Who Cares? Modelling the Care Drain

by
Marina Della Giusta
and Nigar Hashimzade

2012
097

Department of Economics
University of Reading
Whiteknights
Reading
RG6 6AA
United Kingdom

www.reading.ac.uk
Who cares? Modelling the care drain.

Marina Della Giusta* and Nigar Hashimzade
School of Economics, University of Reading
2 October 2012

Abstract

We discuss the effects of the care drain on human capital accumulation in developing countries, a potentially important downside of the phenomenon that has not been yet formally investigated: whilst recent literature on the brain drain suggests that it may not hamper human capital formation in developing countries, this may not be true with the care drain. We also discuss the effects of pressure for low-cost care in developed countries, pointing to the possibility of scenarios in which children’s wellbeing and human capital accumulation are hampered in both developed and developing countries.

Key words: human capital, care, migration, wellbeing.

JEL classification: D13, J13, J16, J24, J61, Z13

1 Introduction

A large body of literature analyses the effects of the migration of skilled workers (brain drain) on development and human capital accumulation in developing countries (Docquier and Rapoport, 2012). Here we focus instead on the effects of the migration of unskilled workers into the care sector of developed countries (care drain), which has not yet been studied in a systematic manner by economists.

Studies of the immigration of care workers in developing countries have so far concentrated on the link between outsourced care and women’s time use and labour supply (Hersch, 2009; Gupta and Ash, 2008; Gupta, 2006). The presence of immigrant caregivers has also been linked with increased fertility in developed nations by reducing the trade-off between paid work and childcare for mothers (Furtado and Hock, 2008). Rising women’s participation in the labour force, the slow uptake of unpaid care by men, and the progressive demise of state
welfare along with the increasing pressure towards commodification and marke-
tization of care provision (Bettio et al, 2008) have all combined to generate a
strong demand for low-cost care. However, the relational nature of care makes
for limited productivity increases through labour saving technology (Himmel-
weit, 2007) and the demand has been increasingly satisfied through a steady
immigration of women from developing and transition countries into the care
sector of richer countries, which has become a key target for immigration policy
(Cox, 2012). Concerns have been expressed for both employment conditions
and pay and existing regulations are criticised for offering little protection to
both workers and care recipients (Lutz and Palenga-Moellenbeck, 2010). This is
problematic because the low wellbeing of caregivers is inextricably linked with
low quality of provision, and the latter is notoriously difficult to monitor given
that care recipients don’t have the means in most cases to do so (Moriarty et
al, 2008; Folbre, 2001).

The effects that should concern policy makers are not just static (short term
welfare) but dynamic as empirical studies have documented a link between the
quality of childcare and wellbeing and human capital accumulation. A strong
empirical evidence of the importance of the childcare quality for the child well-
being has been established in the data for several developed countries (Brewer
et al, 2009; Grogger and Karoly, 2009; Gregg et al, 2009; Verropoulou and Joshi,
2009). This link has been explored in the theoretical literature (Becker et al,
1990; Folbre and Nelson, 2001; Casarico and Sommacal, 2008) in the context
of developed countries, and here we propose that the same effects should be
investigated formally for developing countries too. Research in sociology shows
that the quality of care received by the children of migrant mothers who are left
behind in the home country, with fathers or other family members, deteriorates
dramatically, and that school dropout rates among these children increases,
thus suggesting a negative effect of care drain on these children’s wellbeing and
their human capital accumulation (Beneria, 2008; Parrenas, 2005; Hochshild
et al, 2000). Although some immigrant caregivers bring their children along,
and some may be able to travel frequently and maintain strong contact with
them, many are unable to afford this and there is a large body of evidence that
migrants from poorer developing countries tend to leave their children behind
(Williams, 2010; Ehrenreich and Hochschild, 2002).

There are, therefore, grounds for worrying about the quality of childcare
provided to children in developing countries by the low-pay care sector staffed
by unskilled female immigrants, and the quality of childcare received by children
whose mothers have migrated to developed countries to work in the care sector.
The formal analysis can be done in a dynamic framework, as briefly illustrated
below, with a two-country overlapping-generations model with childcare as an
input in the production of human capital. In this framework one can show
that when labour is mobile between countries, there exists a range of parameter
configurations for which in the long-run equilibrium adult workers from the
country with lower labour productivity migrate into the country with higher
labour productivity to work in the paid care sector and provide no parental
care to their children. While their earnings (sent back as remittances) can be
used for consumption, material investment in children’s human capital is an
imperfect substitute for parental time with children, and, as a result, the long-
run level of human capital in the source country remains low (zero in the extreme
case). In turn, the low level of human capital of the immigrant caregivers results
in the low productivity of the paid care input in the formation of human capital
in the receiving country. Thus, both countries can be locked in a care drain
equilibrium, with low levels of childcare quality and low level of human capital
in both.

2 The macroeconomic effects of unpaid and paid care

There are two countries, home and foreign, and in each country a single good can
be produced using capital and a labour input. Workers develop their human
capital in the first period of life, and in the second period they divide their
time between paid work, unpaid childcare and leisure; they retire and consume
their savings in the third period. Childcare is an input in the production of
human capital and can be provided by parents or purchased from the market;
unpaid and paid care (both material inputs in human capital accumulation) are
imperfect substitutes. We abstract here from fertility choice issues so the size
of population is set to be constant in both countries. We will refer to an agent
who is an adult at time $t$ as agent $t$.

There is one physical good produced in each economy, using capital and
labour inputs. There is no cost of converting the output into investment. In the
home country agent $t$ is endowed by one unit of time that he can split between
leisure ($\ell_t$), paid employment ($L_t$) in the production sector, and unpaid care ($\lambda_t$)
for their children. Agent $t$ receives labour income in period $t$ and divides it be-
tween savings ($s_t$) and paid child care, which is the cost of outsourced care hours,
$w c_t \tau_c^t$, where $w c_t$ is the hourly rate of pay in the care services sector. Savings
are invested in production by the means of a perfect credit market. Old agents
consume the gross returns on their savings made in the previous period; there
are no bequests. Labour productivity, or the level of human capital of an adult
agent, is determined by the amount of care they received in their childhood,
$h_{t-1} = h(\tau_{t-1}, \lambda_{t-1})$. Labour is the only input in care production. Capital
is immobile whereas labour can be perfectly mobile between the two countries,
though the model can allow for the mobility of capital and include a cost of
labour mobility. There is no care services sector in the foreign country, and
agent $t$ in the foreign country divides his or her time between leisure ($\ell_c^t$), paid
employment ($L_c^t$) in the production sector, unpaid care ($\lambda_c^t$) for their children
and paid employment ($\tau_c^t$) in the care services sector in the home country.

2.1 Optimization in the home country

All the decisions in the household are made by an adult agent. Preferences
are characterized by non-paternalistic altruism, and are described by a utility
function of the form
\[ W_t = U_t + \beta W_{t+1} = \sum_{\tau=0}^{\infty} \beta^\tau U_{t+\tau}, \]

with the instantaneous utility function
\[ U_t = U(t, x_{t+1}), \]

where \( x_{t+1} \) is consumption in old age. Thus, the degree of altruism toward the future generations is measured by \( \beta \). The time constraint is
\[ L_t + \ell_t + \lambda_t = 1. \]

The budget constraints at time \( t \) and \( t+1 \), respectively,
\[ wc_t D_t + st = wt h_{t-1} L_t, \]
\[ Rt+1 st = x_{t+1}, \]

combine into the life-time budget constraint,
\[ wc_t D_t + \frac{1}{R_{t+1}} x_{t+1} = wt h_{t-1} L_t. \]

Here \( R_{t+1} \) is gross return on savings, and \( w_t \) is the competitive wage rate, per unit efficiency labour. Using the budget and the time constraints to substitute, respectively, for \( x_{t+1} \) and \( \ell_t \), we can rewrite the adult’s optimization problem as
\[ \max_{\{L_t, \lambda_t, \tau_t\}} W = \sum_{t=0}^{\infty} \beta^t \left[ U \left( 1 - L_t - \lambda_t, R_{t+1} \left[ w_t h_{t-1} L_t - w_t \tau_t D_t \right] \right) \right]. \]

The first order conditions of the optimization problem are the following:
\[ \frac{\partial W}{\partial L_t} = -U_t^{(1)} + R_{t+1} w_t h_{t-1} U_t^{(2)} = 0, \]
\[ \frac{\partial W}{\partial \lambda_t} = -U_t^{(1)} + \beta R_{t+2} w_{t+1} L_{t+1} \frac{\partial h_t}{\partial \lambda_t} U_t^{(2)} \leq 0 \Rightarrow \lambda_t > 0, \]
\[ \frac{\partial W}{\partial \tau_t D_t} = -R_{t+1} w_t U_t^{(2)} + \beta R_{t+2} w_{t+1} L_{t+1} \frac{\partial h_t}{\partial \tau_t} U_t^{(2)} \leq 0 \Rightarrow \tau_t D_t > 0. \]

The physical good is produced competitively by Cobb-Douglas technology,
\[ Y_t = AK_t^\alpha (h_{t-1} L_t)^{1-\alpha}, \quad 0 < \alpha < 1. \]

The production sector takes wage rate \( w_t \) and the rental price of capital \( R_t \) as given and maximizes profits. In the optimum each input is paid its marginal product and the profit is zero:
\[ R_t = \alpha \frac{Y_t}{K_t}, \quad w_t = (1 - \alpha) \frac{Y_t}{L_t h_{t-1}}. \]
Physical capital depreciates at a constant rate, $\delta$, in every period, and thus
\[ K_{t+1} = (1 - \delta) K_t + s_t \]
where $s_t$ is saving made by each agent when young. This, together with the individual budget constraints, gives the total resource constraint in the economy at time $t$:
\[ Y_t = w_t^c \tau_t + K_{t+1} - (1 - \delta) K_t + x_t. \]
We impose the usual transversality condition.

2.2 Optimization in the foreign country

The time constraint at time $t$ and the lifetime budget constraints are
\[ L_t^* + \ell_t^* + \lambda_t^* + \tau_t^S = 1, \]
\[ R_{t+1}^* (w_{t-1}^* L_t^* + w_t^c \tau_t^S) = x_{t+1}^* \]
The household’s optimization problem is
\[ \max_{\{U_t^*, \lambda_t^*, \tau_t^S\}} W = \sum_{t=0}^{\infty} \beta^t \left[ U \left( 1 - L_t^* - \lambda_t^* - \tau_t^S, R_{t+1}^* (w_t^* h_{t-1}^* L_t^* + w_t^c \tau_t^S) \right) \right], \]
and the first order conditions are
\[ \frac{\partial W^*}{\partial L_t^*} = -U_t^{*(1)} + R_{t+1}^* w_t^* h_{t-1}^* U_t^{*(2)} = 0, \]
\[ \frac{\partial W^*}{\partial \lambda_t^*} = -U_t^{*(1)} + \beta R_{t+1}^* w_t^* L_t^* \frac{\partial h_t^*}{\partial \lambda_t^*} U_t^{*(2)} \leq 0 \quad (= 0 \Rightarrow \lambda_t^* > 0), \]
\[ \frac{\partial W^*}{\partial \tau_t^S} = -U_t^{*(1)} + R_{t+1}^* w_t^c \leq 0 \quad (= 0 \Rightarrow \tau_t^S > 0). \]
The production sector is similar to the one in the home country, and, therefore,
\[ R_t^* = \alpha^* \frac{Y_t^*}{K_t^*}, \quad w_t^c = (1 - \alpha^*) \frac{Y_t^*}{L_t^* h_{t-1}^*}. \]

2.3 Equilibrium for the outsourced and unpaid regimes

The equilibrium is defined as the sequence of $\{ (K_t, x_t, \tau_t^D, L_t, \lambda_t; R_t, w_t) \}$,
\( (K_t^*, x_t^*, \tau_t^S, L_t^*, \lambda_t^*; R_t^*, w_t^c) \), $t = 0, 1, 2, \ldots$ solving the optimization problems of the households and the production sector in each country, so that the resource constraints hold and markets clear in every period. In the analysis we focus on the long-run, or steady-state equilibria, where the values of all real variables are constant.

Before proceeding to the analysis of the equilibrium with labour mobility we present the results of the comparison of the autarchy equilibria with two care
regimes, unpaid parental care only and paid outsources care only. For analytical tractability we assume that the instantaneous utility function is logarithmic in leisure and quasilinear in consumption when old,

$$U(t_t, x_{t+1}) = \gamma \ln(t_t) + x_{t+1}.$$  

In the formation of human capital of a child paid care and care provided by the child’s parent can be substitutes or complements. To allow for flexibility we use a linear-quadratic production function for human capital, where paid care and parent’s time are two inputs with possibly different productivities:

$$h_t = A_t \tau_t + A_t \lambda_t - \frac{1}{2} \left[ (A_t \tau_t)^2 + 2\theta (A_t \tau_t) (A_t \lambda_t) + (A_t \lambda_t)^2 \right], \quad -1 < \theta < 1.$$  

This form allows to consider two extreme cases, care provided only within the household, and only paid care, as well as a mixture of both. Parameter $\theta$ measures the degree of substitutability between parental and outsourced care time, in our model paid care is equivalent to investment of a physical good in human capital formation. This can be interpreted as physical cost of child care facilities, or payment for care labour in an economy where labour is perfectly mobile.

2.4 Care drain

We now analyze the situation with perfect labour mobility between two countries. Our focus is on the range of parameters for which the hourly rate in care sector in the home country is at least as high as the wage rate in the production section in the foreign country. Solving the system of the first-order conditions in two countries simultaneously, we find that there exists a long-run equilibrium in which the adult workers in the foreign country optimally choose to work only in the care sector in the home country and spend no time with their own children. This follows from the following system of equations describing the equilibrium choice in the foreign country having a solution

$$x^* = \bar{w}^c \tau, \quad K^* = 0, \quad \lambda^* = L^* = 0.$$  

where $\tau = \tau^D = \tau^S$. In other words, the workers in the foreign country earn their income by providing care services in the home country, and no physical good produced in the foreign country. Also, because they do not spend time with their own children, the level of human capital remains at zero in the long run.

References


