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INCREASING POLITICAL RETURNS AND

RURAL-URBAN MIGRATIONS

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Increasing Political Returns
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Abstract: This paper shows how rural-urban migrations can affect trade policy determination in the presence of a government that puts a special weight on the welfare of urban workers, thus generating increasing political returns in moving to the urban sector, and how the distribution of land and the associated rural workers' productivity can affect the workers' decision to migrate. Allowing for an endogenous timing of moves and for incomplete information about the other workers' types, peasants will play bandwagon strategies by which those with little or no land would migrate at once, while those who own more sizable land plots would either migrate only if others migrated first, or would never migrate. This mechanism generates the prediction of massive migrations, migration waves, coordination failures, or strong opposition to migrate, depending on the distribution of land ownership. It sheds light on the contrasting experience of the highly unequal Latin America, where vast migrations waves lent support to the adoption of a harsh anti-rural bias at the outset of World War II, and the highly egalitarian East Asia, where small migrations led to a politically weak urban labor force and to a much lighter discrimination against agriculture during that period.

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1. Introduction

The first two and a half decades after World War II witnessed the emergence of populist regimes with a harsh anti-rural bias in Argentina and Brazil, which were followed by an alternation of populist and conservative coalitions until the late 1980s, as opposed to the experience of Korea and Taiwan, where regimes with a weak support from the urban masses ruled, implementing a less intense import substitution industrialization strategy, followed after 1960 by politically exclusionary rulers who paid no heed to the demands of the urban labor force.[1] While in Argentina and Brazil agricultural exports were heavily taxed both directly and indirectly (through the protection of the domestic manufacturing sector), taxation of agriculture was much milder in Korea and Taiwan.[2]

Gustav Ranis aptly characterized the policies implemented under import substitution industrialization strategies, and the differences between both regions: "…a government expenditure pattern favoring urban industrial interests; government interventions in the staple food markets to maintain low prices of wage goods to urban consumers; minimum wage legislation; and government support of unions to maintain organized sector wages at levels substantially in excess of agricultural wages. … But it is noteworthy that the East Asian countries chose a relatively mild and more flexible version of the package. For example, they neglected their

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[1] By "populist" I mean a regime that derives most of its support from the urban labor force, and that one of its chief goals is to implement re-distributive policies that seek to increase the real wages of urban workers.

agricultural sectors less, raised their real interest rates earlier, and maintained lower levels of effective protection of their industries than the Latin Americans."[3]

Political scientists and economic historians have attributed a preponderant role in the determination of such policies to the political power and interests of the urban labor force. In Argentina and Brazil, a strong labor movement with weak ties to the rural sector supported the ascendancy of populist regimes that displayed a strong commitment to urban workers' welfare, full employment, and real wage growth.[4] In Korea and Taiwan, the weaker commitment of the initial regimes to the welfare of urban workers, and their replacement after 1960 by politically exclusionary regimes which were even less responsive to the political demands of the urban labor force, has been attributed to a large extent to the lack of urban industrial concentration in the 1940s and 1950s.[5] Regarding the Latin American countries, it has been emphasized that in Argentina Peron had to appease the masses, which were the pillar of his ascendancy to power. The masses had fed from the vast rural-urban migrations in the 1930s and 1940s that were driven initially by the deterioration of the external terms of trade during the Great Depression, and subsequently by the expectation of future further decline in the relative price of agricultural goods.[6]

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[2] See Diaz-Alejandro (1970) and Sturzenegger (1991) for Argentina, Brandao and Carvalho (1991) for Brazil, Moon and Kang (1991) for Korea, Huang (1993) for Taiwan.

[3] See Ranis (1990).

[4] See Diaz-Alejandro (1970), and Deyo (1990).

[5] See Deyo (1990).

[6] See Diaz-Alejandro (1970), and Deyo (1990). Ranis (1990) maintains that Taiwan's import substitution phase was relatively mild because of its initially strong domestic cohesion. This strong cohesion must have certainly been helped by the lack of massive migrations demanding redistributive policies.

The stylized facts for the Argentine and Brazilian experiences are: 1) massive rural urban-migrations during the 1930s and 1940s,[7] 2) the implementation of very high levels of direct and indirect taxation on agriculture during the 1940s and 1950s, and no significant public investment in the sector.[8] For Korea and Taiwan the facts are 1) low levels of migration during the 1945-1960 period,[9] 2) much lower discrimination against agriculture, mostly in the form of indirect price intervention. In Korea direct price intervention resulted in positive protection. In Korea and Taiwan heavy public investment in agriculture was undertaken.[10] Another key difference between both regions was given by the distribution of land. This distribution was highly unequal in Argentina and Brazil (the Gini coefficients for land ownership in 1960 were 0.87 and 0.85, respectively), and very egalitarian in Korea and in Taiwan (respective Ginis of 0.39 and 0.46).[11]

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[7] In Argentina, rural employment absorbed 46% of total employment in 1925, 37% in 1930, 28.2% in 1935, and 24% in 1945 (IEERAL, 1986).

[8] The index of the ratio of domestic to external terms of trade for Argentina fell from 100 in 1935-39 to 47 in 1947-49 (Diaz-Alejandro, 1970).

[9] Agricultural employment in Korea absorbed 67% of total employment in 1953-55, and 60.2% in 1960. In 1970 it absorbed 50% of total employment (Moon and Kang, 1991). The share of agriculture in total employment in Taiwan in 1960 was 50% (Anderson and Hayami, 1986). Rural-urban migrations accelerated only after 1960, with the shift from the import substitution industrialization strategy to an export oriented industrialization strategy, due to a combination of rapid capital accumulation in manufacture, fast productivity growth in agriculture, and the expansion of labor-intensive output now destined for relatively unlimited international markets (Ranis, 1990).

[10] Public investment in agriculture in Korea represented 2.7% of agricultural GDP in 1960. There is little evidence to suggest that the agricultural sector provided sizable financial resources for investment in the non-rural sectors during the 1950s and 1960s (Moon and Kang, 1991). According to these authors, the political atmosphere after World War was such that it did not permit heavy taxation of the rural sector. In Taiwan, the government purchase prices under the procurement and rice-for-fertilizer programs were typically only 70-80% of the prevailing free-market prices. In spite of the negative protection resulting from pricing policies, gains in production and productivity attained because of heavy public investment in research, extension, irrigation, and other rural infrastructure. The net capital outflow from the agricultural sector in the form of rents, interest payments, taxes, went from 22% in 1950-55 to 15% in 1956-59 (Huang, 1993).

[11] See Taylor and Hudson (1972).

With these stylized facts and interpretations in mind, I develop a model that explains the emergence of populist governments that highly tax agriculture as a result of rural-urban migrations that increase the politician's support for such policies. This model allows to explain the contrast between Latin America and East Asia, based on how the differences in the distribution of land affect the workers' decisions to migrate. An important strand of literature on poverty and land ownership has shown how rural workers who are small-holders of land tend to be more productive in the rural sector, and how they will be reluctant to migrate if imperfections in the sales market for land prevents them from capitalizing this higher productivity.[12]

The benchmark economy is a variation of a Viner-Ricardo specific factor model, which allows to draw clear implications from the conflict of interests between workers and landowners for the implementations of trade policies. In such economy, protection against imports of manufactures favors urban workers and hurts landlords. I develop a model of the political process in which the government seeks to maximize an objective function which is a weighted average of aggregate welfare and of the welfare of urban workers. The benefit derived from increasing the income of urban workers depends on both the welfare of an individual worker, and on the number of workers employed in the urban sector, which is endogenous. The government is assumed to be myopic and unable to commit to a certain tariff. Therefore, rural-urban migrations can affect the government's willingness to give protection. The emergence of a populist regime that favors urban workers thus generates increasing political

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[12] See Bliss and Stern (1978), Dasgupta and Ray (1986), Moene (1992).

returns in moving to the urban sector. The possibility of multiple equilibria is immediately apparent. Depending on their land holdings and the associated agricultural productivities, rural workers may be of types that (a) are willing to migrate regardless of what the rest does, (b) favor a massive migration, but are not willing to migrate alone, (c) would never migrate alone. The possibility of coordination failures readily arises. In the model, rural workers are grouped into two "villages." Workers inside each village own equal amounts of land and coordinate their actions, but the villages may differ in type, as defined by the land-holdings of their inhabitants, and have incomplete information about the other village's type. Allowing for an endogenously determined sequence of moves, both villages will play "bandwagon strategies." A bandwagon strategy for a village can be defined by the choice of a pair of cut-off points regarding land ownership and associated productivity such that if the villagers are landless or own relatively little land, they migrate at once; if land distribution is more egalitarian, and the villagers own a relatively intermediate amount of land, the village does not migrate at once, and then migrates in the next period if and only if the other village migrated in the previous period; and if the plots and associated productivity are relatively large, the village never migrates. This is rather intuitive. Given the news of a political change, and lured by their urban cousins, "We are making some changes, but if you come and join us we will be able to get even more concessions!!!," those who have nothing to lose, the landless, will migrate at once, whereas those who own some land and face a higher opportunity cost of migrating would rather wait and see, or never migrate. This

means that in highly unequal economies such as the Latin Americans, most peasants will be of types that will lead to either massive simultaneous migrations in response to the emergence of a new political technology, or to migration waves, ending in a high tariff and large migrations. In highly egalitarian economies, like the East Asian countries, most rural workers will be of types with a relatively large opportunity cost of migrating, and would rather wait and see, or would never migrate, resulting in situations of either coordination failure, or of strong opposition to migrate by everybody. Such cases would have resulted in no migrations and no increase in tariffs. While most economic historians and political scientists who studied the subject coincide in the view that the differences in the degree of concentration in urban industrial centers were the distinguishing feature that led to a well organized urban labor force in Latin America, and to a politically weak urban labor force in East Asia, none of them inquired into the structural differences in both areas that may have led to such different scenarios. By focusing on the role played by the distribution of land ownership in a worker's decision to migrate, I am able to provide an appealing explanation for such divergence.[13]

This is the main contribution of the paper. It applies the model of technology adoption in the presence of network externalities developed by Farrell and Saloner (1985) to the understanding of migration decisions and policy making in the presence

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[13] Inequality in land ownership has already been singled out as one of main contributors to the lackluster growth performance of Latin American countries vis-a-vis the East Asian countries (Rodrik, 1994). Alesina and Rodrik (1994) focus on the impact that inequality has in the generation of distributive conflicts that eventually lead to the endogenous determination of redistributive policies that are harmful for growth through distortionary taxation on accumulable factors. They present

of politically determined externalities. Such framework conveys a very intuitive way to understand the variety of scenarios which may emerge regarding the different distributions of land ownership and the actions that rural workers may prefer regarding the timing of their migrations, and how these preferences relate to the other peasants' actions.[14]

This paper offers other important contributions to the understanding of trade policy formation in developing countries. First, it presents a novel approach to the political determination of trade policies by allowing urban workers to affect the weight put on their welfare by means of rural-urban migrations. The traditional approach to policy formation via the maximization of a political support function has been to assign constant weights to the welfare of different groups, and usually no special weight to the welfare of workers, and has nothing to say regarding the role of migrations that lead to the taxation of agriculture.[15] This is also a contribution relative to other political economy approaches to policy formation, in which the relative political power of pressure groups is exogenously determined.[16] Second, it challenges the conventional view that concentration of landownership can affect the endogenous determination of trade policies only by allowing the formation of a powerful agricultural lobby that can overcome the free rider problem, leading inevitably to a

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empirical evidence showing growth to be negatively correlated to inequality in income distribution and in land ownership in a cross-section of countries.

[14] In an interesting twist with respect to the literature on network externalities, this paper shows that a bandwagon equilibrium will also exist when there exist decreasing returns to labor in the traditional sector or old technology, as long as these decreasing returns are smaller than the positive externalities in the modern sector or new technology.

[15] See Hillman (1982), Long and Vousden (1991).

more benign treatment of the agricultural sector.[17] The contrasting experience of East Asia and Latin America in this period suggests the opposite.

The paper also offers a contribution to the literature on increasing returns, by focusing on the analysis of externalities of a political nature. In this model, the equilibrium in which the economy converges to the sector that offers increasing returns is not a good equilibrium, as in this case migration to the urban sector is not accompanied by an increase in the physical productivity of labor. Convergence to this equilibrium leads to welfare losses resulting from the imposition of import tariffs which may be exacerbated by the loss of the higher productivity of small holders that migrate.

In section 2, a benchmark economy with full inequality in land ownership is presented. In section 3, a more egalitarian distribution of land ownership and its implications for migrations are introduced. In section 4, I derive policy determination via maximization of a political support function and analyze how migrations can lead to policy changes. I also analyze how differences in the distribution of land, by affecting the decisions to migrate can lead to multiple equilibria in the levels of migration and in the level of protection. In Section 5, I present the main conclusions, and suggest possible extensions.

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[16] See Findlay and Wellisz (1982), Mayer (1984), Magge, Brock and Young (1989), and Grossman and Helpman (1994). For an exception, see Mitra (1996).
[17] See Olson (1965).

2. Benchmark economy

Two goods are produced, consumed and traded. Two factors of production are employed, land T, and labor L. The agricultural good A is produced with a constant returns to scale technology, using both land and labor, $X^A = G[L - L_U, T]$, $G_i > 0$, $G_{ii} < 0$, $G_{ij} > 0$, where L_u is the labor employed in the urban sector. The urban manufacturing good U is produced with a constant returns to scale technology using only labor, $X^U = F[L_U] = L_U$. Both goods are tradable, and their prices are set in international markets in which the domestic economy does not have monopoly power. To simplify the notation I set these international prices equal to one. The domestic price of the urban good may differ from the international price if an ad-valorem tariff $\tau - 1$ is imposed, in which case $p_u = \tau$.

The allocation of labor is done by setting the marginal value product of labor in each sector equal to wages, which are equal in both sectors. Full employment determines the following labor allocation:

$$(1) \qquad L_U = L - G_1^{-1}[p_U, T] = \phi(p_U), \qquad \phi'(p_U) > 0$$

An increase in the price of the urban good will prompt a relocation of workers to the urban sector until the marginal value product of labor is equated again in both sectors.

Preferences will determine the allocation of agricultural output to domestic consumption and to exports, and the level of imports of manufactures. I assume that agents are heterogeneous both in tastes and endowments. Workers do not own any

land, and consume only the agricultural good. Landowners do not work, and consume

both goods.[18] The workers' income is thus determined by wages $w=p_U$, and

landlords' income is determined by the rent on land, $RT = G_2[L - L_U, T]T$. I assume

that the utility function for landlords is semi-linear in the agricultural good:

(2) $\qquad u[c_U, c_A] = u(c_U) + c_A \qquad\qquad u'(c_U) > 0 \qquad u''(c_U) < 0$

With these preferences, the consumption of the urban good is given by

(3) $\qquad C_U = u'^{-1}(p_U) = D_U(p_U) \qquad\qquad D_U'(p_U) < 0,$

while the consumption of the agricultural good by landlords is given by

(4) $\qquad c_A[p_U, RT] = RT - D_U(p_U)$

The workers' preferences are determined by

(5) $\qquad u[c_A] = c_A$

yielding a demand for the agricultural good given by

(6) $\qquad c_A[w] = w$

The demand for imports is thus given by:

(7) $\qquad M[p_U] = D_U[p_U] - \phi[p_U] \qquad\qquad\qquad M' < 0$

The preferences and endowments assumed here yield the following respective indirect

utility functions for landlords and workers:

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[18] This assumption on preferences and endowments is made only to simplify the analysis, so as to make workers unambiguously benefit from increases in the relative price of the urban good, and landowners be unambiguously worse with such a change. The same results would attain in a more general setting assuming non-homothetic preferences, with food being an inferior good. This assumption is supported by the fact that while farm products account for about half of low-income household expenditure in developing countries, they account for a much lower share of rich household expenditures (Anderson, 1995). Regarding the assumption that landlords do not work, it can be relaxed, and assume instead that their land rents are large enough relative to their wage income.

$$(8) \qquad V[p_U, RT] = RT + S^T(p_U)$$

$$(9) \qquad V[p_U, w] = w = p_U = \tau$$

where $S^T(p_U)$ is the consumer surplus on the urban good.[19]

3. Egalitarianism in the distribution of land

In this section I will study the implications of introducing a higher degree of equality in the distribution of land ownership. This is one of the starkest contrasts between East Asia and Latin America, and it will provide a key mechanism that allows to explain the diverging experiences of these two regions. Seminal work by Bliss and Stern (1978), Dasgupta and Ray (1986), and Moene (1992), links the property of land by rural workers to higher productivity in the agricultural sector. Rural workers that are small holders tend to be more productive because of access to better nutrition, and because of the possibility of using their land as collateral for obtaining loans to buy fertilizers and other inputs. If there exist imperfections in the market for land sales that prevent the capitalization of that higher productivity in the rural sector by selling the land, then the opportunity cost of migrating for these small holders will be larger than that of a landless peasant. Imperfections in the market for land were rampart in East Asia, with land sales being prohibited in Korea and in Taiwan following the land reforms of the late 1940s.[20] I now modify the benchmark

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[19] For a formal derivation of (8) see Helpman (1995).
[20] See Moon and Kang (1991), Huang (1993), King (1974).

economy by allowing rural workers to own some land. Factor ownership is now distributed as follows:

$T - N_S H_S$ units of land owned by landlords who do not work.

N_S small-holders who own H_S units of land each, and who work either in the agricultural sector or in the urban sector.[21]

N_L landless workers who work in either of both sectors.

I will assume that the market for land rental is perfectly competitive, and that rural workers optimize over the amount of land per efficiency unit that they will rent and exploit. However, in line with the land sales market regulations prevailing in Korea and in Taiwan, I will assume that land sales are forbidden. I will also assume that small-holders are more productive because credit markets are imperfect and only the small-holders who can use their plots as collateral have access to credit for the purchase of inputs that enhance their productivity when working in the agricultural sector. I thus introduce a labor productivity scaling factor α_i, $i=S,L$, such that [22]

(10) $\alpha_i = \alpha_S > 1$ if $H_i > 0$, $\alpha_i = 1$ if $H_i = 0$

Accordingly, the production functions in the agricultural sector now are:

$$A_i = G(\alpha_i L_{Ai}, T_i)$$

(11) $A_L = G(L_{AL}, T_L) = L_{AL} G(1, t_L)$

$$A_S = G(\alpha_S L_{AS}, T_S) = \alpha_S L_{AS} G(1, t_S / \alpha_S)$$

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[21] The small-holders who work in the urban sector rent their land to other rural workers.

[22] This is an extremely simplified version of what is done by Moene (1992), by Bliss and Stern (1978), and by Dasgupta and Ray (1986), where rural labor productivity increases continuously with income, once income has reached a certain minimum.

where, L_{AL} is the number of time units of work put by landless workers in the agricultural sector, and L_{AS} is the number of time units of work put by small-holders in the agricultural sector. In efficiency units,

$$(12) \qquad a_L = G(1, t_L) \qquad\qquad a_S = G(1, t_s / \alpha_S)$$

With such a distribution of productivity, agricultural workers' income is given by:

$$(13) \qquad \begin{aligned} I_L &= \max_{t_L} G(1, t_L) - R t_L = Q(R), Q' < 0 \\[2ex] I_S &= \alpha_S \left[\max_{t_S/\alpha_S} G(1, \frac{t_S}{\alpha_S}) - R \frac{t_S}{\alpha_S} \right] + RH_S = \alpha_S Q(R) + RH_S \end{aligned}$$

While landless workers' income decreases as R increases, that of small holders may decrease or increase, depending on the amount of land owned. By the envelope theorem, $\partial I_s / \partial R = H_s - (t_s / \alpha_s)^*$, where $(t_s / \alpha_s)^*$ is the optimal choice of land per efficiency unit of labor. I will assume from now on that H_S is small enough as to make negative this derivative. The rent on land is a function of the ratio of land to the agricultural labor force measured in efficiency units,

$$(15) \qquad R = G_2(1, t_L) = G_2(1, t_s / \alpha_s)$$

which implies that $t_L = t_S / \alpha_s = T / E$, where $E = L_{AL} + L_{AS}\alpha_s$: agricultural labor force, measured in efficiency units. Labor allocation between sectors is such that:

$$(16) \qquad p_U = \tau = w = Q(R) < \alpha_s Q(R)$$

Hence, a landless worker gets $w = Q(R)$, in either sector. A small-holder, gets $\alpha_S Q(R) + RH_S$ in the agricultural sector, and $Q(R) + RH_S$ in the urban sector. Thus, as long as $L_{AL} \geq 0$, and hence $w = Q(R)$, following a small change in relative prices, small-holders will prefer not to migrate. The assumption that land sales are forbidden is key, since it

will prevent small-holders from capitalizing their higher productivity by selling the land. A small-holder that rents its land and migrates thus loses its higher productivity.

In order to make comparisons with the benchmark economy, assume that at the initial equilibrium all landless workers were employed in the urban sector, and that the urban price is such that $p_{U_o} = Q(R_o) = G_1[\alpha_S N_S, T]$, $R_o = G_2(\alpha_s N_s, T)$, with the small-holders enjoying an income given by $I_S = \alpha_S Q(R_o) + R_o H_S$. Let us now consider the effect of an increase p_U, from p_{U_o} to p_{U_1}. Such a price change would increase the value of the marginal product of labor in the urban manufacturing sector, pushing w up. If the increase in p_U is such that $p_{U_1} \leq \alpha_s Q(R_o)$, then the small-holders will remain in the rural sector despite the increase in urban wages. So the effects will be an increase in urban wages with urban employment and output unchanged, rural employment and labor force and output unchanged, land rent unchanged, and agricultural "wages" unchanged. The income of small-holders would remain unchanged. Welfare effects would be negative for landlords and would arise from the impact of a higher p_U on the consumption of good U. It would have a nil effect on the welfare of small-holders, and a positive effect on the welfare of urban workers. The price range over which there will not be labor mobility is defined by $p_{U_1} \leq \alpha_s Q(R_o) = \alpha_S p_{U0}$, or $p_{U_1} / p_{U0} \leq \alpha_s$. Once the increase in the urban good price is such that the resulting urban wage is greater than the unchanged wage income of small-holders, there will be a migration of small-holders to the urban sector, decreasing urban wages and the land rent, and thus increasing the agricultural wage income of small-holders, until $p_U = \alpha_S Q(R)$, where $R < R_o$ and $p_U > p_{U0}$.

Formally, if the new price p_{U2} is such that $p_{U2} > \alpha_s Q(R_o) = \alpha_s G_2(\alpha_s N_s, T)$, then small-holders will migrate to the agricultural sector until $p_{U2} = \alpha_s Q(R_1) = \alpha_s G_1[\alpha_s(N_s - L_{US}), T]$ where L_{US} stands for the small-holders employed in the urban sector. At the new equilibrium the labor force in efficiency units will have shrunk, (because of the loss of productivity of the small-holders that move), land rents decreased, urban employment and output increased, and agricultural employment, labor force and output decreased.

4. Endogenous tariff formation and rural-urban migrations

In this section I analyze how rural-urban migrations can affect the political determination of the tariff on the imports of the urban good when the government cares relatively more about the welfare of urban workers. Migrations, by increasing the size of the urban labor force, raise the marginal benefit that the government derives from implementing a tariff that increases the real wage of urban workers, thus leading to a higher tariff than in the absence of migrations. There thus exists a political externality in the decision to migrate to the urban sector. The possibility of multiple equilibria immediately arises. The value of migrating for one worker will depend on whether the other workers migrate or not. Under incomplete information regarding the other workers' types (defined by their landownership and associated opportunity cost of migrating) and an endogenous timing of moves, rural workers, grouped here into villages, will implement bandwagon strategies, by which villages

with workers who own little or no land and thus have a low opportunity cost of migrating will be willing to do so regardless of what other villages do, whereas villages with workers who own more sizable land plots would rather wait and see if others move first before migrating, or else never move if the productivity that they derive from their plots is too large. In economies where rural workers are all small holders there may arise problems of symmetric excess inertia, where even though everybody would be better off by migrating, nobody does so because of coordination problems. In economies with a large degree of inequality there can occur massive migrations as an incipient populist regime emerges, since peasants in these economies would be either willing to migrate regardless of what the rest does, or take part in a second wave of migrations following the lead of those with less land.

The politically determined tariff will be the result of the maximization of a political support function by a myopic government.[23] The government will assign a special weight to the welfare of urban workers, and this weight will be larger the larger the size of the urban labor force. I assume that the government cannot commit a priori to a certain tariff, and it will thus choose the optimal tariff taking the number of urban workers as given. The government's objective function will be a political support function which is a weighted average of aggregate welfare and the welfare of urban workers:

$$(17) \qquad H[\tau, L_U] = (a-1)L_U V_U[\tau] + W[\tau]$$

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[23] For an accurate description of how governments in developing countries tended to be more myopic and with a higher rate of time preference than private agents, see Krueger (1993), and Ranis (1990).

where a is a parameter that measures the marginal rate of substitution between the urban workers welfare and aggregate welfare, V_U is their indirect utility function, w is wages, and W is an aggregate welfare function,

$$(18) \quad W[\tau] = L_U V_U[\tau] + L_A V_A[\tau] + V_T[\tau, RT] + (\tau - 1)M$$

$$= L_U \tau + (L - L_U)G_1[L - L_U, T] + RT + S^T[\tau] + (\tau - 1)M$$

where V_A is the rural workers' indirect utility function, and V_T is the landlords' indirect utility function. The size of the landlord class is normalized to one. Tariff revenues are re-distributed lump-sum to all agents. The rationale for such an objective function is that governments in most developing countries at the outset of World War II, albeit enjoying different degrees of authoritarianism, principally needed the political support of two competing groups, urban workers and rural landlords, to whose interests rulers had to pay special heed.[24] A more general specification of the government's objective function would thus have to put also a special weight on the welfare of rural landlords. In the present context, however, such a specification would only affect notation without changing the results, given that only workers can change the weight put on their welfare by migrating. This is consistent with the empirical finding by Ades and Glaeser (1995) that political weakness leads to centralized urban populations, which they interpret as a reflection of the fact that "unstable regimes must cater to the mobs near the center of power." The rulers in most developing

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[24] See Diaz-Alejandro (1970), Krueger (1993), and Deyo (1990). Micro-foundations for such an objective function can be derived from a campaign-contributions approach as in Grossman and Helpman (1994), where in the present context the contributions from urban workers need not be monetary, but rather take the form of a commitment to "social peace," i.e., not organizing strikes, or the form of harassment to political rivals, e.g.

countries at the outset of World War II, albeit not completely democratic, were rather unstable, and had to rely heavily on building support from the most organized political groups. Regarding the political exclusion of rural workers, this is another stylized fact for the years immediately after World War II. Rural workers would be spread all over the country side and thus be unable to organize, and would be easily controlled by paternalistic rural landlords.[25] The government in this model is thus always a "populist," who will face a trade-off between increasing the real wage of urban workers and decreasing aggregate welfare when choosing the optimal tariff. Taking L_U as given, the optimal tariff is given by:

(18) $\tau[L_U] = 1 - (a-1)L_U / M'$

where M' is the derivative of imports with respect to their price, and $\partial \tau / \partial L_U > 0$. I will assume that starting from an original equilibrium at which no tariff was implemented, a government of the type described above takes office. A political externality immediately arises, leading to the existence of multiple equilibria regarding the politically determined tariff and rural-urban migrations. Rural workers have an incentive to migrate to the urban sector, in anticipation of the government's response. However, the attractiveness of migrating will depend on whether peasants expect other peasants to migrate or not. The emergence of a potentially populist policy-maker is equivalent to the emergence of a new technology for increasing the workers' income, the adoption of which is subject to network externalities, as in Farrell and Saloner (1985), whose framework of analysis will be adapted to the

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[25] See Diaz-Alejandro (1970), and Olson (1965).

present case.[26] I assume that rural workers are grouped into two villages. Workers within each village own the same amount of land and coordinate their actions. Therefore, we can concentrate on the behavior of these villages, which can be assigned types, as given by the size of their land plots and associated agricultural productivities, where $\alpha = \alpha(H_S)$, $\alpha(0)=1$, $\alpha'>0$, is a continuous function, with H_S uniformly distributed *a priori* over $[0, \bar{H}]$. Based on this, I assume that the types of villages are uniformly distributed over the unit interval, and that all types are *a priori* equally probable. This means that types of villages, indexed by j, are distributed uniformly on $[0,1]$, where for $j=0$, $H(0)=0$, $\alpha(0)=1$, and for $j=1$, $H(1)=\bar{H}$.

Each village has incomplete information about the other village's type.[27] This means they will be uncertain as to whether they will be followed by the other village if they migrate. The assumption that workers within each village coordinate their actions is a bit troublesome. It would seem a priori that migration decisions should be made on an individual basis, and without internalizing any effect of their decisions on the others' decisions. However, it has been observed in several instances that rural communities have migrated together to the same destination in a short time span, and not necessarily in situations in which some local natural resource has been exhausted.

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[26] An important difference here will be that while in the study of technology adoption in the presence of network externalities both the old and the new technology offer increasing returns, in the problem studied here only the new technology (migrating to the urban sector) offers a network externality, whereas the old technology (staying in the agricultural sector) will be subject to diminishing returns to labor because of a constant stock of land.

[27] The assumption that each village has incomplete information about the true distribution of landownership and that they assign each possible type the same a priori probability of occurring is a strong one, but it is not crucial for the results. Introducing non-uniform distributions would make the

Large shares of rural communities from Argentine provinces (mostly from the Northwestern region) would migrate to distant Buenos Aires, and locate together, in the 1930s and 1940s, rather than spread their destinations over other urban centers in neighboring provinces, as it had happened in the previous decades. This is consistent with the fact that during these two decades the number of female migrants was slightly larger than the number of male migrants, with a prevalence of households moving together, whereas in the previous decades the migrants were mostly male.[28] On a different context, international migrations of communities from Europe to Argentina as a group were quite common.[29] Reasons often mentioned for why people from the same community tend to migrate together are that there may exist social network effects, that is, people do not like to move alone. However, there exist frequent accounts of the existence of community leaders, individuals who are more entrepreneurial, more visionary, who have a large clout on the village's decisions.[30] These leaders can be informed of the political externality of migrations (there may be "urban cousins" who tell them of the changes that the urban labor force is obtaining from the government, and how there would be more favorable changes if they joined them) and who can thus coordinate the villagers' actions.[31] This is not too an

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algebra more cumbersome, but it would make the results even stronger, as it will be discussed when the results are presented.

[28] See Lattes and Lattes (1969).

[29] For a thorough account of the migration of a Waldensian community from Northern Italy to Colonia San Sebastiano in Argentina at the turn of the century, see Hoffman-Ruggiero (1988).

[30] Hoffman-Ruggiero (1988) provides a portrait of a typical village leader: "There is … Tullio Gilly, for example, the secretary of the government junta, a gringo -- they call him the "father of the village" because he takes care of everything."

[31] An interesting difference with the models of consumer network externalities is that in here when the new "technology" (the populist government) becomes available, there already exist users of this technology (the workers initially located in the urban sector), who benefit from an "upgrade" in this

unrealistic interpretation of the phenomenon, and based on this I will assume that villagers coordinate their actions. However, I recognize that it is still a strong assumption to make that one village will internalize the effect of its decision on the policy outcome and thus on the other village's decision.

In such a scenario, each of the villages, informed of the emergence of a new type of government, will have to decide when and whether to migrate, based on its own type and on its expectation regarding the other village's action. Intuitively, villages with no or little land plots owned by rural workers would have a lower opportunity cost of migrating, and would most likely want to migrate regardless of what the other village does, while villages with workers that own some land would probably want to wait and see what the other village does first, and workers with sizable land holdings would probably never want to migrate. I will restrict the attention to a two-period case; having more than two periods would not change the results.[32] The timing of moves will be endogenous. Payoffs will be realized at the end of the second period. A last assumption is that both villages have the same number of workers, $N/2$, N being the size of the rural labor force at the original equilibrium.

Define $B^j(N,U) \equiv \tau[L_{UO} + N]$, where L_{UO} is the initial size of the urban labor force, as the net benefit to a village of type j to migrate if the other village migrates too; $B^j(N/2,U) \equiv \tau[L_{UO} + N/2]$ as the net benefit to a village of type j if

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technology, and who would benefit if peasants migrated. It would be interesting to explore formal mechanisms by which these previous "users" can lure rural workers to the urban sector.

[32] The reason by which only two periods suffice is the same as in Farrell and Saloner (1985), which is explained in footnote no. 8 in that paper.

it migrates alone; $B^j(N,A) \equiv \alpha(j)G_1[E,T]$ as the benefit to a village of type j if

both villages stay in the rural sector together, where E is the agricultural labor force in

efficiency units; and $B^j(N/2,A) \equiv \alpha(j)G_1[\alpha(j)N/2,T]$ as the benefit for a village

of type j from staying alone in the rural sector. All these benefits are defined relative

to the benefit from staying alone in the agricultural sector; i.e., I normalize so that

each village gets zero if it stays alone.

Following Farrell and Saloner (1985), if we let Π denote the action "migrate"

and let S denote "stay", a strategy for village k (k=1,2) can be described by the pair

$$\sigma_1^k:[0,1] \to \{\Pi,S\} \quad \text{and} \quad \sigma_2^k:[0,1] \times \{\Pi,S\} \to \{\Pi,S\},$$

i.e., the second round move is conditioned on the player's own type and the

opponent's first-period move. Here σ_t describes the strategy for period t and maps

the set of village types and history of play to date into the possible actions that the

village can take.

The structure of the problem can be summarized in the following assumptions

regarding the types of villages and the payoffs from migrating and from staying:

Assumption 1. $B^j(N,U) > B^j(N/2,U)$, and $B^j(N,A) < B^j(N/2,A)$.

There exist increasing political returns in the urban sector which make massive rural-

urban migrations beneficial. This follows from the government's distributive

objectives and from its inability to commit. On the other hand, in the agricultural

sector there exist diminishing returns to labor, due to the fixed stock of land.

Assumption 2. $B^j(N,U) - B^j(N/2,U) > B^j(N/2,A) - B^j(N,A)$, for all types j.

This is a key assumption for the adoption of bandwagon strategies by the villages. It means that the political externalities from migrating to the urban sector are larger than the decreasing returns in the rural sector for all types of workers. This does not necessarily follow from the structure of the problem, and hence needs to be assumed.

Assumption 3. $B^j(N,U)$ and $B^j(N/2,U)$ are continuous and strictly decreasing in j. Lower types (indexed by lower values of j) own less land and are thus less productive as rural workers. Therefore, their opportunity cost of migrating is relatively low, and are more willing to migrate, both unilaterally and along with the other village.[33] The fact that $B^j(N,U)$ is monotonically decreasing in j means that if a village of type j' prefers a combined migration to staying alone in the agricultural sector, then so do all firms with $j < j'$. This means that if j' would migrate after another village has migrated, then so would all types $j < j'$.

Assumption 4. $B^0(N/2,U) > B^0(N,A)$ and $B^1(N/2,A) > B^1(N,U)$.

This assumption and assumption 2 imply that $B^0(N,U) > B^0(N/2,A)$ and that $B^1(N,A) > B^1(N/2,U)$. This means that unilateral migration is profitable for at least one possible type of village (one with landless workers), and there are some types with relatively large plots that prefer to stay alone in the agricultural sector rather than engage in a massive migration.

Assumptions 2 and 3 ensure that the migration of one village at time 1 can generate a bandwagon effect. A village of an intermediate type, where workers are

small holders of land, would not want to migrate alone and lose its higher agricultural productivity. However, if the other village migrated first, it would be very happy to jump on the bandwagon, as the benefits from moving together would outweigh those from staying alone. Assumption 3 is crucial, as it ensures that a village of an intermediate type would want to migrate after the other village has migrated first. It is a condition that follows from the nature of the problem at hand, and thus it is not a restrictive assumption. If Assumption 2 were relaxed, and the diminishing returns to labor in agriculture were larger instead, then the village of an intermediate type would rather do the opposite than the other village did in the first period: stay to take advantage of higher returns in the rural sector if the other village migrated at time 1, or migrate if the other village stayed, thus making staying in the agricultural sector less attractive than migrating alone. This case is analyzed in the next sub-section. Assumptions 1-4 are illustrated in Figure 1, where the a curve represents $B^j(N/2,U)$, the b curve represents $B^j(N,A)$, the c curve represents $B^j(N,U)$, and the d curve represents $B^j(N/2,A)$.

Under the above assumptions, a bandwagon strategy for a village can be defined by a pair $(j^*,\bar{j})$, such that: a) if $j \leq j^*$, the village migrates at time 1; b) if $j^* < j \leq \bar{j}$, the village does not migrate at time 1, and then migrates at time 2 if and only if the other village migrated at time 1; and c) if $j > \bar{j}$, the village never migrates.

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[33] Take for instance $B^j(N,U) \equiv \tau[L_{uo}+N] - \alpha(j)G_1[\alpha(j)N/2,T]$. The urban wages are independent of the village's type, but the foregone rural wage income is increasing in the village's type.

Figure 1. Bandwagon Equilibrium
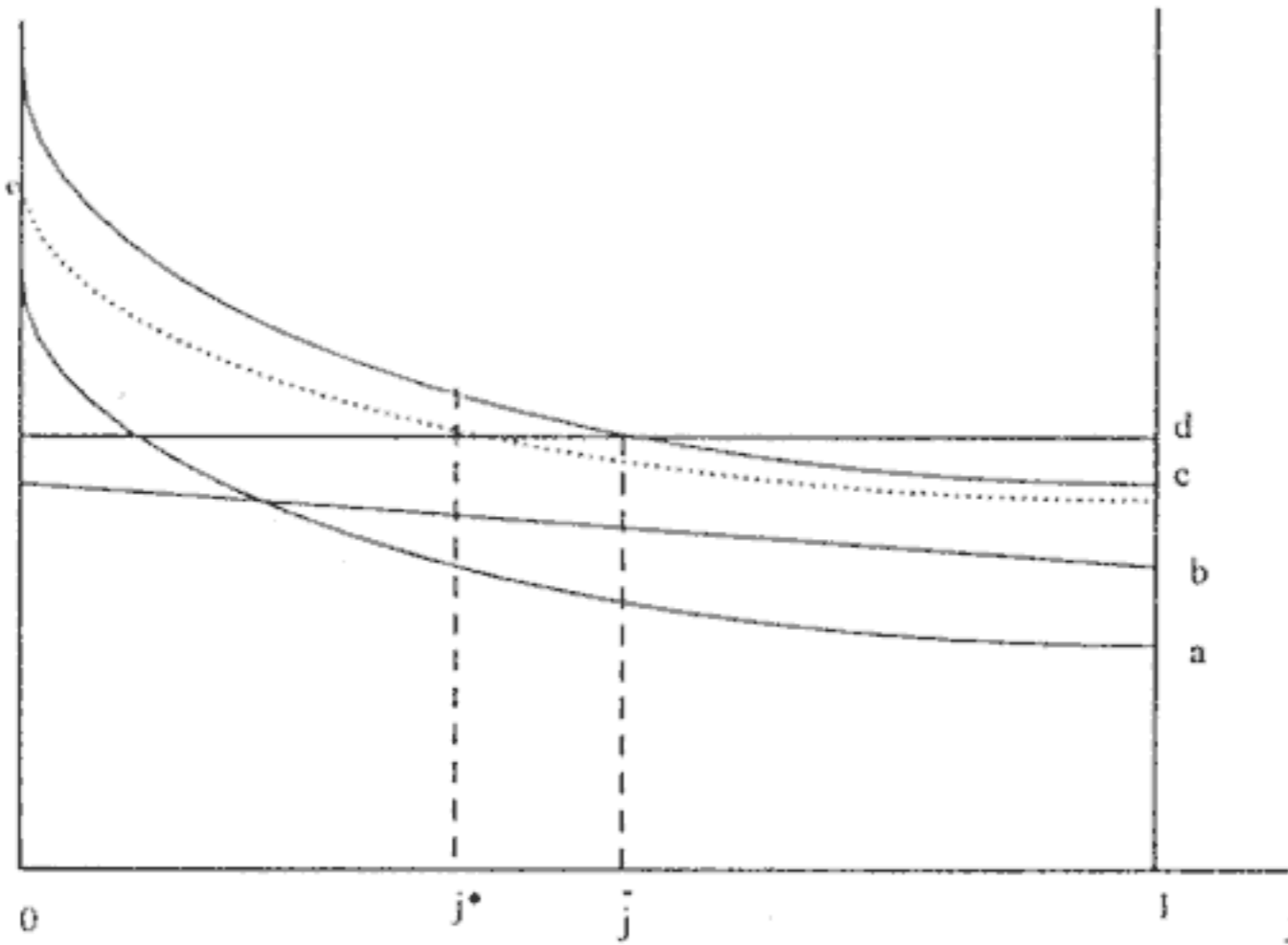
A bandwagon equilibrium is a perfect Bayesian Nash equilibrium in which each firm plays a bandwagon strategy. As in Farrell and Saloner (1985), I will concentrate on symmetric bandwagon equilibria, where $(j^*, \bar{j})$ is the same for each village. I will show below that using Assumptions 1-4, a unique symmetric bandwagon equilibrium will exist.

First let us consider behavior in the second period. Let $\bar{j}$ be defined by $B^j(N,U) = B^j(N/2, A)$. Any village with type $j > \bar{j}$ would prefer to stay in the agricultural sector rather than migrating together with the other village, and would never migrate. But a village with $j < \bar{j}$ would migrate in the second period if the other village had already migrated. Let us now analyze behavior in the first period.

Define $\Gamma(j) = (1-j)[B^j(N,U) - B^j(N,A)] - (1-\bar{j})[B^j(N,U) - B^j(N/2,U)]$. Let

$J = \{j: \Gamma(j) = 0\}$. $\Gamma(j)$ is the difference between the expected value of migrating at

time 1, and the expected value of staying.

Lemma 1. (i) $\Gamma(j) < 0 \ \ \forall j \geq \bar{j}$; (ii) $\Gamma(j)$ *is strictly decreasing in* $j \ \ \forall j < \bar{j}$; (iii)

$\Gamma(0) > 0$; (iv) J *contains exactly one point* (j^*); (v) $j^* \in (0, \bar{j})$.

Proof. See Appendix.

Lemma 2. $B^{j^*}(N,U) > 0$ *and* $B^{j^*}(N/2,U) < B^{j^*}(N,A) < 0$.

Proof. See Appendix.

These lemmas are illustrated in Figure 1, where $\Gamma(j)$ is represented by the dotted

curve labeled e.

Proposition 1. *With* j^* *and* $\bar{j}$ *defined as above, a unique symmetric bandwagon*

equilibrium exists.

Proof. The proof is similar to the case of the existence of a bandwagon equilibrium in

technology adoption when there are network externalities (Farrell and Saloner, 1985).

In this case, in spite of having diminishing returns to labor in the agricultural sector,

Assumption 2 ensures that a bandwagon equilibrium will exist. There are three

actions to consider:

a_1: migrate at time 1

a_2: migrate at time 2 if and only if the other village migrated at time 1

a_3: do not migrate at time 2 even if the other village migrated at time 1.

Define $w^j(a_k)$ as the expected benefit to a village of type j when it uses action

a_k and when the other village is using the bandwagon strategy $(j^*, \bar{j})$. First I will

show that a_1 is the dominant strategy when $j < j^*$:

a) For $j < \bar{j}$, $w^j(a_1) - w^j(a_2)$ has the sign of $j - j^*$;

$$w^j(a_1) = B^j(N,U)\, \bar{j} + B^j(N/2,U)(1 - \bar{j})$$

$$w^j(a_2) = B^j(N,U)\, j^* + B^j(N,A)(1 - j^*)$$

$$w^j(a_1) - w^j(a_2) = (1 - j^*)[B^j(N,U) - B^j(N,A)] - (1 - \bar{j})[B^j(N,U) - B^j(N/2,U)]$$

Therefore, $w^j(a_1) - w^j(a_2) = \Gamma(j)$, and the result follows from Lemma 1.

(b) The action a_3 is preferred to a_2 when $j > \bar{j}$. $w^j(a_2) - w^j(a_3)$ has the sign of $j - \bar{j}$:

$$w^j(a_2) = B^j(N,U)\, j^* + B^j(N,A)(1 - j^*)$$

$$w^j(a_3) = B^j(N,A)(1 - j^*)$$

$$w^j(a_2) - w^j(a_3) = B^j(N,U)\, j^*$$

which by definition of $\bar{j}$ is positive if $j < \bar{j}$, and negative if $j > \bar{j}$.

(c) If $j \geq \bar{j}$, $w^j(a_3) > w^j(a_2) > w^j(a_1)$, and a_3 is the dominant strategy. If $j < \bar{j}$, a_2 is

preferred to a_3 (from (b)). If $j < j^*$, a_1 is preferred to a_2 (from (a)). The bandwagon

strategy $(j^*, \bar{j})$ is thus the unique best response to the bandwagon strategy $(j^*, \bar{j})$.

Finally, a symmetric equilibrium has $\Gamma(j^*) = 0$ by step (a). But then Lemma 1

implies that there is a unique symmetric bandwagon equilibrium. Q.E.D.

Proposition 2. *Under the assumptions 1-4, any equilibrium strategy is a bandwagon strategy.*

Proof. See Appendix.

Several features of the equilibrium can be observed directly from Figure 1. The figure was drawn under the assumption that $B^1(N,A) < B^1(N,U)$, which has no implications for Proposition 1. Under this assumption, both villages would always be better off by migrating together than by staying together. If both villages are of types $j^* < j < \bar{j}$, then they would both be fence sitters, waiting for the other to migrate first. Their opportunity cost of migrating, as given by the agricultural productivity associated to their land plots, is large enough as to make it unprofitable to migrate alone, but low enough to make it profitable to migrate together. They would not migrate even though a joint migration would have occurred in a world of complete information. In this region there thus is symmetric excess inertia.

If both villages were of type $j \geq \bar{j}$, with relatively large land holdings, then they would never migrate even though they would be better off migrating together. However, in this case they would never migrate together in a world of complete information, as it would always pay to deviate. This a "prisoners' dilemma" region.[34]

In the present setup there could also be asymmetric excess inertia, in the sense that one village of type $j^* < j < \bar{j}$ would have $B^j(N,U) > B^j(N,A)$, and another

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[34] This is an interesting difference with respect to the results in the network externality literature, where a prisoners' dilemma region would never arise (see Farrell and Saloner, 1985). This is because

village of type $j' > \bar{j}$ would have $B^{j'}(N,U) < B^{j'}(N/2,A)$, and the joint migration would never occur when only one of them strongly favored it. This is because the second village would fall in the prisoners' dilemma region, and would rather stay alone than migrate together.

There are also some types just below $j*$ for which $B^j(N/2,U) < B^j(N,A)$. These types start the bandwagon rolling, but if it occurs that the other village was of a type above $\bar{j}$, they regret their decision ex-post. A village of this type is a village that favors sufficiently a joint migration that it gambles moving at time 1, even though it knows with positive probability that the other village may not follow it.[35]

It is now possible to see the implications of having villages using bandwagon strategies when there are political externalities in the urban sector, and when there are different possible distributions of land ownership and associated opportunity costs of

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of the existence of diminishing returns in the agricultural sector, which make staying alone in the rural sector more attractive than moving together for villages with relatively large land holdings.

[35] The above results hinge on the assumption that each village assigns the same a priori probability of occurrence of all types regarding the size of the land holdings by rural workers in the other village. It would be more realistic to assume that each village knows the distribution of land ownership in the economy, so that if it is very unequal (like in Latin America) it will skewed toward the low types, whereas if it is very egalitarian (like in East Asia) it will be skewed toward the high types. This would be an interesting extension. Intuitively, both villages would still play bandwagon strategies. The cutoff point for never moving would still be the same, as it depends only on the benefits of moving together in the second period relative to the benefits of staying alone in agriculture, which are independent of the other firm's type. However, the cutoff point for moving at time 1 will depend on the a priori expected type of the other firm. In an unequal economy, low types will be assigned a higher probability, and the probability that the other village will be of a type that would never move will be lower than in the uniform distribution case. Hence, the expected benefit of migrating at time 1 will be larger. This would yield the result that a larger range of relatively low types would be willing to set the bandwagon rolling and that the size of the symmetric excess inertia region will be smaller. In the case of an egalitarian distribution, the a priori probability that the other village will never migrate will be larger, thus decreasing the expected benefit of migrating at time 1, which would result in having less types willing to start the bandwagon, and in a larger region of coordination failure. It is not clear,

migrating. In economics with a very unequal distribution of land ownership, like the Latin American countries, most peasants will be of a low to intermediate type. This means that either massive migrations would have occurred at time 1 in response to the emergence of the new political technology, or that if some workers were of a type that would migrate regardless of what the rest does ($j < j^*$), and the rest were of a fence sitting type ($j^* < j < \bar{j}$), there would be migration waves, and in the end a high tariff and large migrations would have attained. This is consistent with the Argentine experience where, after the government started implementing mild protectionist policies in the mid-1930s in response to the Great Depression, there was a large rural-urban migration wave in the late 1930s that in the interpretation of Diaz-Alejandro (1970) responded to the expectation of future changes of relative prices. This first move was followed by another migration wave in 1943-47, when 20% of the agricultural labor force migrated mostly to Buenos Aires, coinciding with the adoption of the highest protectionist stance and harshest anti-rural bias under Peron in the 1945-1949 period.[36]

In the East Asian countries, the high egalitarianism in the distribution of land determined that most rural workers be of an intermediate to high type. Given the relatively large opportunity cost of migrating associated with land ownership, most peasants would rather wait and see, or would never migrate, resulting in situations of either symmetric or asymmetric inertia, or even having everybody in the prisoners'

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however, whether there will still be a unique bandwagon equilibrium once a skewed distribution is introduced.

dilemma region. Such cases would have resulted in no migrations and no increase in tariffs. If all were of an intermediate type (a very likely situation, given the ceiling of 3 hectares per plot imposed by the land reform[37]), a situation of excess inertia would have arisen, and peasants in Korea and Taiwan would have benefited from the emergence of some leader that coordinated their actions, and made them be better off by migrating and having the government implement more protectionist policies.

In line with the findings by Ades and Glaeser (1995) mentioned above, in Latin America the rural-urban migrations of mostly landless peasants fed the mobs in the center of power to which the government had to cater, whereas in East Asia, in spite of the unstable regimes present there, the lack of migrations meant that the relatively small urban labor force never turned into a mob that could sway the government in its policy decisions.

We can now turn our attention to some interesting comparative statics results. First, let us consider the effect of an exogenous increase in the relative price of the urban good, previous to the emergence of the populist government, in line with the Latin American experience of the early 1930s. Such a change would increase the urban wage at all levels of urban employment once the populist government took office, $w = p_U \tau(L_U)$, making the urban sector more attractive. The price change would affect the initial allocation, increasing L_{U0}, reducing N and $N/2$, and increasing $L_{U0} + N/2$. The reduction in $N/2$ will lead to a reduction in $B^j(N, U)$-

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[36] There was a large migration in the early 1930s, but that one was attributable to the dramatic terms of trade shock against agriculture induced by the Great Depression (Diaz-Alejandro, 1970).

[37] See King (1973).

$B^j(N/2,U) = \tau(L_{U0} + N) - \tau(L_{U0} + N/2)$, by the linearity of $\tau(L_U)$. Because of

the concavity of $G(L - L_U, T)$ and of the linearity of the tariff function, $B^j(N,U)$,

$B^j(N/2,U)$, and $B^j(N,A)$ will have increased. Looking at Figure 1, this means

that $\bar{j}$ will now be higher, i.e., there would be less types preferring to remain in the

agricultural sector, given that the benefit from moving together has increased more

than the benefit from staying alone. This change would also increase the expected

benefit of migrating at time 1, thus resulting in an increase in j^* as well, meaning

that there would be more types willing to migrate at time 1. The size of the symmetric

excess inertia region, $\bar{j} - j^*$, will decrease if the agricultural production function is not

too concave, as in this case the increase in the expected benefit of migrating alone

will be bigger than the increase in the attractiveness of staying together.

Let us now consider the effect of an increase in the endowment of land, T.

This is a relevant comparative statics exercise, given the big differences in relative

factor endowments between both regions. Such a change would not affect $\tau(L_U)$. It

would, however, reduce L_{U0}, increase N and $N/2$, and reduce $L_{U0} + N/2$. This

would leave $\tau(L_{U0} + N)$ unchanged, and reduce $\tau(L_{U0} + N/2)$, resulting in an

increase in $B^j(N,U) - B^j(N/2,U)$. The increase in the stock of land will result in

an increase of labor productivity at all levels of agricultural employment, with the

increase in agricultural employment at the original free trade allocation yielding the

same agricultural labor productivity as in the case of a lower stock of land and lower

agricultural employment. This results in reductions in $B^j(N,U)$, in $B^j(N/2,U)$, and in $B^j(N,A)$. Looking again at Figure 1, there would be a reduction in $\bar{j}$; now that the larger stock of land has increased labor productivity at all levels of agricultural employment, there will be more types that are unwilling to migrate. By the same token, the expected benefit of migrating alone will be lower, resulting in a lower j^*, which means that there will be less types willing to migrate alone given the higher opportunity cost of doing so. Finally, if the agricultural production function is not too concave, the reduction in $B^j(N,A)$ will be smaller than the reduction in $B^j(N/2,U)$, and the size of the excess inertia region, $\bar{j} - j^*$, will increase, as the benefits of migrating alone decreased more than those from staying together. The prediction would thus be that for Latin America there would have been more types that would have never been willing to migrate or that would have been unwilling to migrate unless others did so first. However, the high inequality in the distribution of land ownership prevailing in this region meant that most likely the majority of peasants were of low to intermediate types, the kind that would set the bandwagon rolling and be followed. The result that a smaller endowment of land would make more types be willing to migrate and thus protectionism more likely for a given distribution of land, is a striking one. It would contradict the traditional view that the more labor abundant the country, the more would labor be willing to force policy changes, in a Stolper-Samuelson fashion.[38] The model developed here predicts that

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[38] See Rogowski (1989).

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and in $B^j(N,A)$. Looking again at Figure 1, there would be a reduction in $\bar{j}$; now

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agricultural employment, there will be more types that are unwilling to migrate. By

the same token, the expected benefit of migrating alone will be lower, resulting in a

lower j^*, which means that there will be less types willing to migrate alone given the

higher opportunity cost of doing so. Finally, if the agricultural production function is

not too concave, the reduction in $B^j(N,A)$ will be smaller than the reduction in

$B^j(N/2,U)$, and the size of the excess inertia region, $\bar{j} - j^*$, will increase, as the

benefits of migrating alone decreased more than those from staying together. The

prediction would thus be that for Latin America there would have been more types

that would have never been willing to migrate or that would have been unwilling to

migrate unless others did so first. However, the high inequality in the distribution of

land ownership prevailing in this region meant that most likely the majority of

peasants were of low to intermediate types, the kind that would set the bandwagon

rolling and be followed. The result that a smaller endowment of land would make

more types be willing to migrate and thus protectionism more likely for a given

distribution of land, is a striking one. It would contradict the traditional view that the

more labor abundant the country, the more would labor be willing to force policy

changes, in a Stolper-Samuelson fashion.[38] The model developed here predicts that

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[38] See Rogowski (1989).

migrations and high protection attained in Latin America despite, and not because of, land abundance.

Let us finally consider the effect of an increase in the parameter a, which measures the government's preferences for the welfare of urban workers. Such a change would leave the initial allocation and $B^j(N, A)$ unchanged, while it would increase both $B^j(N, U)$ and $B^j(N/2, U)$. $B^j(N, U) - B^j(N/2, U)$ would increase, by linearity of the tariff function, reflecting the fact that the politically determined external economies are now larger. Looking at Figure 1, there would be an increase in $\bar{j}$, as the increased attractiveness of the urban sector makes less types prefer never to move. This would also increase the attractiveness of migrating alone, thus leading to an increase in j^*. Finally, the increase in the political external economy will result in an increase in the size of the excess inertia region, by making some of those who previously strongly opposed a joint migration now be of a type that would migrate if the other village did it first. There would be an increase in the probability of occurrence of massive migrations, of migration waves, and of coordination failures at the expense of strong opposition to migrate.

The distribution of wealth will have clear implications for aggregate welfare in this economy. Being a small competitive economy, the optimal policy is free trade, as it can be seen from the first order condition for the maximization of (20), the aggregate welfare equation:

(20) $\quad (\tau - 1)M' = 0$

A linear approximation for a discrete change in tariffs would be given by:

$$(21) \quad dW(\tau) = (\tau - 1) M' d\tau$$

which is negative for tariff increases.[39] However, the tariff changes are endogenous, and can be accompanied by rural-urban migrations that may reduce the size of the labor force in efficiency units, which would further reduce aggregate welfare.

The aggregate welfare loss in the case that nobody migrates (either because of excess inertia, or because everybody falls in the prisoners' dilemma region) is approximated by $dW = -(\tau - 1)(a - 1)L_{U0}$, which would approximate the Harberger triangles measure of the efficiency losses generated by the tariff. In the case when only one village of type $j' < j^*$, with associated $\alpha(j') \geq 1$ migrates (and the other falls in the prisoners' dilemma region), the loss of efficiency is approximated by $-(\tau - 1)(a - 1)(L_{U0} + N/2) - [\alpha(j')G_1(E,T) - 1]N/2$, where $G_1(E,T) = 1$ (it is the initial free market allocation). If the migrants own some land, the welfare loss from the increase in the tariff will be exacerbated by the loss of higher productivity as agricultural workers.

In the case that one village is of type $j' < j^*$ and the other village is of type $j'' < \bar{j}$, so that everybody migrates, the welfare loss is approximated by $-(\tau - 1)(a - 1)(L_{U0} + N) - [\alpha(j')G_1(E,T)N/2 + \alpha(j'')G_1(E,T)N/2 - N]$, which will be larger the larger the agricultural productivity associated to the land holdings of the migrants.

The emergence of increasing political returns in the urban sector thus has negative welfare consequences that exceed those arising only from the imposition of the tariff. The increasing political returns are not accompanied by an increase in physical labor productivity in the manufacturing sector, and thus may lead to expensive welfare losses if it induces the migration of rural workers that are small-holders and more productive in the agricultural sector. If the migrants are mostly landless peasants, the welfare losses are mitigated, and confined to the welfare losses associated to the tariff. Egalitarianism in the distribution of land ownership can thus be a double blessing, by preventing tariff increases and wasteful migrations.

4.1 Large diminishing returns: never migrate?

In this section I will analyze the implications of relaxing Assumption 2 in the previous section, namely that political externalities are larger than the decreasing returns in the rural sector for all types of workers. As this case does not bear interesting implications for the problem under analysis, I will only present the logic of the argument, and the results will be only informally discussed.

Diminishing returns in the agricultural sector are now larger than external economies in the urban sector. This means that for some intermediate type range one village will want to stay in the agricultural sector if the other migrated first, so as to

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[39] Equation (23) would approximate the Harberger triangles measure of efficiency losses. The welfare losses would be higher if the tariff induced a rural-urban migration that decreased the size of the urban labor force in efficiency units, which would increase the desirability of free trade.

take advantage of the higher returns in agriculture, while it would prefer to migrate out of the "overpopulated" sector and benefit from the political external economies if the other chose to remain in the rural sector. Perhaps the best analogy would be a matching pennies game. I will now argue that in the two village-two period case, no village will migrate in the first period, and that in a two village-infinite horizon case no village would ever migrate.

To see this, consider the case of a village of a low type that is willing to migrate at time 1, regardless of what the other village does. If this village does migrate at time 1, it will risk having an opponent of a type that would take at time 2 the opposite action. A village of this type, by choosing not to move in the first period, will increase the chances that the other village will migrate in the second period, which would result in a higher benefit. Therefore, no village would want to migrate at time 1. Knowing this, villages would only have to define a cutoff point for deciding whether to move or not at time 2. Villages with types below this cutoff point will migrate at time 2, while those above this cutoff point will always choose to stay. It would seem that this outcome would have an interesting feature, such as avoiding the possibility that excess inertia or prisoners' dilemmas occur. However, this outcome is not robust to an increase in the horizon of the game. Now suppose there were two players and three periods. Nobody would migrate in the first period. The first period would not reveal any information, and we would back where we started. If a village is of an intermediate type, a "wait and collide" type, then it does not want to migrate in the second period, because the other village may be of a type that would migrate in

any case, and then it would get stuck in the urban sector when it would have preferred to stay alone. Then, it would just wait until the very last period, and move only then if the other village did not move in the previous period. If the village were of a type that would migrate in any case, then it would wait until the very last period to migrate, so as to induce the other village to migrate too. Therefore, in an infinite horizon and assuming a discount factor of 1, nobody would ever migrate.

5. Conclusions and Extensions

This paper shows how rural-urban migrations can affect trade policy determination in the presence of a government that puts a special weight on the welfare of urban workers, a "populist" government that generates increasing political returns in moving to the urban sector, and how the distribution of landownership and the associated distribution of rural workers' productivity can affect the workers' decision to migrate. Under incomplete information about the other workers' types, the distribution of landownership will separate rural workers into different groups depending on the size of their land plots and the associated opportunity cost in terms of the foregone productivity as a rural worker. Allowing for an endogenous timing of migration to the city, types with little or no land would be willing to migrate at once regardless of what the rest does, whereas types with larger land plots would rather wait and see if others have migrated first before they migrate, or would never migrate if their land holdings are large enough. This is a fairly intuitive mechanism, and it

yields the possibility of having a) massive migrations if most rural workers have very little or no land, b) migration waves if some there are some workers for whom it is always beneficial to migrate and set the bandwagon rolling, and others with land holdings of an intermediate size who while unwilling to migrate by themselves are nevertheless willing to follow a first migration wave, c) coordination failures (symmetric excess inertia) when all peasants are small holders who would benefit if they migrated together, but no one is willing to migrate first, d) no possibility of migration when some of the workers are of an intermediate type, and the rest are relatively large land owners who would never migrate. This mechanism of migration decision and policy determination is especially helpful for understanding the contrasting experience of Latin America and East Asia. In the first region, in which land is very unequally distributed, vast migrations waves during the 1930s and 1940s led to a powerful urban labor force that lent support to the adoption of a harsh anti-rural bias during the 1940s and 1950s. In East Asia, which has a highly egalitarian distribution of land, only small migrations occurred during that period, and were associated with a politically weak urban labor force and a much lighter discrimination against agriculture. It is very likely that in this region, where most rural workers were relatively small landowners, a situation of coordination failure may have arisen.

In a context more general than the one of this very stylized model, it has been contended that the availability of large rents from taxing the land created vested interests that prevented the abandonment of the import substitution strategy in favor

of an export oriented industrialization in Latin America.[40] While the argument was based on the relative more abundance of land in Latin America, this model carries the same implications. By allowing more massive migrations, land inequality in Latin America led to the creation of larger politically determined rents, that resulted in a much higher resistance to a change of regime.

A weakness of the mechanism of migration decision analyzed here is that it assumes that rural workers are internalizing the effect of their actions on the other rural workers' actions. This is a strong assumption, but it does not diminish the validity of the results. This mechanism is providing an appealing way to understand how the workers' decisions to migrate will be contingent on their expectations of what the rest will do, and on their knowledge about what the rest have done. This mechanism is particularly useful for explaining how differences in the peasants' types, as defined by landownership, will affect their ability to migrate, which is a feature which most other models of sectoral allocation in the presence of increasing returns do not display.[41] The most interesting features of this model are that the presence of a relatively large number of workers with little or no land will start the bandwagon rolling, and that what is necessary to have excess inertia is that all workers are small-holders who are not willing to migrate alone, and cannot coordinate their migrations, even though it would be beneficial for all of them to do so.

The assumption in the model that workers are grouped into villages within which villagers coordinate their actions is a strong one too, albeit it has been observed

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[40] See Ranis (1990).

that members of rural communities tend to migrate together. An interesting extension to this model would thus be to develop a mechanism by which members of the same village coordinate their actions, and where it would be fairly reasonable to assume that villagers possess perfect information about the other villagers' types, but incomplete information about the other village's type. Such mechanism should contemplate some credible punishment for those who deviate from a coordination among villagers.

In this same vein, another interesting extension would be to increase the number of villages, maintaining the assumption of incomplete information, and allowing for an endogenous timing of moves. As the number of players becomes larger, the individual village's choice of cutoff points for the timing and contingency of migration should depend less and less on the effect of its own action on the other villages' decisions, and more and more on the history of the game and on the expectation about what the others will do regardless of what the village does.

A final point to remark is that the emergence of increasing political returns in the urban sector can have negative welfare consequences that exceed those arising only from the imposition of the tariff. If the increasing political returns are not accompanied by an increase in physical labor productivity in the manufacturing sector, they may lead to expensive welfare losses if they induce the migration of rural workers that are small-holders and more productive in the agricultural sector.

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[41] See Krugman (1991), e.g.

6. Appendix

Proof of Lemma 1:

(i) $(1-j)B^j(N,U)<0$ $\quad \forall j \geq \bar{j}$, from the definition of $\bar{j}$. Also,

$B^j(N,U)-B^j(N/2,U)> -B^j(N,A)$, from Assumption 2, and $(1-\bar{j})>(1-j)$

imply that $-(1-\bar{j})[B^j(N,U)-B^j(N/2,U)]-(1-j)B^j(N,A)<0$.

(ii) $[B^j(N,U)-B^j(N/2,U)]$ is constant in j by the structure of the problem. This

expression is equal to $\tau[L_{UO}+N]-\tau[L_{UO}+N/2]=-\dfrac{(a-1)N}{M'2}$, and is independent

of the village's type. And from Assumptions 2 and 5, $(1-j)[B^j(N,U)-B^j(N,A)]$

is decreasing monotonically in j. Since $[B^j(N,U)-B^j(N/2,U)]$ is constant in j,

and bigger than $-B^j(N,A)$ for all j, from Assumption 2, this means that $B^j(N,U)$ is

decreasing faster than $B^j(N,A)$ as j increases.

(iii) $\Gamma(0)=\bar{j}B^0(N,U)+(1-\bar{j})B^0(N/2,U)-B^j(N,A)$, where the first and second

terms are positive by Assumption 4, and the third term is positive by normalization.

(iv)-(v) Since $\Gamma(j)$ is strictly decreasing and continuous on $[0,\bar{j})$, with $\Gamma(\bar{j})<0$ and

$\Gamma(0)>0$, then there exists exactly one $0<j^*<\bar{j}$ for which $\Gamma(j^*)$.

Proof of Lemma 2:

$B^j(N,U)$ is strictly decreasing and continuous in j. $B^{\bar{j}}(N,U)=0$, from the

definition of $\bar{j}$, and $j^*<\bar{j}$ imply that $B^{j^*}(N,U)>0$. From the definition of j^*,

$B^{j^*}(N/2,U)=B^{j^*}(N,U)(j^*-\bar{j})/(1-\bar{j})+B^{j^*}(N,A)(1-j^*)/(1-\bar{j})$, where the first

term in the right hand side is negative and the second term is smaller than

$B^{j^*}(N,A)<0$, because $j^*<\bar{j}$.

Proof of Proposition 2:

First, we have:

$$\sigma_2(\Pi,\alpha\} = \begin{cases} \Pi if \alpha \leq \bar{\alpha} \\ S if \alpha > \bar{\alpha} \end{cases}$$

by perfectness. Further,

$\sigma_2(\Pi,\alpha\}=S$ for all α,

which will be a truthful strategy. In this set-up there is no possibility of excess

momentum, in the sense that a village would be forced to migrate when it would have

preferred that both stayed. Hence, there is no need to lie. Consider village 1's

decision. Suppose it assesses probability $(1-q)$ that village 2 will switch at time 1.

Then, if it waits until time 2, it earns $B^j(N,U)(1-q)+B^j(N,U)q$. If it migrates at

time 1 it earns $B^j(N,U)\bar{j} + B^j(N/2,U)(1-\bar{j})$. It pays to migrate if

$q[B^j(N,U)-B^j(N,A)] - (1-\bar{j})[B^j(N,U)-B^j(N/2,U)] \geq 0$

which is monotone in j. Therefore, if it is optimal for any type j' to migrate at time 1,

then it is also optimal for any lower type j'', $j''<j'$. So any optimal strategy involves

a cut-off point at time 1. But then, any equilibrium strategy is a bandwagon strategy.

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