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Social reproduction, gender equality and economic growth

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This paper presents a conceptual Kaleckian macroeconomic model and principal component analysis that link structures of economic growth and development with those of social reproduction and gender inequality. Employment, output and long-run prospects for growth are driven by class dynamics as well as social reproduction, defined as the time and money it takes to produce, maintain and invest in the labour force. How social reproduction is organised—the extent to which reproduction takes place in the household, public or market sectors, and the gender distribution of the labour in each—influences current aggregate demand and long-run productivity growth. Based on this model, and using data for a panel of 156 countries between 1991 and 2015, the paper presents empirical estimates of social reproduction regime by country and region, identifying under what circumstances systems of growth on the one hand and social reproduction on the other reinforce or contradict one another.

Key words: Structuralist models, Care economy, Social reproduction, Gender inequality, Economic growth
JEL classifications: J22, O4, O11

1. Introduction

In recent years, a plethora of both mainstream and heterodox macro models have emerged that integrate the role of gender in influencing economy-wide well-being.[1] One strand focuses on the supply-side effects of gender equality in education and labour force participation, emphasising the resulting benefits for productivity and economic growth. A second approach, grounded in structuralist macro, incorporates those supply-side considerations but also addresses the role of aggregate demand and economic structure in influencing the relationship between gender relations and macro-level outcomes. Missing from much of this work is an explicit exploration of the role of care and more generally, social reproduction—fundamental to the production of human capacities but also a driver of employment and other macro-level outcomes.

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[1] For surveys of this literature, see, for example, Stotsky (2006), Seguino (2010, 2019), Nallari and Griffith (2011), Elborgh-Woytek *et al.* (2013), Kabeer and Natali (2013), Cuberes and Teignier (2014) and Onaran (2017).

Braunstein *et al.* (2011) filled that lacuna, with a structuralist macro model that incorporates the role of social reproduction as well as gender. This paper furthers that model. It uses principal component analysis (PCA) to quantify a set of regimes linking structures of economic growth and development with those of social reproduction. Social reproduction is defined in terms of the time and money it takes to produce, maintain and invest in the labour force. Our approach differs from previous supply-side models in that social reproduction takes place not only within the household but also in the public and market sectors of the economy. Regimes can be characterised by the extent to which social reproduction takes place in any of these three domains and the gender distribution of the labour in each. More broadly, the analytical emphasis is on understanding how the distributions of production and reproduction among women, men, the state and capital structure the dynamics of economic growth, and how gender inequality is both a cause and consequence of these relationships.

We begin by developing a conceptual macroeconomic model of growth and social reproduction that allows us to define a set of stylised set of regimes for how the two interrelate. We then use PCA to empirically estimate these regimes for a wide cross-section of both developing and developed countries over the period 1991–2015, though data choices are primarily geared towards capturing developing country structures. The goal is to evaluate the contradictions and complementarities embedded in systems of growth and social reproduction, as well as how these systems change over time. The resulting portrait identifies how accounting for care better specifies the economic consequences of increasing gender equality in the labour market by closing gender gaps in wages or employment participation.

2. A macroeconomic framework for social reproduction

This section develops a conceptual framework connecting economic growth with processes of social reproduction and the dynamics of gender inequality. This conceptual model reflects the formal theoretical model presented in Braunstein *et al.* (2011) and builds on the discussion in Braunstein (2014).

The macroeconomic approach is 'structuralist' in the sense that the distribution of income by class and gender plays a central role in consumption, investment and growth, and the structure of the economy is an important determinant of how these interactions play out (Taylor, 2004). A central feature of this model is that the macroeconomy is demand-constrained. This is because firms operate with excess capacity, and changes in the short-run level of output change the degree of capacity utilisation of the economy.[2] Wages, rather than being set by the marginal product of labour, as in neoclassical models, are the result of asocial bargaining process that reflects the extent of unemployment or under-employment in the economy.

Before presenting the model, we introduce how we portray the economic dimensions of care and social reproduction. We define care in both labour process and output terms. In terms of labour process, care is a work activity that involves close personal or emotional interaction with those being cared for (Folbre, 2006). In terms of output, care refers to either direct or indirect care services that are inputs into the production

[2] This demand-side approach differs from some models in which macroeconomic disequilibria (and thus unemployment, inflation, or slow growth) are assumed to be due to a deficiency of savings (Elson, 2004).

and maintenance of the labour force. Gender norms around care are also important. Women continue to spend a disproportionate amount of time on unpaid work and care relative to men due to norms and stereotypes that suggest women are more 'nurturing' or biologically better endowed to do this work (Connelly and Kongar, 2017). As a result, social norms (expectations) exist that give women greater responsibility for this work, with social penalties for failure to conform to these gender norms. Gendered norms and stereo types about care work are a key contributor to gender inequality in both the market and the home (Badgett and Folbre, 1999; Nelson and England, 2002). Nevertheless, there are differences across countries in the extent to which women disproportionately carry the burden for care work as compared to men or the state. Our model takes into consideration that public policy can influence the distribution of care work between women and men, and can also reduce the amount of necessary care work.[3]

As both an output and an input, labour has two facets—quantity (time) and quality (the productivity of that time)—though we refer to both by using the term human capacities.[4] We conceptualise capacities in the widest sense of the term and include a broad array of features that make human beings more economically effective, such as emotional maturity and self-confidence, as well as standard human capital measures, such as education and skills.

Human capacities are produced in the household sector using unpaid labour time and commodities, including public and private care services. In the short run, changes in human capacities production impact labour productivity, reflecting the extent to which one is being supported and replenished at home. In the long term, spending time or money on the production of labour, whether it results in higher fertility or improved labour productivity, is treated as investment rather than daily maintenance. Investments in human capacities raise future productive capacity (i.e. generate economic growth) in ways similar to building more factories and equipment, though investing in the future labour force is almost never treated as investment in macroeconomic models. In this way, we differ from any other macro models that fail to treat spending in support of developing the future labour force as investment. As with conventional treatments of investment, however, we model investment in human capacities as a factor that stimulates current aggregate demand while also contributing to long-term economic prospects.

At its core, then, the model is about treating labour as a produced means of production. Primarily women (but also men) carry out this reproduction process by doing both paid and unpaid work. A key goal of this paper is to differentiate between societies that care more and/or better than societies that invest less in care. Reasons some societies might invest more in care could be social norms around intergenerational obligation that induce altruistic preferences; strong social welfare sectors that create highly skilled and well-paid jobs in the care sector; or, more likely, gendered ideals that encourage women to provide high-quality care for little or no pay. These social production

[3] Public infrastructure investment, for example, in clean water, energy and sanitation can reduce women's care burden in developing countries. And policies such as paid parental leave can help to redistribute care work to men.

[4] To some extent, quantity and quality can be traded off with one another (Becker and Lewis, 1973), but declines in fertility can be so large that increased quality cannot compensate.

characteristics interact with the structure of the macroeconomy to influence outcomes. To set up this framework, we begin with the demand side of the macroeconomy.

2.1 Demand, caring spirits and growth

The demand side of the economy is driven by investment demand,[5] which, in the short run, raises demand for current output and, in the long run, raises economic growth by increasing productive capacity. In our model, investment is of two types: physical (or business) investment undertaken by firms, and human capacities investment undertaken by individuals and households. Funds for both types of investment are drawn from national income, which depends on the functional distribution of income—that is, the split between the profit and wage shares of income.

Business investment depends partly on expectations about the profitability of those investments, or, in the words of Keynes, 'animal spirits'.[6] In addition to expectations, business investment is a function of sales, which in turn depend on the level of aggregate demand. The latter is influenced by the distribution of income because workers spend a larger share of their income than capitalists. A redistribution to workers in the form of higher wages will stimulate demand and, as a result, increase this component of investment (dubbed the 'accelerator effect'). On the other hand, higher wages also lower the profit share of income, which dampens the incentive to invest (the 'profitability effect'). These effects move in opposite directions. The net impact of higher wages on business spending and thus aggregate demand depends on which of these two effects is stronger. Economies in which increases in the wage share of income stimulate output, employment and growth are described as 'wage-led'. Their converse, where increases in the wage share are associated with lower output and growth, are 'profit-led'.[7]

Turning to investment in human capacities, rather than center their decisions on expected profit rates, individuals finance investments in themselves and others based on expectations about future economic opportunities. Higher wage shares of income boost expectations about future economic returns to labour, as does more current economic activity as measured by output. The pathway from expectations about future opportunities to actual investments in human capacities is governed by what we term 'caring spirits': the tendency, whether determined by social norms, individual motivation or public preferences as reflected in the structure of the social welfare state, to provide care (or support for care) for one's self and others in ways that add to current aggregate demand and future productivity.

Although the extent of caring spirits takes place along a continuum, for simplicity we differentiate between two stylised types of caring spirit regimes: those with 'strong'

[5] For simplicity, this was developed as a closed economy model. Kaleckian open economy models demonstrate that higher wages further dampen demand (and worsen the trade balance), making wage-led growth less likely than in a closed economy (Blecker and Seguino, 2002; Blecker, 2016).

[6] The notion of 'animal spirits' reflects the psychological element in business decision-making regarding profitability, built on the widely acknowledged but poorly understood waves of market confidence and panic. For more on this point, see Braunstein *et al.* (2011).

[7] Strictly speaking, to get to this point, we need to say something about savings. On the demand side, macroeconomic equilibrium means that the investment desired by investors equals that supplied by savers (both domestic and foreign). Because investment is both the binding constraint and the mechanism for social reproduction on the demand side in our framework, we do not give further detail on savings dynamics.

caring spirits versus those with 'weak' ones. Because of these differences in preferences, economic growth or higher wage shares will have a stronger positive impact on investment in human capacities in more altruistic or strong caring spirit societies than in weak ones. The reasoning is that, all else equal, more caring societies tend to spend more of their care finances and time in ways that enhance the ability of household or community members to take advantage of future economic opportunities through, for instance, education or job training for the disabled. When wages or output decline and expected opportunities worsen, these sorts of investments decline as well, especially in more caring societies where care resources get reallocated to countering the short-term effects of economic decline and wage compression, such as attending to the emotional stress of unemployment or compensating for declines in public expenditures on healthcare and other public goods.

The stronger the caring spirits, the more likely that economic growth is wage-led. The reason is that higher wages now increase not only consumer demand, but also demand for investment in human capacities. When caring spirits are weak, higher wages add less to current investment demand and future human capacities. Investment and growth are thus more closely (and positively) associated with the share of income going to capital or profits. We therefore differentiate between the two regimes 'care-led' versus 'inequality-led' to emphasise the different results associated with changes in income distribution, care provisioning and investment demand.[8]

In addition to caring spirits, the care- versus inequality-led dichotomy also partly depends on the type and extent of globalisation, especially in a developing country context. The greater the dependency on external sources of demand, the less likely that wage increases boost aggregate demand enough to compensate for the decline in investment or exports. Further, macro-level policies that focus exclusively on price stability in the context of liberalised flows of capital and trade are more likely to contribute to inequality-led or weak caring spirit regimes (Blecker, 2016). The deflationary impact of such policy stances makes for poor employment growth and tends to depress investments in human capacities. In contrast, developmental macro policy emphasises the objectives of fostering employment creation and other measures of broadly shared well-being, in part by policies that promote structural change, as compared to a focus on price stability alone. Table 1 summarises and compares these demand-side dynamics for both care- and inequality-led economies.

2.2 Supply, gender and the distribution of social reproduction

The supply side of the model is constituted by interaction among three different spheres: the labour market, the product market and the production of human capacities in the household sector.

Labor and product markets are characterised by a division of labour between women and men. In general, we link female labour supply with the provision of direct and indirect care services in the market, but the significance of this sector as a source of employment for women and a determinant of human capacities production will

[8] This nomenclature departs from Braunstein *et al.* (2011) and Braunstein (2014), which, respectively, use altruistic/individualistic and wage-led/profit-led to characterise the demand side.

Table 1. *Demand and growth*

Care-led	Inequality-led
Explanation	
Higher wage share is expansionary: The positive impact of increased consumer demand, combined with increased investments in human capacities, outweigh the contractionary impact of the decline in the profit share.	Higher profit share is expansionary: The positive impact of increased capitalist investment demand outweighs the negative impact of lower wages on consumer demand and human capacities investment.
Factors that make each scenario more likely	
Strong caring spirits	Weak caring spirits
Domestically-oriented economy	Globally-oriented economy
Developmental macro policy	Openness-oriented macro policy

ultimately vary based on economic structure.[9] Wages are determined by labour's bargaining power, which rises along with output—as output rises, unemployment falls, giving workers more ability to bargain over wages. Women's collective bargaining power is presumably lower than men's, a point consistent with the prevalence and persistence of the gender wage gap across all sorts of economies.[10]

The wages that emerge from conditions in the labour market, combined with labour productivity as determined by the state of human capacities, specify the costs of production. Profit shares are then determined by how much price is marked up over cost, an outcome constrained by demand conditions and the firm's degree of monopoly power. We can begin to see some of the contradictory forces at work in the system: higher wages for women are desirable from the perspective of gender inequality, but they also may raise the price of care and put pressure on reproduction. At the same time, buoyant demand for paid care from either the private or public sectors is key to supporting higher wages for care workers.

Turning now to the production of human capacities in the household sector, inputs into the social reproduction are of three types: time, commodities and infrastructure.[11] In terms of time inputs, women, men, children and networks of kin or community may all be important contributors of unremunerated time into social reproduction, but women perform the bulk of unpaid household work, whether or not they also participate in paid work (Charmes, 2006; Folbre, 2006; Budlender, 2008). If women (or men) spend less time at home, human capacities production may suffer. Just how much depends on the structure and productivity of that unpaid labour time, involving factors

[9] We know of nothing that makes women intrinsically more suited for such work. Rather, gender norms and stereotypes shape the gender division of labour, and macro-level policies can assist in this process, as for example, policies in Nordic countries on sharing parental leave.

[10] Women's relatively weaker bargaining power is a function of how they are inserted into the paid economy as workers, and is therefore of course endogenous, though we do not take up this question in this paper. Insofar as women tend to be more likely to be employed in part-time work, the informal sector and in mobile labour-intensive manufacturing firms, they are in a weaker bargaining position *vis-à-vis* employers than men on average. Thus, the gender wage gap is at least partly related to economic structure as well as a country's labour market policies.

[11] Note that the household sector is not the sole physical location where social reproduction takes place, but rather it is a metaphor that designates inputs coming together in the production of human capacities.

like skill, motivation, the availability of care-related commodities and, of course, the state of one's own human capacities (tired caregivers are usually less effective ones).

The second set of inputs, commodities, is financed by income from work or public and private transfers. They include direct and indirect care services and capital goods, such as stoves, refrigerators and washing machines. The impact of income on human capacities depends not only on how much is earned and spent, but on what is purchased, and whether these commodities provide good substitutes or complements for unpaid care time. Think of professionalised and well-paid versus informal and underpaid care sector workers, purchasing a refrigerator versus a television set, or devoting public funds to the provision of childcare services versus expanding national defense. All of these arguably contribute to social reproduction, but in varying degrees.

The last input, public infrastructure, refers to goods like roads, electricity, sanitation and water that decrease the opportunity cost of market work, mostly by lowering the time intensity of care work by women, but also by lowering the price and increasing the availability of care commodities (Agénor and Agénor, 2009). Infrastructure is an often-neglected aspect of the relationships between social reproduction, gender inequality and growth, but a key determinant and outcome of the gender system.

Taken together, the production of human capacities in the household sector, combined with the determination of wages, prices and profit shares in the labour and product markets, constitute the supply side of our conceptual model. We differentiate between two stylised supply regimes that reflect the gender distribution of social reproduction: *low road* versus *high road*. The key difference between the two is that in the low-road regime, higher female labour force participation is associated with a decline in human capacities production, while in the high-road regime, increased female labour force participation also increases human capacities production.

In the low-road regime, the negative association between human capacities production and female labour force participation is driven by low wages and poor working conditions for women in general and care sector workers in particular, set against a backdrop of little public support for social reproduction.[12] Low wages for women mean, on the one hand, that they can ill afford to purchase care commodities to compensate for the decline in the nonmarket work time that market participation induces (we will discuss male contributions in a moment). It also suggests that the care commodities they do purchase are likely to be inferior substitutes for unpaid time, as the quality of these commodities reflects the poor labour market conditions in which they are produced. Weak demand for care services, both from workers who can ill afford them and as well as paltry public provision, keep their prices—and the wages of these workers—low. The net result from an aggregate supply perspective is that expanding market production and increasing women's labour force participation threaten profits because the potentially higher profit share spurred by more economic activity is outweighed by the decline in human capacities production. In the short run, this decline manifests as lower labour productivity, and in the longer term, as decreased investment in human capacities. It is worth noting here that it is this element that has been strikingly absent in many gendered macro models.

[12] Indeed, low wages for care workers and weak public provision are empirically correlated with one another across a variety of countries (Budig and Misra, 2010).

Conversely, the high-road regime is characterised by the opposite: higher female labour force participation is associated with increases in human capacities production. Strong care sectors occasioned by good wages for care workers and high levels of public and private demand for care services underlie a sort of virtuous cycle. Commodities serve as effective substitutes and complements for declines in women's unpaid labour time with marketisation, perhaps also making it possible for women to reorganise their unpaid labour time in ways that actually raise its efficiency. Less time taken up by indirect care services frees up time for work and direct care, potentially increasing human capacities production and investment. Good infrastructure for reproductive work reinforces these positive relationships. While it is true that the higher wages and taxes that pay for the high road do press on the profit share, the higher prices supported by strong demand and increases in labour productivity more than compensate.

So far we have focused on female labour force participation and the fortunes of (primarily female) care sector workers. But both women and men contribute time and money to social reproduction, either directly or indirectly through taxes and charitable contributions. How they split these responsibilities is correlated with whether the high- or low-road regime prevails. The more that women and men share the time and financial costs of care, the more likely that increases in female labour force participation and market output will increase the production of human capacities by more than it will cut into profits—and therefore, the more likely the high-road case will be. This is the gender egalitarian (GE) case. This is in part because women's movement into paid labour is not so costly in terms of investments in human capacities due to men taking on some of this role. Note that gender egalitarianism is also reflected in a number of factors associated with the high road: smaller gender wage gaps (to the extent they stem from good wages for women as opposed to low wages for men), an extensive and high-quality market care sector, far-reaching public provision of care services and good reproductive infrastructure.

By contrast, in cases where men contribute very little to social reproduction in terms of either time or financing (directly or via payments to the state or other organisations), the more likely the low-road case prevails, and women's market participation will be associated with decreases in social reproduction and profit share (because pressures on care brought about by women's increasing market participation lower labour productivity and raise unit labour costs). We call this the feminisation of responsibility and obligation (FRO) case, borrowing a term developed by Sylvia Chant (2006) to replace the notion of the feminisation of poverty. Parallel to the high-road regime, the contributing factors to the low-road regime are associated with the type of gender system that leads to a FRO: low wages for women as reflected in a large gender wage gap, little support from men or the state in carrying out social reproduction and limited markets for care commodities which, when they do exist, are characterised by low pay and poor quality output. Table 2 summarises the main features of the low- and high-road supply regimes.

2.3 Combining aggregate demand and supply: growth and social reproduction

Table 3 shows how aggregate demand and supply interact in ways that draw out the causal connections among growth, gender inequality and social reproduction. The result is four stylised regimes whereby we combine each potential demand regime with each supply regime, to create a 2 × 2 matrix. The styled regimes are labelled: (i) time

Table 2. *Supply and the distribution of social reproduction*

Low road	High road
FRO	GE
Explanation	
Increasing output and female labour force participation is associated with declines in human capacities production, ultimately lowering profits.	Increasing output and female labour force participation is associated with increases in human capacities production and higher profits.
Factors that make each scenario more likely	
Low male contributions to social reproduction	Significant contributions to social reproduction by both women and men
Large gender wage gaps	Small gender wage gaps
Limited and/or low quality market care sector	Extensive and high-quality market care sector
Little public provision of care	Strong public provision of care
Poor reproductive infrastructure	Good reproductive infrastructure

Table 3. *Growth and social reproduction*

	Supply: the distribution of social reproduction	
Demand: growth	Low road	High road
	FRO	GE
Care-led	*Time squeeze* Higher wages for women are good for growth, but more market participation squeezes time and lowers human capacities production. Growth is elusive or unstable.	*Mutual* Higher wages for women are good for growth, and more market participation increases human capacities production. Growth and social reproduction reinforce one another.
Inequality-led	*Exploitation* Higher wages for women lower growth, and more market participation squeezes time and lowers human capacities production. Growth is partly based on exploiting women's labour and human resources.	*Wage squeeze* Higher wages for women lower growth, but more market participation enhances human capacities production. Growth is elusive or unstable.

squeeze, (ii) mutual, (iii) wage squeeze and (iv) exploitation. To assess the differences among them, we consider the impact of a decline in gender-based wage inequality and consequent increase in female labour force participation—together amounting to an increase in gender equality in the labour market.

Starting in the upper left-hand corner, 'time squeeze' combines care-led growth with a low-road distribution of social reproduction. In this regime, more gender equality in

the form of higher wages for women in general or higher wages for care workers in particular supports investment and growth because it raises human capacities production and domestic aggregate demand by more than it cuts into profits. However, as female labour force participation increases, the time devoted to human capacities production declines, and relationships in the wider economic system—from the structure of the paid care sector to the lack of support from men for care to the lack of reproductive infrastructure—mean that the care time decrease compromises labour productivity and human capacities production. The more extensive the FRO, the stronger these negative effects. The term 'time squeeze' emphasises the trade-offs between the marketisation of women's work and the consequent time pressures on human capacities production. If these contradictions are substantial enough, the time-squeeze effects of higher wages completely counteract their positive growth effects, leading to stagnation or growth path instabilities. Again, it is worth noting that this potential outcome is widely missing in most gendered macro models, and yet is a possible result of increased female labour force participation under certain conditions.

Moving to the upper right corner of Table 3, with a high-road distribution of social reproduction and care-led growth, the regime is labelled 'mutual' because production and reproduction reinforce one another. In this case, more gender wage equality raises growth because it raises human capacities investment and aggregate demand by more than it cuts into profits. Higher market participation among women induced by higher wages does lower the time available for human capacities production. But GE relations of reproduction, buoyed by strong public support for care and the availability of effective care commodities, not only protect against time squeeze, they actually induce an increase in the production of human capacities (quantity and/or quality) in the context of higher incomes. From a citizen–worker–carer perspective, this is the win–win scenario.

The lower right corner of Table 3, which combines inequality-led growth with a high-road distribution of social reproduction, is termed 'wage squeeze' because higher wages for women enhance human capacities production, but not by enough to outweigh the negative impact that higher wages have on profits, overall investment and growth. One can think of relatively GE relations accompanied by a structure of production that makes long-term investments in human capacities expensive or risky. The stronger the inequality-led nature of the economy—for instance, the more open to the global economy, or the more deflationary its macro policy—the more pronounced these contradictions. The result is that policies promoting gender equality may be anathema to growth, or make it unstable. Somewhat counter-intuitively, if the promotion of gender equality via higher female labour participation actually lowers women's wages because of higher labour supply, human capacities production and growth may increase because of the declining price of care.

The final regime, 'exploitation', combines the inequality-led and low-road cases. In this scenario, higher wages for women lower growth because they dampen profits and thus business investment by more than they raise human capacities investment. At the same time, the higher market participation brought about by higher wages for women actually lowers human capacities production because of the time-squeeze type effects of the low road. These effects can be so pronounced that human capacities investment plays no role in moderating inequality-led growth. Thus, the term exploitation refers to how production and growth are predicated on exploiting women's reproductive labour

and human resources in general. As the polar opposite of the mutual regime, it is the lose–lose scenario.

3. Estimating social reproduction regimes

This section begins where Braunstein *et al*. (2011) and Braunstein (2014) left off by presenting an empirical methodology and estimates for the model of social reproduction described above. It uses cross-section, time series data in a PCA for a large set of developed and developing economies, estimating values or 'scores' for both the demand and supply sides, which together characterise a country's social reproduction regime. The goal, more generally, is to characterise the comparative cross-sectional and time-path values of the social reproduction regimes.

3.1 Data

The PCA scores for demand (growth and investments in human capacities) and supply (the distribution of social reproduction) are derived from analysis of data that reflect the driving elements listed in Tables 1 and 2, respectively. The overall time period is 1991–2015, largely because of the availability of gender-disaggregated employment data. The period is subdivided into three sub-periods over which variables are averaged for the PCA analysis: 1991–2001, 2002–07 and 2008–15; these spans optimise data coverage as well as mark economic cycles. Because the primary focus is on developing countries, the data have to be meaningful from a development perspective, as well as widely available both cross-sectionally and longitudinally. Tables 4 and 5 list each element, the corresponding variable(s) used to measure it and summary statistics for each time period. Table A1 lists further details on sources.

Table 4 describes the data included in the demand score, which is positively associated with care-led growth and negatively associated with inequality-led growth. *Caring spirits* are captured by relative achievements in the non-income (education and health) and income components of the Human Development Index (HDI), with changes taken over five-year periods.[13] That is, we measure caring spirits by their impact on a country's expected years of schooling and life expectancy at birth, both of which should be positively and strongly correlated with investments in human capacities, relative to the income component of the HDI. The basic argument is that countries with strong caring spirits, where investments in well-being are a central cause and consequence of economic activities, would also be top performers in terms of positive changes in their non-income HDIs relative to changes in income. That is, the stronger the caring spirits, the higher the 'yield' in non-income HDI for a given level of economic activity. In that sense, it is important to emphasise that this methodology evaluates relative performance—there is no external absolute value for strong caring spirits against which country performance is evaluated. On average, achievements in non-income HDI have outweighed changes in the income component, but the positive gap has narrowed over time.

[13] Achievements in education are measured by mean years of schooling for adults older than 25 and expected years of schooling for children entering school; achievements in health are measured by life expectancy at birth (UNDP, 2013).

Table 4. *Summary statistics: demand*

Element	Variable	Short name	Period	Mean	Median	SD	Missing values (%)
Caring spirits	Five-year percentage point change in non-income HDI less five-year percentage point change in income index	*HDI2*	1990–2001	0.02	0.02	0.02	14.74
			2002–07	0.01	0.01	0.03	9.62
			2008–15	0.01	0.01	0.02	3.21
Global orientation	Manufacturing exports as a share of GDP (%)	*mfgX*	1990–2001	11.63	6.00	15.90	9.62
			2002–07	14.66	7.10	20.39	9.62
			2008–15	14.88	7.96	20.00	10.90
	Inward FDI as a share of gross fixed capital formation (%)	*FDI*	1990–2001	13.23	9.82	12.53	7.05
			2002–07	21.67	16.72	20.86	5.77
			2008–15	22.54	14.12	31.11	3.85
Macro policy	Public investment as a share of GDP (%)	*pub*	1990–2001	5.77	4.88	3.67	20.51
			2002–07	5.20	4.64	2.67	20.51
			2008–15	6.46	4.82	5.14	23.08
	Weighted average tariff rates applied	*TFF*	1990–2001	10.86	10.00	6.36	16.67
			2002–07	8.32	7.58	5.06	7.05
			2008–15	7.05	6.69	3.95	7.69

Table 5. *Summary statistics: supply*

Element	Variable	Short name	Period	Mean	Median	SD	Missing values (%)
Men's relative contribution to social reproduction	Ratio of female age of first marriage to male age of first marriage	*afmr*	1990–2001	0.86	0.88	0.06	8.33
			2002–07	0.87	0.88	0.06	30.77
			2008–15	0.87	0.88	0.06	21.15
Gender wage gap	Ratio of the share of wage and salaried workers in women's employment to men's employment	*fmemp*	1990–2001	0.92	1.03	0.27	30.77
			2002–07	0.93	1.03	0.26	25.00
			2008–15	0.94	1.03	0.24	21.15
Public provisioning of care	Public social protection and health expenditure as a share of GDP (%)	*sph*	1990–2001	8.67	4.37	7.71	10.90
			2002–07	9.63	6.37	7.74	10.26
			2008–15	10.77	7.37	8.39	6.41
Reproductive infrastructure	Average access to electricity, non-solid fuel, improved sanitation facilities and improved water source	*repro*	1990–2001	67.01	80.35	30.11	2.56
			2002–07	70.90	85.14	28.90	2.56
			2008–15	73.02	88.11	28.19	2.56
Extent and quality of the market care sector	Share of women's service employment to total employment, raised to the power of the inverse of the Palma ratio[a]	*mcare*	1990–2001	10.38	2.58	17.05	37.18
			2002–07	8.39	2.62	12.41	30.13
			2008–15	9.32	3.11	13.07	31.41

Note: [a]The Palma ratio is the ratio of the richest 10% of the population's share of gross national income divided by the poorest 40% share (Palma, 2014).

Global orientation is gauged by two measures, manufacturing exports as a share of GDP, and inward foreign direct investment (FDI) as a share of gross fixed capital formation. Both are intended to reflect the extent to which domestic wage growth might be constrained by global competition, particularly among developing countries. Global manufacturing export markets have become extremely competitive, partly due to sluggish aggregate demand growth in the global North, but also to the increasing number of developing countries trying to pursue an export-led growth path. Both factors are reflected in slow price growth for the sorts of manufactures that developing countries export, which also constrains wage growth in these industries (UNCTAD, 2016). In terms of FDI, the higher the share of FDI in domestic investment, the more globally mobile is overall investment, which can constrain productivity and wage growth as firms become more likely to respond to increasing wage pressures by relocating or outsourcing rather than raising productivity (Seguino, 2007). Both measures increase over the three time periods listed, which raises the probability of inequality-led growth regimes in later relative to earlier periods.

The last element on the demand side is *macro policy*. There were a number of choices for proxy variables here, and public investment and tariffs are particularly good representatives of the development-oriented activism that we wanted to emphasise.[14] Public investment as a share of GDP proxies how active governments are in building up the infrastructure necessary for growth and development. There is variation over the periods listed, with growth in the latter period reflecting both the declines in GDP associated with the Great Recession, and the variety of counter-cyclical fiscal policies applied in response (the standard deviation increased substantially as well). Weighted average tariff rates applied, which uses data on imports by product group (harmonised system codes at the two-digit level) to weight tariff rates, reflects more than the extent to which the domestic economy is shielded from import competition. It signals how active governments are in managing trade, and the extent to which they conform (either by philosophy or via trade agreement commitments) to reigning global policy sentiments around trade liberalisation. As reflected by the model, we expect both public investment and tariff rates to be positively associated with care-led growth.

Table 5 lists summary statistics for the elements and associated variables on the supply side. The greater the resulting score, the more high-road/GE is the distribution of social reproduction; the lower it is, the closer to the low-road/FRO course.

The first element, *men's relative contribution to social reproduction*, is about the gender distribution of both the time and financial costs of social reproduction, but in practical terms, the immediate aim is to capture gender differentials in unpaid care time (though the prospect of mining expenditure surveys by gender to produce an aggregate measure of gender differences in financial contributions to care is an interesting one, these are usually conducted at the household level). There is increasing availability of time use studies, but not nearly enough to populate a panel data analysis. The UN's Statistical Division (UNSD) has an excellent cross-national, with some time series, dataset on the average hours per day women and men spend on unpaid domestic work; that source, however, does not offer enough data coverage to make this data

[14] Other macro policy variables we tried introduced more noise than signal into the system, potentially because of the mix of causal factors—beyond the policy sentiments we are trying to reflect—associated with these variables (e.g. real exchange rates or inflation). In future work, we will consider including measures of financial liberalisation.

source a practical option. Given available proxies, we chose the female-to-male ratio of mean age at first marriage based on the logic that the greater the gap, the greater the gender inequality embodied in intra-household gender relations, and therefore, the more unequal the distribution of unpaid care time. The data that we do have bears out this hypothesis: taking average values over the time period (1991–2015) for both the female-to-male mean age at first marriage and the female-to-male ratio of hours spent on domestic work from UNSD, the correlation coefficient is −0.52 (with observations for 80 countries), a substantial association in the expected direction, particularly given it is an average spanning over 20 years (if we limit the sample to observations taken after 2005, the correlation increases to −0.64).

The *gender wage gap* presents similar challenges for adequate proxying. We elected to use the female-to-male ratio of the share of wage and salaried employment in total employment to capture the relative quality and productivity of employment.[15] The balance of the categories of work include self-employed, contributing family workers, and employers. For developing countries in particular, where self-employment and contributing to family work is often an indicator of residual unemployment, using relative access to wage employment was deemed a reasonable proxy for gender-based wage inequality in the labour market. And even with average values for women's versus men's access to wage employment that far exceed estimates of gender wage gaps around the world, the variable makes a significant positive contribution to the supply-side score (see discussion below).

Public provisioning for care is represented by public social protection and health expenditure as a share of GDP, which includes public benefits for unemployment, employment injury, disability, maternity and general social assistance as well as health. These shares have been increasing on average over time, with higher levels in developed than developing countries (and a period mean of 20.9 versus 5.2%, respectively). Averaging data on the percent of the population with access to electricity, non-solid fuel, improved sanitation and water sources give a proxy for *reproductive infrastructure*, a measure with more variance among developing than developed countries. Both variables are positively associated with a GE distribution of social reproduction.

The last element included in the supply-side score is the *extent and quality of the market care sector*. Because women's service sector work tends to be concentrated in the caring professions, we use women's services employment as a share of total employment (men plus women) to proxy for the extent of the market care sector. To get at the question of quality, we effectively discount this measure by the extent of income inequality in the economy (by raising it to the power of the inverse of the income inequality measure) on the argument that the more inequality, the lower the quality (and pay) of care sector work. The so-called 'Palma' ratio, which is the share of income going to the richest 10% of the population divided by the share of income going to the poorest 40% of the population, is used for income inequality (Palma, 2014).[16] The higher the value of this variable, the more GE the distribution of social reproduction.

[15] We tested additional variables, including women's education and labour force participation rates relative to men. These were not used because they did not add to the PCA, likely because they are much more highly correlated with a multitude of gender inequality dynamics than the gender wage gap, and hence did not group well with the other supply-side elements.

[16] Using the Palma ratio emphasises the importance of what is happening in the tails as opposed to characterising income distribution overall.

3.2 Methodology

The objective of this analysis is to create two country-level scores that reflect demand and supply regimes and allow for cross-country and longitudinal comparisons. PCA is particularly suitable in this regard. PCA is a statistical method that provides a condensed representation of the information brought by a large number of interdependent factors, as those that shape different social reproduction regimes. More specifically, it is a multidimensional scaling tool for a set of variables, simultaneously describing both the connections among the variables and the similarities among the observed units. The resulting principal components retain as much information as possible about the original variables, with the first principal component accounting for maximal variance, as does each succeeding principal component while being orthogonal to preceding components. In the analysis to follow, demand and supply scores are based on the first principal component estimates.

Regular PCAs become problematic when there are a large number of missing values. To address this issue, we used an iterative PCA algorithm (Josse and Husson, 2013) in order to impute missing values without overfitting the data, a problem for some variables in the analysis such as *mcare* (see Tables 4 and 5 for information on missing values).[17]

To generate the PCA scores, we divided the complete dataset into six subsets—three demand-side sets and three supply-side sets for each period of interest (1990–2001, 2002–07 and 2008–15). Then we imputed missing values following the iterative PCA algorithm, which uses the data we do have, and the statistical relationships present in that data, to estimate missing values. Using the new data series with imputed values, we then performed a standard PCA on the supply- and demand-side datasets. The resulting component estimates are a linear combination of the original variables. Note that we use only data from 2008–15 to compute the components. Final supply and demand scores for each country and time period, however, utilise these estimates as well as the underlying data for that time period. This method allows for a longitudinal comparison, taking the latter period as the reference point.

Table 6 gives some detail on the PCA results.[18] The coordinates of the first component are weights that are used to determine the contribution of the underlying variable to the final score. We can see that the signs of these weights all conform to those predicted by the conceptual model. For demand and growth, variables associated with stronger caring spirits and care-led growth (*HDI2*, *pub* and *TFF*) are positive and therefore increase the demand score, while those associated with inequality-led regimes have negative values (*mfgX* and *FDI*) and therefore decrease the demand score. Similarly, on the supply side, all of the variables are positive, and thus greater values are associated with a more GE distribution of social reproduction and increase the supply score. The percentage of the variance found accounted for by the first component, the one we use to generate the demand and supply scores, is about 40% on the demand side and 73% on the supply side. In general, the supply-side estimates appear more robust and stable across time than the demand side.[19]

[17] Overfitting occurs when the model describes random error or noise instead of the underlying relationships between variables.

[18] The three time periods are listed for comparative illustration; it is only the components in the last time period that are used for scoring in the next section.

[19] Improving our measure of caring spirits, and extending those for both macro policy and global orientation, will be priorities for the next stage of work.

Table 6. *Coordinates, contributions and inertia of the PCAs*

Demand variable	1990–2001	2002–07	2008–15	Supply variable	1990–2001	2002–07	2008–15
Coordinates of the variables on the first component of the PCA by time period							
HDI2	0.24	0.52	0.32	*afmr*	0.81	0.83	0.86
mfgX	−0.71	−0.74	−0.78	*fmemp*	0.84	0.83	0.86
FDI	−0.64	−0.58	−0.50	*sph*	0.72	0.84	0.83
pub	0.69	0.55	0.63	*repro*	0.91	0.90	0.90
TFF	0.68	0.74	0.79	*mcare*	0.80	0.77	0.83
Percentage of variance captured by the first component by time period							
	38.61	40.01	39.93		70.79	69.70	72.70

4. Results

Figures 1 and 2 illustrate the distribution of countries across the four social reproduction regimes based on their PCA scores for the period 2008–15; Table A2 lists each country individually and their respective regime as illustrated in Figures 1 and 2.

Figure 1 includes developing and transition countries, and Figure 2 developed countries only.[20] Note that the axes for the two groups differ. This is because the classification of countries across regime categories is based on the within-group average to which that country belongs—either developing and transition or developed countries. This brings out the point that there is no absolute, context-independent value to which country scores are being compared.

Starting with Figure 1, a majority of developing and transition countries are in either time or wage-squeeze quadrants (quadrants II and IV, respectively), exhibiting contradictory relations between growth dynamics, on the one hand, and high- versus low-road systems of social reproduction, on the other. On the face of it, the growth potential of more countries is limited by wage squeeze (48 countries) than time squeeze (40 countries), but this result is driven by the preponderance of transition economies that fall into the wage-squeeze category (14 countries).

Combining Figure 1 with the regional details in Table 7, most of developing Asia is classified as wage squeeze (quadrant IV), which likely reflects the contradictions of globally oriented production coupled with developmental states that provide generous public supports for care. That the results for Asia are driven by countries in East and Southeast Asia is consistent with this observation. Most countries in developing America are also in wage squeeze, a result driven primarily by countries in Central America and the Caribbean, which, like parts of East and Southeast Asia, tend to be more dependent on external sources of demand.

Adding up the developing regions detailed in Table 7, the largest group of developing countries, about 40%, is classified in the time-squeeze regime (quadrant II of Figure 1), indicating that despite care-led structures of growth, which could bode well for the growth-enhancing effects of gender equality and associated investments in human capacities, growth potential is limited by prevailing low-road structures of social reproduction. As more women enter the labour market, the consequent strain on women's time limit human capacities development and the growth of labour productivity. The

[20] The classification of countries across development groups and regions conforms to those used by the UN.

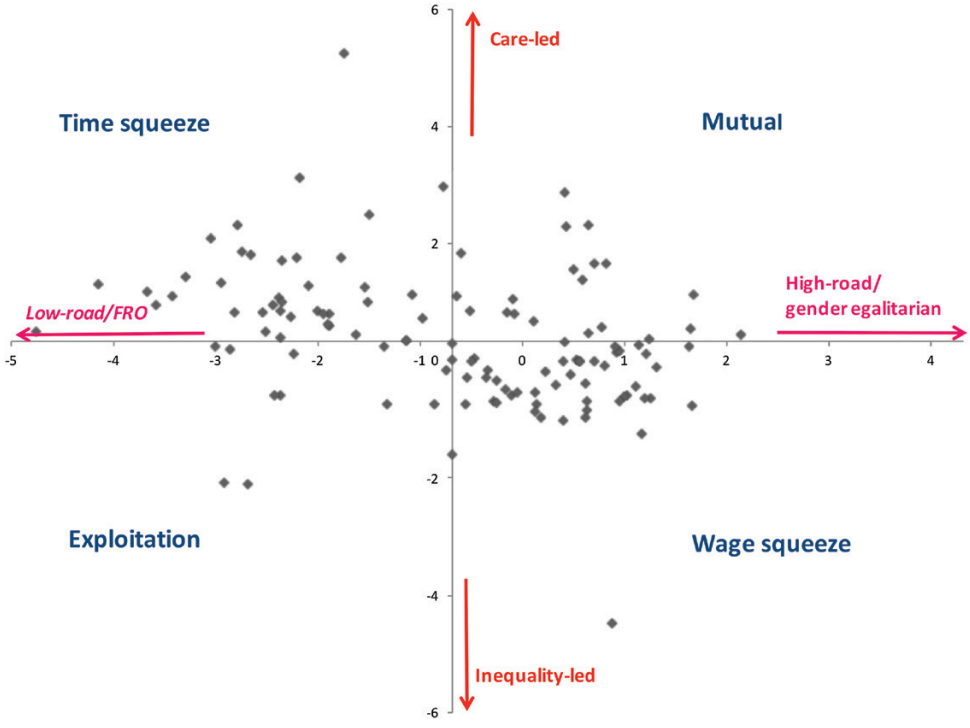

Fig. 1. *Social reproduction regimes, developing countries 2008–15.*

Fig. 2. *Social reproduction regimes, developed countries 2008–15.*

Table 7. *Distribution of social reproduction regimes by region, 2008–15*

Region	Exploitation	Mutual	Time squeeze	Wage squeeze	Number of countries
Developed economies	15%	24%	38%	24%	34
Developing Africa	15%	13%	69%	4%	48
Developing America	5%	32%	5%	59%	22
Developing Asia	15%	12%	18%	56%	34
Developing Oceania	100%	0%	0%	0%	1
Transition economies	0%	18%	0%	82%	17
World	12%	18%	34%	36%	156

Note: The classification of country groups conforms to that used by the UN.

policy implication of this combination is clear: increasing women's paid employment must be accompanied by more support for care and social reproduction to sustainably deliver growth. Elson (2017) outlines a variety of strategies for achieving this goal, identifying countries that have successfully moved in the direction of redistributing care work in ways that that promote gender equality. In some developing countries, it might be difficult to change gender norms regarding care work in the short term. That said, public infrastructure investment that reduces time spent on collecting water and fuel, for example, can substantially reduce women's time poverty to engage in paid work (Fontana and Natali, 2008). Most African countries fall into the time-squeeze category (33), as do a number of South Asian countries.

South American countries are most likely to be classified as mutual (quadrant I of Figure 1), a somewhat surprising result given the level of inequality and informality that prevails in the region. These challenges seem to have been compensated for to an important extent by recent increases in social protection spending (a hypothesis confirmed by the time paths illustrated in Figure 3). This outcome is instructive, both because it demonstrates the importance of policy, but also because it reminds us that a mutual regime does not automatically or inherently induce economic growth. Rather, it describes relationships between gender equality in the labour market and economic growth—given the constraints and supports posed by prevailing systems of care and social reproduction. In the South American case, closing the gender wage gap by raising women's wages is good for growth and social reproduction, and could induce a virtuous cycle for development.

The exploitation quadrant (lower left in Figure 1), which pairs inequality-led structures of growth with a low-road distribution of social reproduction, is populated primarily by countries in Southeast Asia and Africa (Table A2). In this scenario, although the two sides of the social reproduction regime reinforce one another, improving gender equality in the labour market may threaten growth, both on the demand and supply sides. Intervening on one side of the regime—demand or supply—will induce movement towards either time or wage squeeze, depending on the nature of the policy intervention.

Figure 2 gives the distribution of developed countries, with country labels (owing to the smaller number of data points). As one would expect, most developed countries are care-led, with their domestic economies providing significant sources of aggregate demand, and greater relative investments in human capacities given their already-high

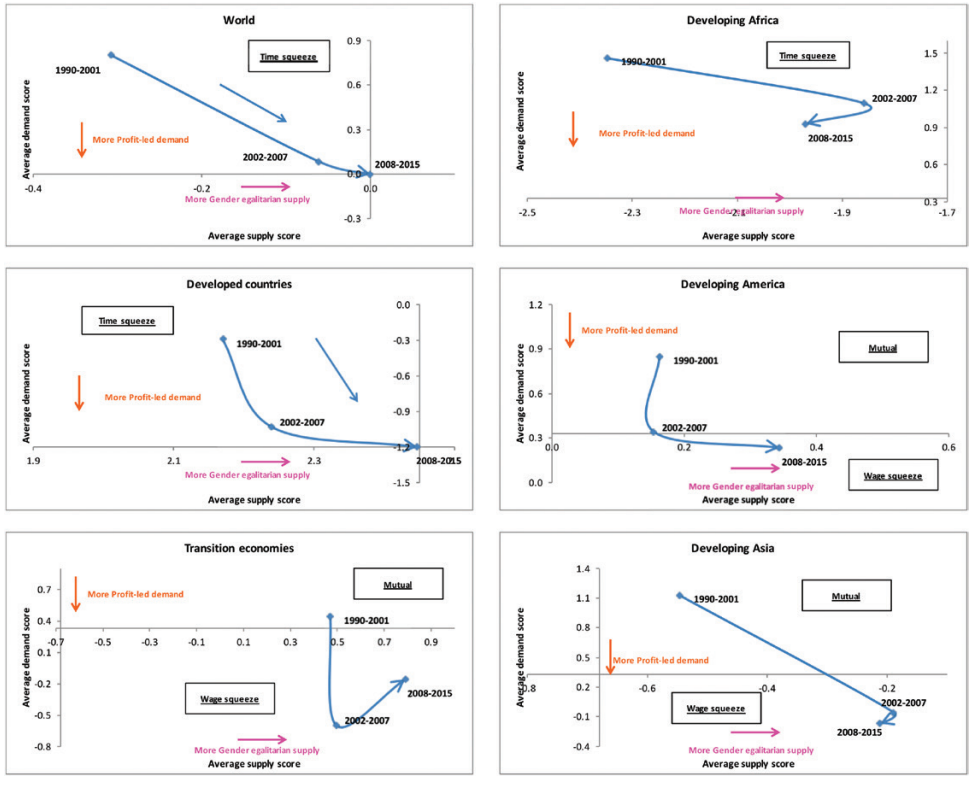

Fig. 3. *Time paths of social reproduction regimes, 1990–2015 (base period: 2008–15).*

levels of development. The Nordic countries, well known for their generous social welfare systems and commitment to gender equality, are firmly in the mutual category. Weaker commitments to a GE distribution of social reproduction put many of the more liberal economies in the time-squeeze regime, suggesting that the contributions of women's increasing participation and wages in the labour market are weighed down by insufficient supports for social reproduction. For inequality-led growth countries, most tend towards a more GE distribution of social reproduction and thus the wage-squeeze case, though when countries are very close to the origin (as in the case of Germany) or a particular axis, they are weaker manifestations of the regime.

Figure 3 illustrates the time paths of regimes for the world and broad country group, averaging PCA scores for the group in question. It is merely illustrative in the sense that what matters is the movement of individual country scores rather than the relative size of absolute values, but considering these average time paths can nonetheless give readers a sense of the longitudinal nature of the estimates.

The world as a whole is clearly progressing towards more inequality-led growth regimes, particularly between the first two periods; it is also moving towards a more GE distribution of social reproduction. Developed countries, as a group, are moving towards more inequality-led demand as well, though the pace has slowed down relative to achievements in gender egalitarianism on the supply side over the last decade or so. Transition economies shifted dramatically towards more inequality-led growth over the 1990s, in line with the nature of their economic reforms. There has been a modest

turnaround in those countries since then, which has also included more movement towards gender equality in the distribution of social reproduction, but the average is still squarely in the wage-squeeze quadrant.

On average, developing Africa has likewise become more inequality-led, and progress towards gender egalitarianism was reversed between the last two periods. However, the region as a whole is still squarely situated in the time-squeeze quadrant, indicating that more vigorous supports for social reproduction could induce the virtuous cycle of a mutual regime. Developing Asia has also gotten more GE in the distribution of social reproduction over time (despite a small shift towards less egalitarianism since the early 2000s). At the same time, it has also become much more inequality-led, leading to a shift from the mutually reinforcing regime to the contradictions of wage squeeze over the course of the 1990s, though it is still close to the axis. Developing America shifts towards more inequality-led growth over the 1990s, in line with the more neoliberal economic policies and global integration pursed by many countries in the region during that period, with a more recent shift towards more gender egalitarianism.

These dynamics indicate how various policy interventions and structural changes have coalesced to move the structures of growth and social reproduction over time, and could be used to measure the relative effectiveness of social or economic development policies. They also provide a global portrait of gendered structures of growth and care, with important implications for the relationship between gender equality in the labour market and economic growth. That the world is universally moving towards more inequality-led demand regimes is consistent with the current era of globalisation, where a form of hyper-integration has made competitive pressures particularly sharp for developing countries, while at the same time offering new opportunities for development and structural change.

The increasing gender egalitarianism in the distribution of social reproduction that has accompanied this movement alights on a troubling contradictions emergent in the global system, and indicates that interventions focusing solely on the supply-side risk being undermined by dynamics on the demand side. As women's labour force participation increases, the lower wages required to sustain growth undermine longer-term investments in human capacities. Supply-side policy interventions aimed at enhancing gender equality in the labour market, for instance efforts to raise women's education or skills, or provide better infrastructural supports for unpaid care work, can certainly improve the conditions for care and social reproduction. However, as illustrated by the time paths in Figure 3, when demand and investment are driven by more inequality-led structures and relations, such interventions move economies into the contradictions of wage squeeze (where structures of demand and growth work undermine those of the distribution of social reproduction), rather than the complementarities of the mutual regime.

5. Concluding discussion

The economy-wide costliness of gender inequality in capabilities or employment has become a stylised fact among both academic empiricists and international development institutions. And yet, those advocating for greater female education and labour force participation assume that women's care work is solely an impediment to their participation in paid labour. This ignores the labour as a resource that is produced;

care work that women disproportionately perform also has economy-wide benefits by raising human capacities and thus productivity. This point is an important one, and emphasises the economic value of care—and thus, the effects of policies that increase investments in care. By treating labour as a produced resource, our model and estimates illustrate how care and social reproduction can have positive macroeconomic consequences for a country's development and growth path independent of the effects on women's work participation.

Because women perform the bulk of care work, women's economic well-being affects the quantity and quality of care provided. Higher wages for women, for example, can promote greater investments in care with positive effects on the macroeconomy. Whether or not those higher wages are also a stimulus to demand and employment, however, depends on the structure of the economy and the extent to which labour markets are segregated by gender.

More specifically, for a majority of developing countries, we find that prospects for growth with increased gender equality in the labour market are limited by the contradictions between the positive growth effects of higher wages and/or more market participation by women on the one hand, and the pressures such increases in market work will bring to bear in the care economy on the other. For a large subset of developing countries more dependent on external sources of demand, many of them with developmental-type states that make substantial human capital investments, paths for growth with more gender equality are limited by what is essentially the loss in competitiveness that higher wages for women would bring.[21] A third, much smaller group of countries with more mutual or complementary relations between growth, social reproduction and gender equality in the labour market illustrate how having the potential to spark a virtuous cycle does not automatically produce one. While it may be disappointing to gender equality advocates that higher female wages in export industries in particular, cause a loss of competitiveness and thus dampen aggregate demand, efforts at the macro-level to promote structural change whereby higher wages stimulate demand is an option. In future work, we will explore this last point further, using the estimates presented in this paper to conduct a panel data analysis of growth determinants, investigating when and how the structures of social reproduction interact with other more standard determinants of growth.

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[21] The negative effects of higher female wages on competitiveness (causing export prices to rise and export demand to fall) are salient in those countries whose exports are largely labour-intensive goods. It is possible, however, that higher female wages could stimulate productivity growth, thereby lowering unit labour costs, and attenuate any negative demand-side effects of higher wages. In those countries where women are employed in non-tradables (such as service sector jobs that do not face foreign competition), higher female wages are not likely to dampen demand.

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Appendix

Table A1. *Data*

Variable	Short name	Source
Five-year percentage point change in non-income HDI less five-year percentage point change in income index	*HDI2*	Calculated based on disaggregating components of the HDI, UNDP.
Manufacturing exports as a share of GDP	*mfgX*	Manufacturing exports drawn from Comtrade database, GDP from World Development Indicators (WDI) database, both in US$.
Inward FDI as a share of GDP	*FDI*	Calculated from WDI database.
Public investment as a share of GDP	*pub*	Calculated from WDI database, based on reported shares of private investment in gross fixed capital formation.
Weighted average tariff rates applied	*TFF*	Calculated based on data drawn from TRAINS database, UNCTAD. Weights based on imports by product group at the HS two-digit level.
Ratio of female age of first marriage to male age of first marriage	*afmr*	Calculated based on UNDESA Population Division World Marriage Data.
Ratio of the share of wage and salaried workers in women's to men's employment	*fmemp*	Calculated based on data drawn from WDI database.
Public social protection and health expenditure as a share of GDP	*sph*	Drawn from Table B.12 in the 2014/15 World Social Protection Report (ILO, 2014). Public social protection expenditures include public benefits for the following: unemployment, employment injury, disability, maternity and general social assistance.
Average access to electricity, non-solid fuel, improved sanitation facilities and improved water source	*repro*	Calculated based on series drawn from WDI database.
Share of women's service employment to total employment, raised to the power of the inverse of the Palma ratio	*mcare*	Employment share calculated based on data from WDI database; Palma ratio drawn from Global Income and Consumption Project (GICP) database.

Table A2. *Social reproduction regime by region and country (2008–15)*

Developed countries	
Australia	Time squeeze
Austria	Mutual
Belgium	Wage squeeze
Bulgaria	Time squeeze
Canada	Time squeeze
Croatia	Time squeeze
Cyprus	Exploitation
Czech Republic	Wage squeeze
Denmark	Mutual
Estonia	Exploitation
Finland	Mutual
France	Mutual
Germany	Wage squeeze
Greece	Time squeeze
Hungary	Wage squeeze
Ireland	Wage squeeze
Israel	Time squeeze
Italy	Time squeeze
Japan	Mutual
Latvia	Exploitation
Lithuania	Exploitation
Netherlands	Wage squeeze
New Zealand	Time squeeze
Norway	Mutual
Poland	Exploitation
Portugal	Time squeeze
Romania	Time squeeze
Slovak Republic	Wage squeeze
Slovenia	Wage squeeze
Spain	Time squeeze
Sweden	Mutual
Switzerland	Time squeeze
United Kingdom	Mutual
United States	Time squeeze
Developing Africa	
Algeria	Mutual
Angola	Time squeeze
Benin	Time squeeze
Botswana	Mutual
Burkina Faso	Time squeeze
Burundi	Time squeeze
Cameroon	Time squeeze
Central African Republic	Time squeeze
Chad	Time squeeze
Congo, Dem. Rep.	Time squeeze
Congo, Rep.	Time squeeze
Cote d'Ivoire	Exploitation
Egypt, Arab Rep.	Mutual
Eritrea	Time squeeze
Ethiopia	Time squeeze
Gabon	Mutual
Gambia, The	Time squeeze
Ghana	Time squeeze

Table A2. *Continued*

Guinea	Time squeeze
Guinea-Bissau	Time squeeze
Kenya	Time squeeze
Lesotho	Time squeeze
Liberia	Exploitation
Libya	Time squeeze
Madagascar	Exploitation
Malawi	Time squeeze
Mali	Time squeeze
Mauritania	Time squeeze
Mauritius	Wage squeeze
Morocco	Mutual
Mozambique	Exploitation
Namibia	Exploitation
Niger	Time squeeze
Nigeria	Time squeeze
Rwanda	Time squeeze
Senegal	Time squeeze
Sierra Leone	Exploitation
Somalia	Exploitation
South Africa	Wage squeeze
South Sudan	Time squeeze
Sudan	Time squeeze
Swaziland	Time squeeze
Tanzania	Time squeeze
Togo	Time squeeze
Tunisia	Mutual
Uganda	Time squeeze
Zambia	Time squeeze
Zimbabwe	Time squeeze
Developing America	
Argentina	Mutual
Bolivia	Mutual
Brazil	Mutual
Chile	Wage squeeze
Colombia	Mutual
Costa Rica	Wage squeeze
Cuba	Wage squeeze
Dominican Republic	Wage squeeze
Ecuador	Mutual
El Salvador	Wage squeeze
Guatemala	Exploitation
Haiti	Time squeeze
Honduras	Wage squeeze
Jamaica	Mutual
Mexico	Wage squeeze
Nicaragua	Wage squeeze
Panama	Wage squeeze
Paraguay	Wage squeeze
Peru	Wage squeeze
Trinidad and Tobago	Wage squeeze
Uruguay	Wage squeeze
Venezuela, RB	Mutual

Table A2. *Continued*

Developing Asia	
Afghanistan	Time squeeze
Bahrain	Wage squeeze
Bangladesh	Time squeeze
Cambodia	Exploitation
China	Wage squeeze
Hong Kong SAR, China	Wage squeeze
India	Exploitation
Indonesia	Wage squeeze
Iran, Islamic Rep.	Mutual
Iraq	Mutual
Jordan	Wage squeeze
Korea, Dem. People's Rep.	Wage squeeze
Korea, Rep.	Wage squeeze
Kuwait	Wage squeeze
Lao PDR	Time squeeze
Lebanon	Wage squeeze
Malaysia	Wage squeeze
Mongolia	Wage squeeze
Myanmar	Exploitation
Nepal	Time squeeze
Oman	Mutual
Pakistan	Time squeeze
Philippines	Wage squeeze
Qatar	Wage squeeze
Saudi Arabia	Wage squeeze
Singapore	Wage squeeze
Sri Lanka	Wage squeeze
Syrian Arab Republic	Mutual
Thailand	Wage squeeze
Timor-Leste	Time squeeze
Turkey	Wage squeeze
United Arab Emirates	Wage squeeze
Vietnam	Exploitation
Yemen, Rep.	Exploitation
Developing Oceania	
Papua New Guinea	Exploitation
Transition economies	
Albania	Wage squeeze
Armenia	Wage squeeze
Azerbaijan	Wage squeeze
Belarus	Wage squeeze
Bosnia and Herzegovina	Wage squeeze
Georgia	Wage squeeze
Kazakhstan	Wage squeeze
Kosovo	Mutual
Kyrgyz Republic	Wage squeeze
Macedonia, FYR	Wage squeeze
Moldova	Wage squeeze
Russian Federation	Wage squeeze
Serbia	Wage squeeze
Tajikistan	Mutual
Turkmenistan	Mutual
Ukraine	Wage squeeze
Uzbekistan	Wage squeeze