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Fiscal policy and productivity growth in the OECD

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Abstract. We use a simple endogenous growth model with productive public capital to investigate the degree to which observed fiscal policies in eight OECD countries can account for slowdowns in the growth rates of aggregate labour productivity since 1970. In model simulations, we find that none of the observed public capital policies can generate slowdowns of sufficient magnitude to match those in the data. For most countries in our sample, a simulation that combines the observed public capital policy with the observed tax policy does a better job of accounting for the slowdown than either policy in isolation. JEL Classification: E62, O41

Politique fiscale et croissance de la productivité dans des pays de l'OCDE. Les auteurs utilisent un modèle de croissance endogène simple qui postule l'existence de capital public productif pour examiner jusqu'à quel point on peut attribuer les ralentissements dans le taux de croissance de la productivité agrégée du travail depuis 1970 aux politiques fiscales observées dans huit pays de l'OCDE. Dans les simulations du modèle, il appert qu'aucune des politiques observées d'investissement public ne peut engendrer des ralentissements suffisants pour correspondre à ceux qu'on observe. Pour la plupart des pays de l'échantillon, une simulation qui combine les politiques d'investissement public observées et les politiques de taxation observées réussit mieux à rendre compte du ralentissement que des simulations qui prennent en compte l'une ou l'autre seulement des politiques séparément.

1. Introduction

Considerable effort has been devoted to investigating potential causes of the well-documented slowdowns in the growth of aggregate labour productivity in many

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developed countries beginning in the late 1960s or early 1970s. Interest in this phenomenon extends well beyond mere intellectual curiosity, because small changes in a country's growth rate can have profound impacts on standards of living when compounded over time. One hypothesis for the cause of the slowdowns, put forth most notably by Aschauer (1989a,b) and Munnell (1990), is that policymakers have allowed stocks of public infrastructure capital to fall below optimal levels, thus hindering the productivity of complementary private-sector inputs. Support for this so-called 'public capital hypothesis' is derived primarily from simple empirical methods aimed at estimating the parameters of an aggregate production technology. Such methods typically yield large point estimates for the output elasticity of public capital, suggesting the presence of substantial unexploited gains to expanding infrastructure investment. This kind of result has stimulated a large number of follow-up studies that attempt to confirm or refute the findings.¹

An important limitation of many empirical studies, however, is that they do not impose the full set of restrictions implied by the optimization problems of rational economic agents, thus making results susceptible to Lucas's (1976) econometric policy critique. For example, the use of standard growth accounting techniques to assess the contribution of public capital to the productivity slowdown fails to control for simultaneous changes in tax policy that are clearly evident in the data.

In an earlier paper, Cassou and Lansing (1998), we developed a general-equilibrium endogenous growth model suitable for comparing the quantitative growth effects of optimal and nonoptimal fiscal policies. We examined the possible link between trends in U.S. fiscal policy variables and the post-1970 slowdown in the growth rate of U.S. labor productivity. We demonstrated that a declining ratio of public-to-private capital consistent with that observed in the data does not have much impact on the growth rate of labour productivity in a reasonably parameterized model. Our results further suggested that the trend of rising U.S. tax rates should be given more attention as a possible explanatory factor in the slowdown.

In this paper, we extend the analysis of Cassou and Lansing (1998) to a total of eight OECD economies (United States, Canada, Australia, Belgium, Finland, Germany, Norway, United Kingdom). The data analysis reveals that only four of the eight countries exhibit declining public capital ratios in the years following 1970. This fact alone serves to cast doubt on the public capital hypothesis as an explanation for the widespread slowdowns. We use our model's equilibrium conditions to restrict the choice of parameter values so that the resulting artificial economy matches various empirical facts observed in each of the eight OECD countries. Once we have what we think are reasonable parameter values, our 'growth accounting' exercise takes the form of controlled simulation experiments that isolate the impact of (i) public capital and (ii) tax rates in accounting for the historically observed productivity slowdowns.

We relax our earlier assumption that pre-1970 fiscal policy was optimally chosen.

¹ See Sturm, Kuper, and de Haan (1998) for an extensive review of this literature.

Instead, we take fiscal policy to be completely exogenous here and assume that each country's economy exhibits balanced growth in 1970—an assumption that leads to a larger value of public capital's output elasticity in our calibration procedure. All else equal, a larger output elasticity will lend support to the public capital hypothesis in those countries where a declining ratio of public-to-private capital is observed. Despite a larger output elasticity, our findings are essentially unchanged: the public capital hypothesis does not, by itself, provide a convincing explanation for the productivity slowdowns in any of the countries examined.

All eight of the countries in our sample exhibit rising average tax rates in the years after 1970. In most cases, we find that a simulation which combines the observed public capital policy with the observed tax policy does a better job of accounting for the post-1970 growth experience.

The remainder of this paper is organized as follows. In section 2 we summarize observed trends in labour productivity and fiscal policy variables in eight OECD countries. In section 3 we present our model. In section 4 the calibration procedure is described. In section 5 we present our quantitative results. In section 6 the paper is concluded.

2. Trends in productivity and fiscal policy

Our analysis focuses on eight developed economies: the United States, Canada, Australia, Belgium, Finland, Germany, Norway, and the United Kingdom.² The choice of this set was chosen based on the availability of reliable capital stock data.³ Table 1 reports pre- and post-1970 labour productivity growth rates that clearly illustrate the slowdowns.⁴ Since most studies trace the start of the slowdowns

2 We include the United States because the calibration procedure used here differs significantly from that used in our earlier paper (Cassou and Lansing 1998). Specifically, we relax our earlier assumption that pre-1970 fiscal policy was optimally chosen and instead assume that each country's economy exhibits balanced growth at the observed 1970 fiscal policy.

3 The U.S. capital stock data are from *Fixed Reproducible Tangible Wealth in the United States*, U.S. Department of Commerce (1993). See Cassou and Lansing (1998, fn15) for further details on U.S. data sources. The U.K. capital stock data are from Ford and Poret (1991, table A5). For the remaining countries, capital stock data are from *Flows and Stocks of Fixed Capital*, published periodically by the OECD, where private capital is defined as the sum of the stocks in Agriculture, Industry, and Services. Labour force data are from the 'Civilian employment' tables in *Labour Force Statistics*, published by the OECD. Average tax rate data are from the 'Total tax revenue as percentage of GDP' tables in *Revenue Statistics of OECD Member Countries 1965–1994*, published by the OECD. Data for government expenditures, GDP, and population are from *International Financial Statistics*, published by the International Monetary Fund. The years for which appropriate data were available differed across countries, as can be seen in figures 1 and 2. In the case of Germany, data beyond 1989 were not used because of the potentially distorting effects of the reunification with East Germany.

4 We define U.S. labour productivity as real GDP divided by aggregate labour hours (LHOURS from Citibase). For the remaining countries, reliable data on aggregate labour hours are not available, so we define labour productivity as real GDP divided by the size of the civilian labour force.

TABLE 1
Pre- and post-1970 labour productivity growth rates (per cent)

	US	CAN	AUS	BEL	FIN	GER	NOR	UK
Sample Period	1955–70	1956–70	1960–70	1966–70	1962–70	1960–70	1956–70	1956–70
Growth Rate	2.04	1.93	2.27	5.52	4.68	4.32	3.62	2.72
Sample Period	1971–92	1971–94	1971–94	1971–93	1971–94	1971–89	1971–93	1971–94
Growth Rate	0.63	1.13	1.52	2.30	2.62	2.13	2.23	1.87

to around 1970, we focus our attention on the growth-reducing effects of observed fiscal policies in the post-1970 sample period.⁵

Figures 1 and 2 show the trends in fiscal policy variables for each country. Figure 1 plots the ratio of public-to-private capital, while figure 2 plots gross government tax receipts as a percentage of GDP – a measure of the average tax rate. Only four of the eight countries (United States, Canada, Australia, and Belgium) exhibit declining public capital ratios in the years following 1970. The post-1970 ratios are increasing for Finland and Norway and nearly constant for Germany and the United Kingdom. In contrast, all eight countries exhibit rising average tax rates over the sample period, consistent with a general trend of expanding public sectors in the OECD.⁶

3. The Model

The model is identical to that presented in Cassou and Lansing (1998) with two exceptions: (1) we take fiscal policy to be exogenous, and (2) we allow public and private capital to exhibit different depreciation properties.

3.1. The private sector

The private sector consists of a large but fixed number of households, each of which is the owner of a single firm that produces output y_t according to

$$\begin{aligned}
 y_t &= A_0 k_t^{\theta_1} (h_t l_t)^{\theta_2} k_{gt}^{\theta_3}, & \theta_i > 0 \text{ for } i = 1, 2, 3, \\
 & & \theta_1 + \theta_2 + \theta_3 = 1,
 \end{aligned} \tag{1}$$

where k_t is the per capita stock of private capital, l_t is the per capita labour supply and k_{gt} is the per capita stock of public capital. Firms choose k_t and l_t to maximize profits but take k_{gt} as exogenously supplied by the government. Output is

5 Munnell (1990) focuses on 1969 as the start of the slowdown, while Aschauer (1989a,b) focuses on 1970, Jorgenson (1988) and Wolff (1996) focus on 1973, Greenwood and Yorukoglu (1997) focus on 1974, and Griliches (1988) focuses on 1974–75.

6 See de la Fuente (1997) for further documentation and analysis of this trend.

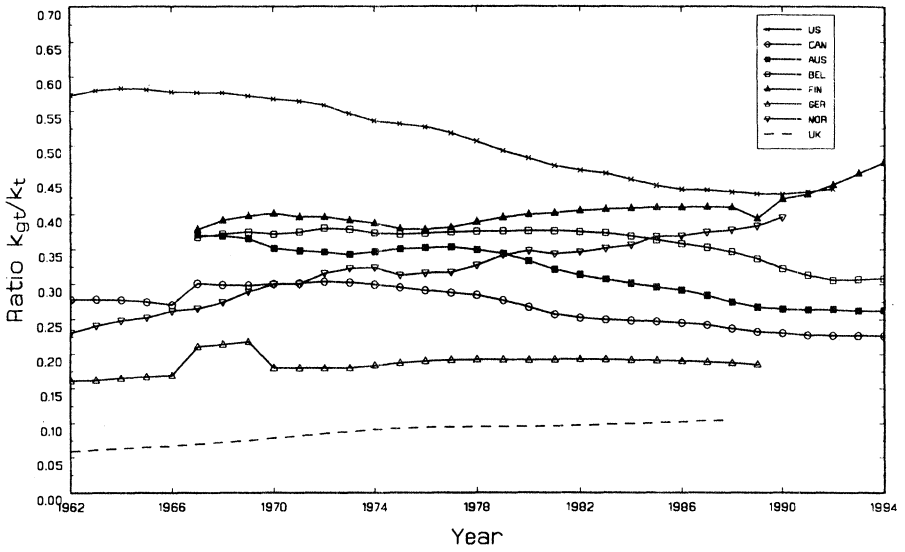


FIGURE 1 Observed ratio of public to private capital

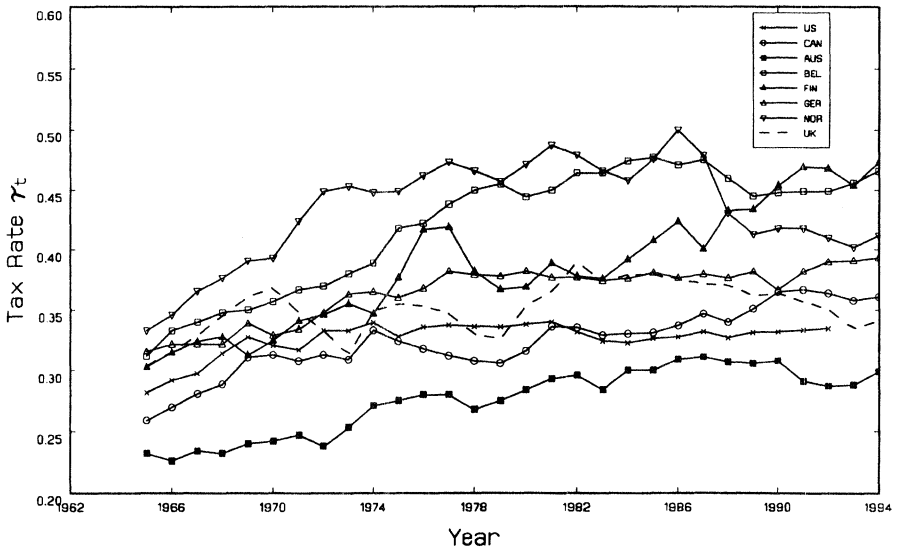


FIGURE 2 Observed average tax rate

also affected by h_t , which is an index of knowledge that augments the productive capacity of labour but is outside the firm's control. Following Arrow (1962) and Romer (1986), the mechanism for knowledge accumulation is 'learning by doing,' such that $h_t = \bar{k}_t$, where \bar{k}_t is the average capital stock across firms. In equilibrium we have $h_t = \bar{k}_t = k_t$, which is imposed after firms choose their optimal capital and labour input levels.

The equilibrium technology exhibits constant returns to scale in the two reproducible factors k_t and k_{gt} , which allows for sustained endogenous growth.⁷ Since $\theta_1 + \theta_2 + \theta_3 = 1$, firms earn an economic profit equal to the difference between the value of output and payments made to the private-sector inputs.⁸ We assume that profits are distributed to households as dividends and taxed as ordinary income. The market-clearing prices for private capital and labour inputs and the resulting firm profits π_t are given by

$$r_t = \theta_1 y_t / k_t, \quad (2)$$

$$w_t = \theta_2 y_t / l_t, \quad (3)$$

$$\pi_t = (1 - \theta_1 - \theta_2) y_t. \quad (4)$$

The infinitely lived representative household chooses $\{c_t, l_t, i_t, k_{t+1}\}_{t=0}^{\infty}$ to maximize

$$\sum_{t=0}^{\infty} \beta^t \log(c_t - B h_t l_t^\gamma), \quad \begin{array}{l} \beta \in (0, 1) \\ B > 0 \\ \gamma > 1, \end{array} \quad (5)$$

subject to

$$c_t + i_t = (1 - \tau_t)(w_t l_t + r_t k_t + \pi_t), \quad (6)$$

$$A_1 > 0$$

$$k_{t+1} = A_1 k_t^{1-\delta} i_t^\delta, \quad \delta \in (0, 1] \quad (7)$$

$$k_0 \text{ given,}$$

where β is the household discount factor, $1/(\gamma - 1)$ is the elasticity of household labour supply, c_t is private consumption, i_t is private investment, and τ_t is the

7 See McGrattan (1998) for a variety of empirical evidence in support of 'Ak' type endogenous growth models.

8 Basu and Fernald (1997) report that the typical U.S. industry exhibits decreasing returns to scale in private inputs. Empirical research that explicitly considers public capital as an input to production finds support for a technology specification with $\theta_1 + \theta_2 + \theta_3 = 1$. See, for example, Ai and Cassou (1995), Munnell (1990), and Aschauer (1989a).

income tax rate.⁹ The household takes τ_t , h_t , and π_t as determined outside of its control. Investment adds to the stock of private capital according to the law of motion (7), which can be interpreted as reflecting adjustment costs or capturing the behaviour of an aggregate stock that is measured by adding up capital types with different depreciation characteristics. Standard techniques yield the decision rules,

$$c_t = (1 - a_0)(1 - \tau_t)y_t, \quad a_0 \equiv \frac{\beta\delta\theta_1}{1 - \beta(1 - \delta)} \quad (8)$$

$$i_t = a_0(1 - \tau_t)y_t \quad (9)$$

$$l_t = \left[(1 - \tau_t) \left(\frac{\theta_2 A_0}{\gamma B} \right) \left(\frac{k_{gt}}{k_t} \right)^{\theta_3} \right]^{\frac{1}{1 - \theta_2}}. \quad (10)$$

3.2. The public sector

We assume that the government sets public investment i_{gt} , non-productive public expenditures g_t , and the income tax rate τ_t according to the following balanced-budget policy rules:

$$i_{gt} = \alpha y_t, \quad \alpha \in [0, 1] \quad (11)$$

$$g_t = \phi y_t, \quad \phi \in [0, 1] \quad (12)$$

$$\tau_t = \alpha + \phi, \quad \alpha + \phi \in [0, 1], \quad (13)$$

for all $t \geq 0$. Public investment contributes to the stock of public capital according to the following law of motion, which is analogous to (7):

$$k_{gt+1} = A_1 k_{gt}^{1 - \delta_g} i_{gt}^{\delta_g}, \quad \delta_g \in (0, 1] \quad (14)$$

k_{g0} given.

Given the above policy rules, it is straightforward to show that the model possesses a unique balanced growth path. Imposing the restrictions $\alpha = \beta\delta_g\theta_3/[1 - \beta(1 - \delta_g)]$ and $\delta_g = \delta$ recovers the optimal fiscal policy derived in Cassou and Lansing (1998).

4. Calibration

Parameter values are chosen to match various empirical observations. Some of these observations are specific to individual countries, while others are assumed to be common to all countries. We depart from the calibration procedure in Cassou and

⁹ The utility function (5) can be interpreted as the reduced form of a specification where h_t governs the productivity of work done at home. Alternatively, we may interpret forgone leisure as being adjusted for 'quality.'

Lansing (1998) by relaxing the assumption that pre-1970 fiscal policy was optimally chosen.¹⁰ Instead, we assume that each country's economy exhibits balanced growth at the observed 1970 fiscal policy.

For all countries, we choose $\gamma = 1.60$ (which implies a labour supply elasticity of 1.7) and $\delta = 0.1$ consistent with the values used in Cassou and Lansing (1998). For the United States, Canada, Germany, and the United Kingdom, labour's share of output θ_2 is set to the factor share estimates in Christensen, Cummings, and Jorgenson (1980). For the remaining countries, we adopt a mid-range value of $\theta_2 = 0.6$. Given values for γ , δ , θ_2 , and defining $\theta_1 = 1 - \theta_2 - \theta_3$, we choose the remaining eight parameters θ_3 , δ_g , B , A_0 , A_1 , β , α , and ϕ , so that each country's balanced growth path displays eight characteristics, which are listed in the top panel of table 2. We calibrate the balanced growth rate of y_t/l_t in the model to match the pre-1970 average growth rate of labor productivity in each country. This allows us to investigate the degree to which fiscal policies in the years following 1970 can account for the historically observed slowdowns.¹¹ Table 2 summarizes the resulting parameter values for each country.

Table 2 also includes the balanced-growth ratio of public-to-private capital R^* , the tax rate τ^* , and the balanced growth rate μ^* that are implied by optimal fiscal policy at these parameter values. These calculations use the following expressions:

$$R^* \equiv \frac{k_g}{k} = \left[\left(A_0^{\frac{\gamma}{\theta_2}} \frac{\theta_2}{B\gamma} \right)^{\frac{\theta_2(\theta_g - \delta)}{\gamma - \theta_2}} \left(\frac{a_1^{\delta_g}}{a_0^\delta} \right) (1 - \tau^*)^{\frac{\theta_2\delta_g - \gamma\delta}{\gamma - \theta_2}} \right]^{a_2} \quad (15)$$

$$\tau^* = a_1 + \phi \quad (16)$$

$$\mu^* \equiv \frac{y_{t+1} - y_t}{y_t} = A_1 \left[\left(\frac{\theta_2}{B\gamma} \right)^{\frac{\theta_2}{\gamma - \theta_2}} a_0 [A_0(1 - \tau^*)(R^*)^{\theta_3}]^{\frac{\gamma}{\gamma - \theta_2}} \right]^\delta - 1, \quad (17)$$

where

$$a_0 \equiv \frac{\beta\delta\theta_1}{1 - \beta(1 - \delta)}$$

$$a_1 \equiv \frac{\beta\delta_g\theta_3}{1 - \beta(1 - \delta_g)}$$

$$a_2 \equiv \frac{\gamma - \theta_2}{\delta_g(\gamma - \theta_2) - \theta_3\gamma(\delta_g - \delta)},$$

10 Our earlier paper showed that the U.S. ratio of public-to-private capital from 1925 to 1970 evolves in a manner that is broadly consistent with the transition path implied by optimal fiscal policy.

11 With the exception of Belgium and Finland, the sample periods used to compute the average growth rates are shown in the first row of table 1. The short sample periods prior to 1970 for Belgium and Finland yielded unrealistically high average growth rates. To avoid this problem, we calibrated the model to match the average growth rates of per capita output (instead of labour productivity) from 1955 to 1970 for Belgium and 1960 to 1970 for Finland. Our model implies that labour productivity y_t/l_t and per capita output y_t will grow at the same rate along the balanced growth path.

TABLE 2
Calibration information

	Calibration targets							
	US	CAN	AUS	BEL	FIN	GER	NOR	UK
$(k_g/k)_{1970}$	0.567	0.300	0.351	0.372	0.401	0.180	0.300	0.079
$(\tau)_{1970}$	0.321	0.313	0.242	0.357	0.325	0.329	0.393	0.369
$(k/y)_{1970}$	1.102	1.150	1.387	1.032	1.482	0.300	2.197	1.112
$(i/y)_{1970}$	0.102	0.123	0.173	0.119	0.174	0.139	0.171	0.106
$(i_g/y)_{1970}$	0.033	0.026	0.041	0.028	0.038	0.017	0.045	0.011
Fraction of Time Working	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300
After-Tax Interest Rate (per cent)	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9
Productivity growth rate (per cent)	2.04	1.93	2.27	3.58	4.42	4.32	3.62	2.72
Parameter values								
ϕ	0.287	0.287	0.201	0.329	0.287	0.312	0.348	0.358
α	0.033	0.026	0.041	0.028	0.038	0.017	0.045	0.011
γ	1.600	1.600	1.600	1.600	1.600	1.600	1.600	1.600
θ_1	0.222	0.266	0.332	0.244	0.319	0.259	0.371	0.236
θ_2	0.600	0.560	0.600	0.600	0.600	0.610	0.600	0.620
θ_3	0.178	0.174	0.068	0.156	0.081	0.131	0.029	0.144
δ	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100
δ_g	0.081	0.086	0.084	0.083	0.078	0.084	0.095	0.113
B	1.586	1.436	1.407	1.604	1.173	1.516	0.711	1.509
A_0	2.067	2.104	1.595	2.328	1.497	2.254	0.970	2.735
A_1	1.295	1.275	1.259	1.286	1.294	1.289	1.337	1.300
β	0.955	0.954	0.957	0.969	0.977	0.976	0.969	0.961
Balanced growth properties of optimal fiscal policy								
R^*	2.075	1.415	0.380	1.645	0.679	1.209	0.139	0.930
τ^*	0.400	0.398	0.245	0.441	0.349	0.414	0.370	0.464
μ^* (per cent)	3.81	4.11	2.29	5.11	4.52	6.28	3.88	6.00

which are derived using the techniques outlined in Cassou and Lansing (1998).¹² For all countries except Norway, the 1970 public capital ratio is *below* the optimal ratio, implying that any subsequent decline in k_{gt}/k_t will move the economy further from optimality. The wide range of values for R^* and τ^* shows that a country's optimal fiscal policy is quite sensitive to changes in parameter values – some of which may be subject to much uncertainty.¹³ By comparing the calibrated growth rate in the top panel of table 2 with the optimal policy growth rate μ^* , we see that deviations from the optimal spending and tax policy can have a significant impact on growth (and also welfare).¹⁴

12 We assume that the policymaker views non-productive public expenditures g_t as exogenous.

13 A similar point was made in our earlier paper. See figures 1 and 2 in Cassou and Lansing (1998).

14 This issue is pursued further in Cassou and Lansing (1999) with respect to the design of fundamental tax reforms.

5. Simulation results

Starting from a balanced growth condition in 1970, we conduct four simulations for each country. Results are summarized in table 3. The first simulation provides a baseline by holding the public capital ratio k_{gt}/k_t and the tax rate τ_t constant at the 1970 levels shown in table 2. The second simulation isolates the effect of the observed public capital policy. Specifically, we hold the tax rate constant at its 1970 level and construct an exogenous series for public investment i_{gt} such that the model's resulting time path for k_{gt}/k_t coincides exactly with the post-1970 trend for each country.¹⁵ We assume that households react optimally according to the decision rules (8)–(10). The third simulation isolates the effect of the observed tax policy. We introduce an exogenous series of tax rates τ_t that coincides exactly with the post-1970 average tax rate trend for each country. We then construct an exogenous series for public investment i_{gt} such that the resulting time path for k_{gt}/k_t remains constant at its 1970 level.¹⁶ The fourth simulation introduces the observed public capital and tax policies simultaneously, following the same basic algorithm.¹⁷

In countries where the observed public capital ratio declines in the years following 1970 (United States, Canada, Australia, and Belgium), the second simulation does, in fact yield a slowdown relative to the first simulation. The simulated slowdowns, however, are much less severe than the actual slowdowns, (see the bottom row of table 3). In the case of the United States, the simulated slowdown is somewhat larger in terms of percentage points than the corresponding experiment in Cassou and Lansing (1998, table 2). This is due to the alternative calibration strategy used here which yields $\theta_3 = 0.178$ versus $\theta_3 = 0.123$ in our earlier paper. In countries where the post-1970 public capital ratio is increasing (Finland and Norway) or nearly constant (Germany and United Kingdom) the observed policy not only fails to produce a slowdown but actually causes productivity growth to increase. This is possible because policy variables are not set initially to maximize growth.¹⁸

The third simulation is focused on rising tax rates as a possible explanation for the slowdowns. While a rising tax rate may bring the economy closer to τ^* , the additional revenue is spent mostly on non-productive goods and services g_t . By construction, no progress is made towards the optimal public capital ratio R^* . Table 3 shows that the observed tax policies lead to productivity slowdowns in all countries except the United Kingdom. For Australia and Belgium, the tax-

15 Nonproductive expenditures are given by $g_t = \tau_{1970}y_t - i_{gt}$. Since g_t is determined as a residual, the ratio g_t/y_t is no longer constant.

16 Once again, g_t is determined as a residual and households are assumed to react optimally.

17 In most cases, the number of periods per simulation corresponds to the length of the sample period shown in the bottom half of table 1. The second and fourth simulations for the United Kingdom and Norway are slightly shorter in length, owing to the availability of data on k_{gt}/k_t . This does not affect the basic nature of our results.

18 In Cassou and Lansing (1997) we compare growth- and welfare-maximizing policies in a model similar to this one but without public capital.

TABLE 3
 Simulated versus actual labor productivity growth rates (per cent)

	US	CAN	AUS	BEL	FIN	GER	NOR	UK
Model w/ 1970 Public capital and tax policy	2.04	1.93	2.27	3.58	4.42	4.32	3.62	2.72
Model w/ post-1970 public capital policy	1.46	1.44	2.09	3.40	4.48	4.43	3.71	3.29
Model w/ post-1970 tax policy	1.83	1.64	1.49	1.71	2.96	3.47	2.07	2.98
Model w/ post-1970 public capital and tax policy	1.25	1.15	1.31	1.55	3.00	3.58	1.97	3.64
Actual post-1970 growth rate	0.63	1.13	1.52	2.30	2.62	2.13	2.23	1.87

induced slowdowns are more severe than the public capital-induced slowdowns. This situation is reversed for the United States and Canada. In our earlier paper we found that the tax-induced slowdown was more severe for the United States. The reason for this difference is that here we start all simulations in 1970 versus 1947 in our earlier paper. As a result, the current simulation misses the crucial interval of sharply increasing average tax rates in the mid- to late-1960s that can be seen in figure 2. This illustrates the sensitivity of quantitative results to the assumed starting date of the slowdown (see fn5). The model's tax-induced slowdowns for Australia, Belgium, and Norway are large enough to account for the historically observed slowdowns. As detailed in our earlier paper, a number of model features influence the growth effects of distortionary taxes. One of the more important features is the elasticity of household labour supply. A less-elastic labour supply (larger γ) would diminish the explanatory power of rising tax rates to account for the slowdowns.

The fourth simulation shows that in most cases (United States, Canada, Australia, Belgium, Finland, and Norway) combining a country's observed public capital policy with its observed tax policy does a better job of accounting for the slowdown than either policy in isolation.

6. Conclusion

In this paper we used a simple endogenous growth model to investigate the degree to which observed public capital and tax policies can account for post-1970 productivity slowdowns in eight OECD countries. We found that observed public capital policies do not provide a convincing explanation for the slowdowns, although they may have been a contributing factor, together with a general trend of rising average tax rates needed to finance expanding public sectors in the OECD.

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