'. In Western Europe and the Anglos Saxon countries, from the 1950's to the 1980's, proportions of national income committed to housing policies, and programmes of public capital expenditure and infrastructure investment, were often triple those prevailing by the 1990's. Through this short 'twentieth century Piketty observes falling inequalities (the Kuznets convergence).

Post Reagan-Thatcher era: a variety of labels have been applied to predominant paradigms in policymaking after the start of the 1980's, that have included not just neoliberalism but modified Keynesianism (see Widmaier, 2016) and we do not dispute different labels and cases here. Over that period, both at national scales and in international bodies such as OECD and the IMF, a market/contestability housing policy paradigm has prevailed. Since the 1980's a 'modern' suite of housing policies has emerged including; replacing dwelling subsidies with income-related assistance, shifting public housing to non-profit ownership, moving towards market rents, promoting home-ownership, deregulating mortgage markets and preferring tax expenditure supports to transparent subsidies. Arguably, albeit with greatly reduced resource levels, that policy approach still dominates in national and provincial/state thinking for housing policies across the OECD.

Alongside labour market changes that have favoured higher income households, there have been significant changes in patterns of economic growth and housing. The sharp de-industrialisation of OECD cities from the 1970's to the 1990's (with growing concentrations of disadvantage) has been largely replaced by pro-urban economic growth seeking agglomeration and density (Glaeser, 2010). Metropolitan growth issues have supplanted city decline concerns by the start of this millennium. Metropolitan growth has generated tax revenues captured largely by non-local (national or state/provincial) governments as a result of rising vertical fiscal imbalances (OECD, 2014). Non-local governments have tended to reduce budget supports for local housing and infrastructure systems. With metropolitan housing demands and needs running ahead of inelastic supplies, the post 1970's period has been one of sustained increases in real house prices (Priemus and Maclennan, 2011). Monetary policy orthodoxy in central banks has chosen to ignore these issues until recent years.

The interaction of these growth and housing price effects have been demonstrably important in many OECD cities for at least the last two decades, and they have shaped both the wealth patterns Piketty observes and the problems of delivering 'affordable housing'. They may now be attenuating the productivity growth of 'knowledge agglomerations' (Maclennan et al 2015). Failure to understand housing systems and to implement policies to address them is arguably exacerbating income and wealth inequalities, reducing productivity growth and replacing

entrepreneurial returns with a growing reliance on growing property rentier incomes. In turn, understanding these housing market outcomes, it is argued below, is key to understanding the patterns Piketty observes.

Housing Policies after the Austerity; these processes and problems do not seem to fade away. Future economic growth is likely to be within existing metropolitan areas. Growth will still confront relatively inelastic housing supply systems. The 'modern' housing policy response to these market pressures has often been, weak, and in some instances perverse. But to date there are relatively few signs of resurgence in rethinking and resourcing housing policies at national levels. The now old 'modern' synthesis of housing policies does not seem to meet the challenges of new times. How can housing researchers begin to fashion new understandings that will shift housing policies?

Housing researchers generally work with intellectual frameworks that recognise the interdependence of growth and income distribution as well as housing roles within these processes. But are these perspectives widespread? Do they penetrate the core debates in social and economic disciplines and policy-making? Are active housing policies, recently fattened-up to deliver stimulus post 2008, now blighted not just by prevailing fiscal austerities but are, in a more fundamental secular sense, withering away because the benefits of effective and the costs of dysfunctional system are simply not recognised in policymaking? Housing policies are often dismissed by finance and treasury ministries because they are argued in distributional terms and are seen simply as fiscal displacement and redistribution rather than contributing to growth and productivity. Piketty's framework, it is argued below, provides new ways to connect housing market outcomes to growth and to consider how housing policies might be changed to both reduce inequality and raise growth and productivity. That process is likely to be helped by different perspectives emerging within economics research.

3. The Broad Approaches: Changing Political Economy and Piketty

Changing Perspectives within Economics; Piketty in Context.

Economics has, for almost half a century, paid little attention to income and wealth distribution.[4] Paul Krugman (2014) notes that '*Some economists (not to mention politicians) tried to shout down any mention of inequality at all'* and he quotes Robert Lucas the most influential

[4] Political economy is not the sole intellectual preserve of the economics discipline and other disciplines ranging from political science and sociology through economic history to a broad spectrum of views within human geography have maintained interest within these issues. It is however important that the diversity of, shifting, views within economics becomes re-attached to political economy.

macroeconomist of his generation, as noting, in 2004, that *"Of the tendencies that are harmful to sound economics, the most seductive, and in my opinion the most poisonous, is to focus on questions of distribution*". Economics education until the 1970's required an understanding of welfare economics (Nath,1971; Dobb, 1965; Little, 1949) that explored 'value judgments' embedded within 'technical' economic models. For instance, Samuelson's (1948) analysis of Pareto optimal outcomes highlighted that their desirability was contingent on the appropriateness of the prior income distributions that drove 'free' market choices. Lucas's remark is an acute example of how economics had come to focus upon modelling, indeed reifying, theoretical market processes. Neoclassical economists often simply accepted the embedded value judgments rather than reflecting on distributional outcomes and whether they matched widely acceptable value judgments' about preferred social outcomes and choices.

Recently several major economists have broken ranks with the mainstream and have built upon the longstanding conceptual and empirical foundations of scholars such as Sen (2010) and Atkinson (2012). They have established renewed interest in the patterns and costs of inequality, especially within poorer and emerging economies. Stiglitz (2006; 2012) and Sachs (2008) have prised the top from a Pandora's box of distributional issues. Piketty has now shattered that lid. His sustained empirical work (Piketty, 2011: Piketty and Saez,2013: Piketty and Zucman, 2014: Piketty, 2015c) on changing patterns of wealth, now supplemented by the development of a theoretical framework in CTFC (Piketty,2014), sets a new context for addressing distribution and growth.

Capital in the 21st Century: Key Aspects

CTFC is a volume rooted in, but not restricted to, applied economics. It utilises microeconomic principles and linkages that range from the individual to the macro economy and that work at the interface between issues of growth and the distribution of income and wealth. Whilst thoroughly modern in its economic techniques, and Piketty spares readers more detailed mathematical theories of growth and distribution (published elsewhere, see Piketty 2015b and 2015c), the work draws on three earlier traditions in economics that contrast with current approaches. The focus on property of all kinds, including land and housing, links back to classical economists and differs from the modern capital-labour emphasis. The use of 'stylised facts' underlying the specification of high level growth concepts reflects the 1950's growth modelling of Myrdal (1956) and Kaldor (1966). And above all Piketty restores the perspective of political economy to centre stage of debate within economics.

Following Piketty's introduction, the next three sections of CTFC are essentially a melding of empirical and analytical approaches. These are, in turn: theoretically informed reflections of the interrelations, for any particular economy, between income distributions and the economic growth rate; the more historical, empirically oriented approach is evident in 'The Dynamics of the Capital/Income Ratio' which, for a number of countries, tracks changing patterns of inequality through centuries; 'The Structure of Inequality' then provides strong empirical

evidence about now strengthening inequalities in the advanced economies. The final substantive section, 'Regulating Capital in the 21st Century', is where the political economy perspective prevails and Piketty outlines policies to address growing wealth inequalities and their adverse consequences for modern democracies.

What makes CTFC central to contemporary debate is its explicit political economy perspective, the focus, on wealth and income distributions, and the long insightful gaze over rigorously researched historical time series of change. These main contributions of Piketty are reviewed in section 4 and critiqued in section 5.

2. Piketty in Perspective.

1) Restoring Political Economy

In assessing Piketty's political economy Kunkel (2014) argues that *'The story of modern economic thought can be told as the shift from political economy to the discipline now simply called economics'*. Kunkel, echoing the earlier observations of Eichner (1983), labels modern economics as a quasi- scientific approach that *'lent itself to constructing mathematical alibis for capitalism, whose real behaviour it studiously ignored.'* He further observes that the *'the notion of economic life as a matter of individuals harmonising their preferences, as opposed to classes wrestling for control of shop-floor and government, has filtered into common sense'*. These observations contain two critiques, one about the technical approach of the discipline and the other about its embedded, hidden moral values.

Mainstream, neoclassical economics approach to growth and distribution issues starts from a presumption of well-informed individuals in competitive markets that are in, or moving towards, a dynamic equilibrium. Kunkel, in positioning Piketty, is relentless in his critique, and continues *'In general, economists favour mathematical modelling of axiomatised exchange relations over economic and other kinds of history; concentrate on individuals rather than classes or groups as economic agents; emphasise the preferences freely expressed in transactions rather than restrictive social circumstances; and describe self-sustaining equilibria of supply and demand when capitalist economies are striking for their growth and instability.'*

Less reductionist versions of the model can cast useful light on aspects of market processes. But it cannot be denied that such models take the existing distribution of income as appropriate, that individuals are the best judges of their own welfare and that human emotions, love or jealousy for instance, that lie outside such frameworks are unimportant.

Piketty's strong commitment to a political economy approach, that pays explicit attention to distributional issues, is apparent in the introduction to CTFC and his work over the last decade (Piketty, 1997; Piketty, 2015). Piketty provides a useful summary of different perspectives, including Marxian and neoclassical views, on income distributions. He dismisses the appropriateness of both and, whilst seeking to retain the quantitative rigour of current economics he rejects neoclassical marginal productivity notions of the determination of returns to factors of

production and stresses how norms and power may shape rewards. In doing so, in marrying empirical work and recast conceptual models, he creates a new space for debate within economics on the political economy of inequality.

2) Piketty's Theories and Models

In neoclassical economics there is an intimate connection between distribution and growth. The reductionist theoretical framework allows both precise mathematical solutions and an equilibrating system. Within the model competitive markets set prices (rewards) for labour and capital. With given market demands and the existing state of technology, the supply of different factors of production shapes rewards and rates of factor usage. The production function, which sets out the technical relationships between factor inputs and overall output levels is crucial. A critical parameter is the elasticity of substitution for a given factor (say labour). As labour becomes more available and its price falls, producers will use less (substitute away from) capital and towards more labour. If inputs increase in equal proportions a critical issue is whether output increases faster (increasing), slower (decreasing) or at the same rate (constant) as output. Returns to scale and the elasticity of substitution are key parameters in the production function. Growth models assess how changes in factor supplies impact growth patterns.

In theory, the production function is an expression of the technical possibilities of the economy and it is a physical relationship; physical measures of output are related to numbers of people and machines. In reality, however, there are problems in aggregating the diverse capital stock deployed in an economy; it is impossible to add up different kinds of machines into a single figure. Similar problems apply in measuring diverse human capital stocks. The need to 'add up' leads to the redefinition of the production function relationships in terms of the values of capital stock, rather than physical machinery, other inputs and outputs.

Capital or Wealth?

In understanding CTFC it is crucial to recognise that 'capital' for mainstream economists is not 'all property' but the capital stock used in production estimated from market values. Let us call this production capital. Piketty uses a concept of capital, property, that is wider than production capital and defines capital as "*the total market value of everything owned by the residents and government of a given country at a given point in time, provided that it can be traded on some market.*" (Piketty 2014, p. 48). This definition includes 'production' capital but also land, housing, antiques, art or anything capable of yielding investment returns. In Piketty's work 'wealth', 'property' and 'capital' are the same. In conventional economic estimates of capital, with the focus on capital structures and assets that contribute to output (production capital), the value or volume of the capital stock used in the economy is estimated by applying depreciation rates to past investments in productive assets. This exercise does not make allowances for changing asset prices (other than through the effects of depreciation).

Weil (2015) stresses this is the appropriate way to measure capital in production and, in commenting critically on Piketty, uses a housing example to illustrate the difference between capital and wealth. He argues, *'Consider the example of imposition of rent control, which is one of the policies that Piketty discusses in the context of reduced capital valuations in the middle of the twentieth century. Mandating a below-market rent lowers the value of the stream of rental payments that a landlord can expect, and thus lowers the market valuation of a piece of rental property. But while rent control destroys market wealth, it doesn't destroy capital'*. Weil concludes that Piketty's focus is not on the implications of capital accumulation for aggregate output, as discussed above, but rather on the social and political implications of wealth accumulation and wealth inequality.

Weil's observation on rent control effects may be correct in the short run, though less valid for the longer term. However, it can be argued that Piketty's emphasis on wealth will lead to more informed understanding of real market macroeconomic change than 'correct' neoclassical production function definitions. Wealth, whether based on saving, investment in productive capacity or speculation in other assets, is a measure of a household's command over resources, not simply ownership of the production base. Taking housing as an example, it is clear that the instability, reward, savings and investment effects of changes in housing wealth will have impacts on the growth path of an economy and they cannot simply be separated out as 'distributional issues'. If households invest their savings in driving up the price of existing bricks and mortar rather than investing in human capital or forming new firms, then long term growth and productivity are likely to be lower.

Piketty, by focussing on wealth including housing and land, takes us to the heart of the issue of the roles of rentier returns and investment in land, property and housing, and key features of these assets, in contemporary economies. Arguably the modern neoclassical synthesis does not.

The Model

Piketty's 'macro-conceptual' model links changes in the concentration of wealth to economic growth. The model is more in the spirit of classical economists, including Marx, than contemporary multi-equation econometric models. It is a framework for broad thought experiments. Within CTFC there is not a detailed modelling of how income and wealth is redistributed into the hands of particular groups. In other papers Piketty outlines much more technical, theoretical arguments (2015b, c).

Piketty develops his model to frame his major empirical findings, see section (5), and explain why inequalities, counter to the Kuznets (1953) conventional wisdom, appear to widen over time in modern economies. The core of his model is that, first, an unequal distribution of wealth is reinforced by high rates of saving from wealth based returns rather than labour income. And, second, that a high elasticity of substitution between capital and labour allows capital, or property, to grow without inducing a fall in the rate of return to property that would attenuate the

growth in the share of capital/property based income (and this proposition runs counter to the equilibrating tendencies of neoclassical models). It is much easier to imagine, with capital defined as 'wealth', such outcomes occurring in fast growth urban housing markets with supply inelasticity raising housing wealth, than in the context of a productive enterprise characterised by a conventional production function.

There are three key components in Piketty's model; an identity, a theoretical proposition and a conditional empirical observation.

The identity is, $a=rB$ (1),

where a is the share of capital income received in total income, r is the rate of return received on capital (patrimony) and B is the wealth (or capital) to income ratio. This relationship holds true by definition.

The theoretical relationship is, $B= S/g$, or that $S =gB$. (2),

where S is the savings rate from national output or income and g is the growth rate of the economy.

It is important to note that not all wealth gains have to be saved. They may be consumed and tax policies may also drive a wedge between gross potential savings and the surpluses that enter the savings, and wealth, stocks of individuals. That is S, and B are influenced by the behaviours of individuals and governments. Cowell et al (2013) explored the different relationships between income and wealth inequalities within single nations (for instance Sweden has relatively low income inequality and high wealth inequality). They noted that the transformation of returns, from labour or capital, into current savings and stocks of wealth can be shaped by variations in the national propensity to save, systematic differences in asset classes preferred, cross country differences in inheritance behaviours, the propensity for individuals to pay taxes to pay for old age provision as opposed to accumulating assets for retirement and the life cycle structure of the population. There is much to be done, as outlined in Mankiw's (2015) critique of the Piketty model (see below) to explore beneath the surface of Piketty's 'big ideas' and much scope for policies, including housing policy, to modify the relationships between r and g.

This last observation is important because, Piketty's empirical generalisation is that he expects the patterns of the last 30 years to continue into the 21st century. In particular, he predicts that r will be greater than g, perhaps by a larger amount than at present. Piketty (2014, p. 571) boldly calls this fact "the central contradiction of capitalism" as he argues that 'if $r > g$, the wealth of the capitalist class will grow faster than the incomes of workers, leading to an "endless inegalitarian spiral" (p. 572). This means that returns to the owners of capital, r, will be growing faster than overall income per capita (meaning that investment incomes are rising faster than wages) and, in consequence, that wealth inequalities will rise. Increasing inequality occurs because the ownership of faster growing patrimony based returns is concentrated relative to

incomes in general. By implication, unless S is attenuated by other factors such as growing taxation or conspicuous consumption, the wealth to income ratio will increase. A further implication is that inheritance rather than returns from one's own economic activities begin to dominate the actual distribution of wealth. As Krugman (2014) notes *'when the rate of return on capital greatly exceeds the rate of economic growth, "the past tends to devour the future": society inexorably tends toward dominance by inherited wealth.'*

It follows from the above that if returns to land or housing constitute a growing share of total income (that is the share of housing in B rises) and B is also rising, then wealth inequalities will increasingly reflect patterns of home and land ownership and prices. Piketty argues, on his evidence base, that most commonly r exceeds g, and economies will tend to rising inequality unless governments seek to change that outcome. We return to these issues in the discussion of housing assets in section 6 below.

Criticisms of the Theory and Model.

Criticisms of Piketty's models have been concerned mainly with the definition of capital, the identification of r, the omission of labour market income and demographic effects. Much of this critique is directed at challenging the likelihood that r will exceed g into the longer term. Mankiw (2015) and Auerbach et al (2015) add to Weil's (2015) critique of Piketty's all-embracing notion of capital. Arguably, as explained above, Piketty's formulation is more appropriate for examining inequality where the existence of property and housing have 'rentier' effects. Auerbach et al also note, correctly, that r will reflect risks, and will be higher in periods, such as wars and depressions and that r should be risk adjusted. They also argue that the relevant concept of r for additions to wealth is the after tax rate of return. Taking these considerations into account for the USA they conclude *'the apocalyptic $r > g$ "exploding wealth inequality" scenario does not look especially likely.'*

Some critics have highlighted the de-emphasis of labour market incomes in Piketty's analysis. Goodhardt (2015) has claimed that the reported patterns of r are consistent with the predictions of neoclassical growth models and reflect long-term demographic effects on labour markets. Moreover, future population ageing will see wage based wealth rise (and K/Y fall) as workers become relatively scarce. This will attenuate rising r in relation to g. Yet Goodhardt's conclusions seem to be unaware of how such dynamics have already played out to the disadvantage of younger workers in housing and labour markets (Mackie et al 2015; Ronald and Forrest, 2014).

Krugman (2014) has argued that the wealth and incomes of the top 1pc of earners in the USA are partly explained by the approaches of corporate boards to senior executives' pay. Auerbach et al (2015) reinforce the point and they argue that Piketty's own evidence for the US, also reported in Furman (2014), actually suggests that the recent growth in before-tax income inequality is largely attributable to the growing inequality in wage and salary income. We note that this is not the case for all countries for which Piketty presents.

Weil (2015) offers a wider critique of Piketty's exclusion of human capital. He argues that *'Because human capital has increased so much over the period Piketty studies, inclusion of this form of wealth would undo his conclusion that the wealth/income ratio had been roughly constant.'* He notes that the inequality in the distribution of human capital is smaller than the inequality in market wealth and this pattern arises because households with limited investable funds will put them into family human capital, while wealthy households will put the bulk of their investment in non-human forms. Thus a broader measure of wealth will look less unequal than market wealth. This argument has some validity but the growing share of home-ownership from low and moderate income households into this millennium has certainly offered different asset choices that may have seen more households augment real estate capital rather than human capital (see further below).

Weil's point about the importance of measuring wealth systematically is well made. The inequalities observed will depend on what is measured. Excluding human capital is problematic. Weil makes an important point regarding the exclusion of public wealth from Piketty's measured estimates. He argues that it could be expected, even in poorer societies, that life cycle wealth several times as large as a year's income could have been accumulated but such wealth is not evident for most people in the lower half of the income distribution. Weil concludes that is has it has been displaced by public policy interventions with households having claims on future government payments, or "public transfer wealth (Lee and Mason, 2011). Such forms of public wealth may be important for poorer and older households and its inclusion *'greatly changes the picture of inequality painted by Piketty's focus on wealth in the form of market assets'.* [5]

The relevance of this point can actually be made clear by considering contexts, such as the UK, that have witnessed the diminution of public housing through its transfer to market ownership. Such transfers will usually have increased measured market wealth (but not real capital stock) and measures will not always record lost public wealth nor the effects of ending this public asset on the contingent public incomes of the poor. Within the housing sector this requires researchers not just to have regard to how housing price outcomes impact wealth but how housing policy changes impact the real incomes and broadly defined wealth of all.

Piketty's response to these criticisms has been to stress that labour market effects are crucial in shaping income distributions and that his model is limited in relation to other forms of income and commented (Piketty, 2015b) that '*I certainly do not believe that r > g is a useful tool for the discussion of rising inequality of labor income… rise in labor earnings inequality in recent decades evidently has little to do with the gap r – g*. Conversely he stresses the importance of r>g, *"in the case of unequal incomes from capital, the most important processes involve savings*

[5] None of the participants in the debate make reference to access to natural capital.

and investment behavior, laws governing gift-giving and inheritance, the operation of real estate and financial markets, and so on" (p. 243).

Mankiw, as a preface to a more systematic rejection of Piketty's position, comments '*Piketty's vision is a dystopia of continually increasing economic inequality due to the dynastic accumulation of capital, leading to a policy recommendation of a steeply progressive global tax on wealth'.* Mankiw (2015) argues that the need of individuals to build an inheritance means that $r>g$ is unlikely to lead to an "endless inegalitarian spiral". Inheritors will consume wealth (and reduce stocks to transfer onwards). He too resorts to 'stylised facts' and suggests that with known estimates of the marginal propensity to consume out of wealth, numbers of descendants and gaps between generations of 35 years that wealth per descendant is likely to grow at a rate of $r - 5$. This, in his view makes cumulative concentration unlikely and will be less likely if tax effects on family wealth are also recognised as eroding bequests. With consumption, demographic and tax influences $(r\text{-}7) > g$ becomes the parameter value that would allow cumulative wealth concentration. He suggests that such a scenario has neither been experienced nor likely in the decades ahead. He concludes *'As a result, I don't see it as likely that the future will be dominated by a few families with large quantities of dynastic wealth, passed from generation to generation, forever enjoying the life of the rentier'.*

This is an over-extreme conclusion on Piketty's work. With OECD countries reproducing at roughly replacement rates perhaps Mankiw makes too much of demographic dispersal of wealth, and conversely, makes too little of how inheritances and in-lifetime transfers of wealth, including housing wealth, from older to younger family members may have a major impact on wealth prospects and social mobility. That is, there is a real risk in some countries that with social mobility falling and wealth currently concentrated that the paths between present and future wealth distributions is sufficiently, unequally steep for different income group. Piketty's concerns should be at the forefront of policy thinking, even as a cautionary concern, rather than relegated in the 'not to worry about' box.

Piketty (2015b), in response to critics, has provided a technical elaboration on the r/g relationship and in Piketty 2015(a) he takes a less firm tone regarding $r>g$ as the central contradiction of capitalism and says *' the way in which I perceive the relationship between r > g and wealth inequality is often not well-captured in the discussion that has surrounded my book—even in discussions by research economists. I do not view r > g as the only or even the primary tool for considering changes in income and wealth in the 20th century, or for forecasting the path of income and wealth inequality in the 21st century. Institutional changes and political shocks—which can be viewed as largely endogenous to the inequality and development process itself—played a major role in the past, and will probably continue to do so in the future.'*

Piketty (2015b) stresses the importance of political and other shocks, in particular (p. 20), "*the reduction of inequality that took place in most developed countries between 1910 and 1950 was above all a consequence of war and revolution and of policies adopted to cope with these shocks. Similarly, the resurgence of inequality after 1980 is due largely to the opposite political shifts of*

the past several decades." We conclude that Piketty's central *r/g* relationship has meaning but does not operate independently of the political and policy settings within which it operates. The wealth distribution outcomes he observes may be already playing out in the 'unpredictable' electoral events in some Western economies. The importance of Piketty's theorising has been subject to criticisms and his responses have given the debate a dynamic that has some way to run. However, there is wide agreement on the richness of his empirical contributions.

3) Empirical and Historical Identification of Inequalities in Income and Wealth.

As economists moved attention away from income and wealth distributions, economic historians continued to examine how they changed over time. The Kuznets curve (Kuznets, 1978) represented the high point of such work, was based on half a century of annual observations after WW1, and demonstrated that inequalities tended to narrow within nations as incomes grew. The Kuznets curve represented conventional wisdom until Piketty and colleagues analysed different, longer databases to identify changing patterns of wealth inequality. They utilised tax records to explore income and wealth changes in more than 40 countries, some reaching back hundreds of years. They used broad definitions of income, discussed above, to include all assets on which households can receive a return (equivalent to the notion of 'patrimony') and they separately identified key sources of wealth, including housing assets and land.

Piketty eschews the use of Gini coefficients, Lorenz curves and entropy measures to summarise distributional changes and instead focusses on the concentration of wealth and income in the hands of the top 1, 10 and 20 percent of the distribution. Some commentators have argued that this form of presentation matters. When presentations report technical measures they are often not understood. With shifting median (or average) incomes, explanations focus on processes that shift the broad income distribution, for rich and poor alike, and this highlights labour markets and skills effects of technical change and broader global processes. In contrast, focus on the top of the distribution and how it is moving faster ahead redirects attention to the power and behaviour of national elites and the ways in which politics deals with inequality (see Acemoglou, 2015).

CTFC is full of useful illustrations that show inequality is now increasing within the majority of economies. They confirm that the Kuznets curve referred to a very special historical period when wars, a major depression and (welfare) state reactions to them from the 1930s through the 1960s had destroyed wealth of the richest households whilst giving new support to the poor. It no longer serves to describe current patterns of growth and inequality.

Commentators have pointed to other major patterns emerging. Paul Krugman (2014) has highlighted how Piketty's approach draws attention to the growing affluence of the very rich. The share of overall income received by the richest 1 percent of Americans since the 1980's (a fifth) now stands at levels last recorded before World War I (having fallen to a tenth in 1950). Piketty's work has also revealed the importance of housing assets in increasing inequality within countries in recent decades. His work on France, stretching over 300 years, shows that the share

of housing assets in total ‘patrimony’ has been, since the 1980’s, by far the dominant source of increasing wealth to income ratios and rising inequality. A critique of this specific finding, by Bonita et al (2014), is considered further below.

Piketty draws attention to similar patterns in other OECD countries and there is other research support for the broad directions of change he suggests. Main and Sufi (2014) note that from 2010-2013 financial assets have had more marginal impact on wealth than housing assets. Over the whole period of their analysis from 1992 to 2013, the rise in wealth inequality arising from home equity was smaller in magnitude than for financial assets but still boosted overall inequality. Housing asset changes have also been argued by to have had different recent impacts in the UK. Although the overall share of housing in wealth has risen over the last half century and is skewed towards older and higher income households there is no hard evidence of any upward trend in housing wealth held by the top 1 percent. The high, and rising, housing asset values of a wide range of owners who fell outside the top 1 percent meant that wealth was de-concentrated over quite a large range of wealthier groups (ONS, 2015). However, the wealth position of the two thirds who are owners and the third who are renters has diverged considerably over time. The ONS note that the Lorenz curve for UK property wealth is flatter than for financial wealth. Cowell et.al. (2013), using different data and approaches for four European countries and the USA, concluded that housing has a significant role in shaping household net wealth. Around the start of the millennium housing assets comprised more than four-fifths of household net wealth total in Italy, Finland and the UK and three fifths in the USA.

The specific effects of housing assets on wealth inequalities differ from country to country and period to period. Housing outcomes usually play important roles in shaping inequalities and the major policy concern may not be the housing assets held by the top 1pc but the overall wealth differences between those who have housing assets and those who have none. One could argue for many countries that what Piketty observed was the return of ‘land and property’, and a growing class of rentier housing owners, rather than capital in the conventional neoclassical sense. Piketty’s work makes a prima facie case that housing and land market outcomes have become not minor but major drivers of increasing inequalities within nations. The case for more effective understandings of the role of housing within modern economies is all too clear.

4) Policy Changes

Piketty’s third major contribution raise policy implications for the future that arise from his expectation that ‘r’ will again exceed ‘g’. A new era of enhanced inequalities and wealth positions driven by inheritance rather than effort is the likely prospect if policies continue as at present. And, from the housing perspective, much of that return may be driven by rentier actions

rather than entrepreneurial behaviours (an issue that Piketty does not pursue in detail). This has major implications for the rate of productivity growth, g, and the returns to effort, merit and innovation. To paraphrase John Stuart Mill, many people may simply progress by lying in their beds (or, perhaps, their parents' beds) sleeping as property values increase.

Piketty's policy presentations are somewhat confusing. In CTFC he emphasises the appropriateness of universal, or global, wealth taxes as the key policy instrument. Yet, as noted above, throughout CTFC, and in follow up work, Piketty himself draws attention to policy influences that impact 'r' and 'g' and the gap between them. In many respects whilst Piketty offers a key framework of high-level conceptual and big-picture empirical patterns real political economy, including housing policy, discussions have to be more detailed and nuanced. This is clear in the major policy frameworks advocated by Stiglitz (2015) and Atkinson (2014), and both approved of by Piketty. This is why a more detailed thinking of what Piketty implies for housing research and policy is required. Housing matters in his empirical analysis but does not feature in his policy discussion.

5. Housing and Piketty's Model

Piketty's work has important implications for how housing researchers and economists might think about major economic patterns within housing systems. His emphasis on capital as patrimony brings housing assets back into macro-thinking about distribution and, importantly, growth and productivity too. It is also important to consider is how housing policies and markets, and rising housing asset values in particular, will impact r and g.

Excluding Housing Wealth.

It is important to note that some critics have argued that Piketty is wrong to include housing wealth in capital accumulation. This is either because they focus only on 'production' capital or argue that housing wealth gains are largely illusory. Bonetti et al (2014) argue that measuring housing capital values from observed market prices is conceptually incorrect and that price changes and wealth effects should not be confused. There are essentially two economic arguments involved. The first is that house price gains by one individual mean a future loss for another (the individual who will have to pay the higher price, see Buiter, 2010). However, though this may reduce net wealth gains, this process lies at the heart of the current intergenerational redistribution in wealth in many advanced economies and that has significant effects on savings, spending, wellbeing and productivity for younger households. The second issue is the commonly confronted in tax policy discussions, that housing is both a consumption good, valued at the rents it commands, and an investment good, yielding an income corresponding to the net rent. Landlords derive money income from letting their housing capital whereas home-owners receive their income as a flow of in-kind services that have only an

implicit rent. Bonetti et al argue that returns on housing capital, included in Piketty's 'r' should be measured by the rent on housing and not traded capital values. When this measure of housing capital value is used the share of housing wealth in national income is relatively stable and the Piketty housing effect is reduced to minor, second-order roles in changing wealth patterns in France, the UK and the USA (for example).

The arguments of Bonetti et al make insufficient allowance for the speculative motives that households have in holding housing assets and for the real operational nature of housing markets. The conceptual approach of Bonetti et.al. assumes that that capital and savings markets are perfectly competitive and informed (a somewhat heroic assumption in the light of recent experience), that transaction costs are negligible, that landlords and tenants also have perfect information and foresight, and that markets are in or close to competitive equilibrium and that supply responses are relatively elastic. It also assumes that the rental values observed and used to make alternative estimates are equilibrium market rents. Clearly in many settings, especially in Europe, observed rents are influenced by policy and regulation and do not directly reflect true market values.

In short, the Bonetti et.al conception of the functioning of housing markets is not based on the evidence of housing economics (see Maclennan, 2012). There is evidence that households may hold a stock of housing assets that exceeds their consumption requirement because they have an asset demand for housing that exceeds the consumption demand. The over-consumption of housing space by the elderly can be readily cited in support of this observation. Further, there has been an extensive growth of non-professional landlordism across many of the OECD countries since the mid-1990's with landlords owning one or two properties. All the research evidence suggests that their perception of returns includes not just rental incomes but expected house price gains and that prices as much as rents shape their behaviour.

Buiter's work is always important in reminding housing experts not to claim too much for housing effects. But in this instance, that fact that 'losers' from price gains may be in the future also be negated by inheritance processes over time. For all of the assets included in patrimony, or capital, there is an element that derives from speculative returns and super-normal profits in which there are some other and future losers as well as current winners. But the fact that the gainers show up in the wealth distribution means that they have options about consumption smoothing, command over wealth and inheritance gift choices that those without housing asset choices do not have. These are not second order effects but central to understanding key processes in social mobility, ageing and investment. Indeed, in the paragraphs that follow we set out an argument, based on stylised facts drawn from housing and city research that suggests that housing markets and outcomes are embedded at the core of growth and inequality. Bonetti et al wish to exclude housing capital values from Piketty's estimates because *'The valuation of housing capital based on housing prices is actually disconnected from the inequality-generating*

process that the author (Piketty) wants to establish'. On the contrary, housing and land values, in potentially disequilibrium markets, lie at the core of current processes of capital accumulation.

Including Housing in the Conceptual Core.

It can be reasonably argued that Piketty's patrimony perspective on wealth-holding helps understand the housing sector as a critical, transformative influence on wealth patterns in modern economies. But it can also be argued that housing economics research also supports Piketty's view of the world. There are 4 key observations, or stylised facts, on the nature of housing systems that are pertinent.

First, global economic growth is likely to be positive in the decades ahead ('g' exceeds 0), that growth will underpin shifts from rural to urban living and that faster growth especially in larger settlements that enjoy the benefits of significant agglomeration economies. In these localities the demand for housing, and especially for those in the bottom half of the income distribution, is income elastic (it will grow faster than incomes) and price inelastic (as a necessity for many, demands will not fall as prices rise).

Second, supplies of labour and capital to expanding locations have become more elastic (growing labour migration and capital market deregulation) but supplies of developable land remain inelastic and housing supply elasticities are universally *low.* These inelasticities may reflect curtailed public investment in infrastructure and the interests of landowners and developers in slow rather than fast responses to rising market prices as well as planning system lags. Supply inelasticity is a fundamental rather than passing feature of housing systems and the interaction of spatially concentrated economic growth and housing supply inelasticity has a key role to play in shifting consequent wealth patterns

Third, given what is known of the stylised facts of metropolitan housing markets, likely future spatial patterns of economic growth will see the interfacing of a rising, inelastic demand for housing with sluggish housing supply responses arising from both market failures and policy limitations. This creates a classic Ricardian context where rising demands will drive the scarcity premia on factors of production in short or fixed supply. The conditions set out above determine that housing and land values will rise faster than the overall (income) growth rate. As long as land and housing are privately owned and a 'patrimony' perspective on capital is employed, then the incomes and asset values of property owners will rise ahead of the overall growth rate. As Piketty observes, Ricardo's scarcity thesis *'meant that certain prices might rise to very high levels over many decades. This could well be enough to destabilize entire societies. The price system plays a key role in coordinating the activities of millions of individuals...The problem is*

that the price system knows neither limits nor morality.' It is time to put this perception of housing markets, and house price rises, at the core of research and policy thinking.

Fourth, central governments are withdrawing from supporting housing policies and new burdens of responsibility, and indeed financial obligations, are falling upon more local orders of government. However as policy autonomies localise, local housing systems are being more exposed, simply by greater reliance on market provision and cross border deregulation of financial and capital flows, to a greater variety of shocks that originate from other regions, the nation and the global system. More localised resources will have to confront more diverse policy risks and that constitutes a significant challenge for cities. But as they face that instability they will also confront a greater potential segmentation within their local systems and there is a danger that the Piketty processes will drive wider gaps between renters and owners. There is a growing reality that poorer households struggling to attain ownership goals and climb on the asset escalator will live in increasingly remote suburban locations with quality of life negatives and with risks of local labour market shocks.

At the same time in the cities that feature in the middle and upper echelons of global production hierarchies there is a growing disconnection between high quality and high price city centre markets and the metropolitan areas and regions they are set within. Their development funding sources, their investors and their residents are often international or global in origin and, with the top of the domestic income and wealth distribution, live in neighbourhoods that become the spatial manifestation of the growing wealth and power concentrations of the elites. Global enclaves will sit within local housing systems, they will impact local change but they will be little influenced by local policy autonomies. Localism in housing policy will not deal with all the structures and inequalities that are emerging in advanced economy cities

6. Addressing the Issues, Broad Concerns and Conclusions

Taking an understanding of housing issues together with the insights of Piketty's model there is a potentially alarming prospect for housing and economic outcomes in many OECD cities. The fundamental nature of housing markets in modern economies is that they present the potential for growing concentration of wealth and for r to exceed g for long periods. A high r driven by rising house prices raises upper and middle income wealth. It will also tend to reduce the disposable incomes of poorer, younger and renting households. Intergenerational inequalities will rise and social mobility for the children of larger, rental households will fall. A further possible consequence is that the diversion of savings and investment into existing housing assets will hamper productivity and growth.

In this view of the modern housing economy, the OECD countries have come to organise their housing systems as mechanisms for encouraging rentier returns and increasing wealth and income inequalities. Housing policies, arguably, now foster wealth inequalities rather than reducing disposable income disparities. And there is little sense of how housing serves as essential economic infrastructure to facilitate productive sector growth.

Nations are not rising to these challenges. Housing policies have diminished in scale and status in much of the OECD over the last three decades, in the period when Piketty highlights the reappearance of rising wealth inequalities. It is time for nations, and international bodies too, to review and rethink policies for the housing sector in the ways that Atkinson has for the labour market. And they need to do so within a reconceptualised housing-economy relationship informed by Piketty's insights.

It was not the purpose of the paper to spell out these policy issues and priorities but to draw out the housing research and policy questions that CITC poses. Capital in the 21st Century provides new insights on changing wealth patterns and thought frameworks to examine them. It provides a strong set of foundations on which to think through housing related issues and to urgently evolve more cogent housing policy frameworks.

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