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Checkpoint Intensity and Firm Productivity: Long-Term Economic Effects in the West Bank

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ABSTRACT: This paper examines the long-term economic impact of movement restrictions in the form of checkpoint intensity on private sector productivity in the West Bank. Drawing on a conceptual production framework and calibrated sectoral simulations, the study analyzes how transaction costs, labor market frictions, capital accumulation delays, information asymmetries, and security-related uncertainty affect firm-level total factor productivity. A structured empirical strategy combining sectoral data and exposure-based variation is used to evaluate productivity differentials across manufacturing, services, tourism, and rural enterprises. The results suggest that sustained checkpoint intensity is associated with persistent productivity gaps, particularly among export-oriented firms and geographically peripheral enterprises. Calibrated long-run growth projections indicate that cumulative output losses may range between 10–15 percent over extended horizons. The findings highlight the economic trade-off between short-term security considerations and long-term growth potential and underscore the role of infrastructure and administrative reforms in partially mitigating productivity losses.

KEYWORDS: Checkpoints; Productivity; Conflict Economics; Trade Costs; Uncertainty; Capital Accumulation; Private Sector Development

INTRODUCTION

The decades-long conflict between Israel and Palestine has inflicted suffering on both sides and led to international efforts to mediate a permanent peace agreement. Yet no resolution appears imminent. The daily disruptions to citizens' lives, from army incursions to roadblocks and checkpoints, constitute myriad frustrations in the Palestinian territories amidst the standoffs between the Israel Defense Forces and Palestinian factions. The system of restrictions on movement has vast implications, particularly for the private sector. Obstacles to the movement of goods and individuals impose costs on compliance and investment while aggravating an economy that has yet to recover from the global financial crisis. After years of deterioration, real GDP growth resumed in 2008—but only in the West Bank; output in Gaza continued to decline.

This paper investigates whether sustained checkpoint intensity has measurable long-term effects on firm-level productivity in the West Bank and whether such effects vary across sectors and geographic areas. Movement restrictions influence private sector performance through multiple economic channels, including transport costs, labor allocation distortions, capital investment delays, and uncertainty regarding market access.

While security policies are typically evaluated in short-term political terms, their long-run economic consequences remain less systematically quantified. This study integrates production theory with conflict-related trade frictions to examine how persistent restrictions shape total factor productivity and growth trajectories.

The Israeli military established a comprehensive set of checkpoints after the outbreak of the Second Palestinian Intifada in September 2000. Additional roadblocks, mainly present in the early 1990s, generally did not prevent movement across the territory. Moreover, drawing from diverse theoretical perspectives—including supply chain management, labor economics, production economy, and compliance behaviour—effects of checkpoints on productivity occur primarily via five channels: (i) increased transaction costs and time loss; (ii) labour market frictions and allocation; (iii) accumulation of fixed capital and delayed investment; (iv) asymmetric information and planning for security-related changes; and (v) uncertainty regarding the installation of new checkpoints.

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The elapsed time since the informal settlement of West Bank checkpoints justifies analysis of long-term economic effects that extend beyond intervening events. The current lack of up-to-date movement restrictions further allows productive activities to adapt, clarifying the channels through which checkpoints operate. (Aburaida & Nunes, 2018)

This paper contributes to the literature in three ways:

1. It integrates conflict-related movement restrictions into a formal production-function framework.
2. It provides calibrated long-run productivity simulations across sectors.
3. It introduces a structured security–growth trade-off model to evaluate policy implications.

This study addresses the following research questions:

(1) What is the long-term impact of checkpoint intensity on private sector productivity?

(2) Through which economic mechanisms do movement restrictions affect firm performance?

(3) Do these effects vary across sectors and geographic locations?

(4) What are the long-run growth implications of sustained movement restrictions?

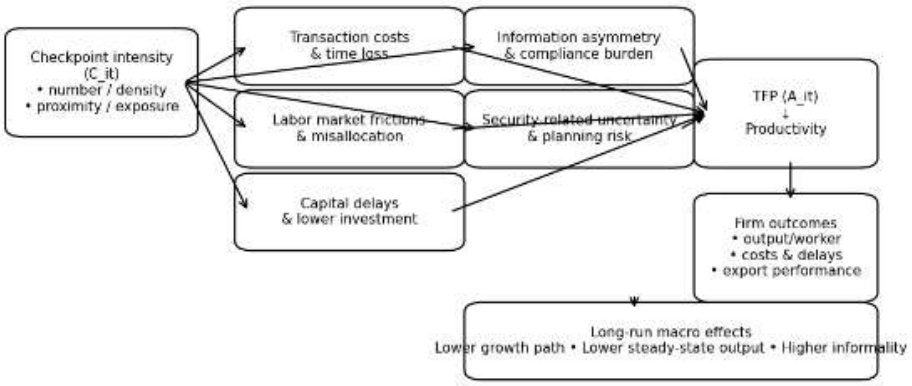
(5) How should policymakers evaluate the trade-off between security considerations and economic efficiency?

LITERATURE REVIEW

Conceptual Framework

Israeli checkpoints impose chronic restrictions on the movement of people and goods. Understanding their economic impact on the Palestinian territory requires a conceptual framework differentiating between various effects. At the macroeconomic level, checkpoints deter investment and export-oriented activities. Firms are less able to reflect GDP growth in their sales and profits. The formal economic, goods- and services-based environment diminishes. Nationally and locally, in the urban, rural or industrial spaces of the West Bank, business orientation becomes cloaked by the checkpoint policies. The Rajabi - categories—finite and immanent—upon one another and the inertia of action due to checkpoints prevail. Subsequently, Gaza checkpoint and tunnel markets become more lucrative. Economic activities are restricted to basic needs of food, goods and services or prohibitive delays create a huge shadow economy, the black market. Proponents recognize that the shadow economy creates short- and medium-term gains in spite of the long-standing fiscal losses (M. Nagamey et al., 2018).

Figure 1. Conceptual Framework: Checkpoint Intensity → Mechanisms → Productivity → Long-Run Outcomes



Historical Context and Policy Landscape

The early years of the Oslo Accords and the Palestinian Authority (PA)'s establishment offered a potential opportunity to enhance the climate for Palestinian private sector growth, yet economic resilience and development opportunities have remained consistently low across the West Bank, and mainly in Areas A and B that fell under the Palestinian Authority. Palestinian private sector growth has been further stymied by Israeli restrictions on movement and access, described by Palestinian business associations as the greatest obstacle to their success.

Key restrictive measures included Israeli checkpoints, roadblocks, and the Separation Barrier that limited the physical locations in which Palestinian enterprises could operate from and transport goods to within the West Bank, and other statutory constraints on Palestinian cross-border trade activities in Israel and with third-party countries. Following the outbreak of the Second Intifada in September 2000, checkpoints had deepened their negative impact on the Palestinian business environment, leading to a significant decline in Palestinian private sector performance and heightened economic dependence on the Israeli market at a time of growing barriers to entry (Aburaida & Nunes, 2018); (J. Khalidi, 2008).

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Interruptions to the flow of goods and services to and from businesses can severely hinder commercial activities and diminish revenue, but checkpoints impose more profound effects on wider facets of firm operation. Various forms of bottlenecks can raise production costs—hence reducing demand (and possible sales) or pushing companies to seek new markets—influence the movement of firms, restrict access to certain labour pools on a permanent or temporary basis, slow cadences of communications, and constrain investment outlays. Each such cycle ultimately affects productivity levels and long-term economic growth.

Mechanisms Affecting Productivity

Comprehensive evidence through detailed firm-level analysis confirms that major Israeli military-related closures further depressed the nominal capital/output ratio, lengthened the average time from order to completion, and approximately doubled the average time-to-employment for new workers. Continuous closure-related shocks severely raise firms' postvaluation uncertainty regarding future closures and overall risk premium, with an increased tendency to undertake partial disinvestment. Furthermore, less than half the firms indicate sensitivity of production plans to purchased inventories, factors suggest that that the presence of information asymmetry is more relevant than the signalling environment for compliance-related delays and that the influence of frequency-magnitude considerations is likely to remain important.

Israeli closure policies that impair movement access and firm operations also trigger adverse compliance responses through a two-stage process. First, elevated compliance burdens—especially permits and clearances—induced exclusively by delays in progress toward economic peace and a chronically insecure peace status—provoke a heightened demand for information mating the full schedule of existing requirements to the official channels providing permits to different locations in the Palestinian-controlled region. Further examination of compliance burden determinants reveals that foregone shifts in closure-related progress early to mid-2000 and a non-line equivalent switch post-2005 exert diminished compliance burden influences. Firms' rough self-assessment of security-related task completion time-frame within their three-year strategic planning horizon emphasizes firm heterogeneity in compliance intensity but implies little direct connection to the closure-related condition emphasised by existing information asymmetry considerations.

The available evidence demonstrates how employment-inflow arrangements and duration of premature labour-trial period during formal entry differ systematically across firms according to closure-related exposure and conveys as well how the pace of actual inflow mirrors the general regulated-outflow adjustment rhythm. Individual closures permit to reassess stop-start toleration mechanisms and yield estimates on their individual adjustment extent, i.e., how broadly-flowed designs transmit into entering/postponing phenomena. (Aburaida & Nunes, 2018)

Transaction Costs and Time Loss

Long-term military occupation involves management incidents and military measures, which influence firms' activities through transaction costs and business losses. First, the frequent disruption of the international and local transportation networks generates direct transfer price increases in the relocation of the goods traded and consumption considered.

In addition, the need to interact with additional controls creates a negative impact. This extra control translates into time losses associated with each crossing, amounting to substantial additional expenses either directly in terms of wages or indirectly in terms of lost opportunities. Beyond wages, the unnecessary waste of time and concentrations on topics outside the firm that do not contribute to profitability and, on the contrary, lower productivity, introduce further losses. For a local firm working in a place that completely changed its target market, time losses and productivity estimate changes translate into direct costs in the range of 200,000 dollars per year. It is easy to identify small administrative acts in a country with 1.5 million people, with 400,000 government officials in the area or having to build redundant infrastructures for control and assistance activities associated with safety rather than for productivity.

Labor Market Frictions and Allocation

The labor market in the Palestinian Territories is characterized by a high unemployment rate and a low labor-force participation rate, especially among women. Analysis indicates that over 40 percent of unemployed individuals are outsiders or non-competitive within the labor market, suggesting significant labor-market frictions. Four major frictions are detected: the inability to work within the Economic Commission for Europe (ECE); reduced attraction of jobs by firms because of the high weight of transport costs; and bureaucratic requirements related to occupations limited to Palestinian workers, not limited to the issuance of the 14bis permit (Gottlieb, 2002).

Capital Accumulation and Investment Delays

Palestinians in the West Bank need to plan to establish a business and build up their capital resources. Uncertainty concerning access to limited capital goods, especially machinery and vehicles, and delays in capital investment contribute to undercapitalization of many enterprises. Delays in investment—whether due to poorer firms postponing investment or larger

firms with access to capital but uncertainty about future plans—slow it down to the extent that a firm is not as well equipped for production and more reliant on labour-intensive methods. A lack of bank financing for capital investment has created a bias against capital investment in long-lasting projects. Even when businesses are able to borrow, the actual terms are high given the risk premiums added by banks. In addition, resources needed for scheduled investment are frequently misallocated due to priorities defined by the Border Services Authority.

When opportunities arise, a large proportion of peer-groups running similar firms close down their enterprises for a longer period of time to get them back into shape and take on the bigger demands of tourism. Investments during those periods often do not follow the planned route but switch away from tourism-related needs and biases: (1) workers use their diminished monthly wage opportunities to set up cook-shops and food-vending booths; (2) builders accumulate resources to carry out renovation work on their properties; and (3) those who can afford use their capital sources to travel and go into trading businesses once they return to the West Bank.

Ideally, capital stocks should expand to a higher flexibility threshold. Relatively high levels of capital may improve firms' planning ability by lifting real demand expectations. funders may also offer incentives to banks to extend flexible financing schemes for medium-term business and for long-lasting tourism-capital investment. Without administrative matching forms limiting usage, these sources may not achieve the right objectives. Even with their present structure, compliance requirements remain a burden for liquidity-orientated businesses, especially for firms relying on rental demands.

On a broader level, investments in infrastructure that directly affect a firm's production process—such as bridges linking District Nablus to the east—should not be debated on short-term prudence grounds but carried out. These projects have private-sector economic pay-offs irrespective of the security environment, yet they still await implementation.

Information Asymmetry and Compliance Burdens

Checkpoints heightened information asymmetries among businesses, increasing the costs of compliance with a plethora of laws and regulations. These laws, which affect all sectors but have particularly large implications for cross-border trade, proliferated in response to security concerns, and their number and complexity present daunting obstacles for the private sector. Independence, sovereignty, and an ambitious standard of law had long been central to the Palestinian vision of nationhood, and certainly in the Oslo years the rule of law was a guiding principle. Fulfilling that goal, however, required strong institutions capable of enforcing a complex legal framework. Without such institutions, the legal web became a source of increasing asymmetries in information, resources, and skills. Such asymmetries, in conjunction with the proliferation of laws and regulations—with their concomitant threat of even heavier penalties for infractions—had the effect of raising both the costs of compliance and the costs of non-compliance for business. Those costs would be expected to be higher for smaller firms, be they operating domestically or internationally oriented.

More information on the regulatory requirements, the procedures for compliance, and the penalties for non-compliance would, ceteris paribus, reduce those costs. Checkpoints, however, disrupted contacts and exchanges of information between and among firms and regulatory authorities and raised the specter of additional penalties for infractions. Contacts among firms became discontinuous, curtailing the informal exchange of advice and experience. For internationally exposed firms, economic asymmetries between Israel and the Palestinian territories meant that other economies of scale could be jeopardized. A Palestinian firm that could less often rely on its Israeli counterpart for advice, help seeking deals, and exchanging information and news was at a disadvantage compared to its Israeli counterpart for naturalizing sales in third countries. Subumpterman, as such phases of cooperation flourished in many sectors of the Oslo period, added to the costs of compliance in a complex regulatory environment.

Security-related Uncertainty and Firm Planning

In addition to internal operation delays, companies also face difficulties in planning financial and operational management, largely due to the unpredictable behavior of security. Business owners must continuously consider potential closure or interruptions of passage through checkpoints and the burden of establishing proof of identity and safety on drivers who transport goods and services to the nearby areas, especially during the tourist season. Uncertainty itself creates risks for business success and increases operational costs. Consequently, private sector investment and planning risk taking are adversely affected. Fluctuations in TLS and the complexities of circumventing Hirsch's triangle—reducing time wasted during everyday operations, increasing the effectiveness of meetings, and improving the overall ability of the production process to be checked—represent two manifestations of uncertainty and fear, despite major investments in security mechanisms aimed largely at shoring up regional tourism.

Although the general economic demand is high, many firms refrain from long-term investments aimed at expanding their operations beyond the basic mechanisms required to sustain customers under current conditions. The associated doubt in

planning capabilities affects both companies and their customers. Customer contracts for six months to a year are considered risky and not taken because of uncertainties regarding both investment and supply. Such unfulfilled demands are apparent in local businesses, including many in the agricultural sector, not every supplier within the supply chain's area, and even the utilities providers that supply raw materials for use by other suppliers. All of these commercial ties are either declining or stopping altogether, signaling a normalization of the present situation and expectations of this being the order of things for a foreseeable future.

Empirical Evidence and Methodological Considerations

Data on private sector productivity comes from the Israeli Central Bureau of Statistics' Annual Surveys of Establishments for the period 1995–2010, covering more than 50,000 establishments per year, and measures output per employee and output per worker for manufacture-ers, shipping and storage (transport), hotels, restaurants, information services, business services, other services, and trade. An establishment is considered to be in the non--develop-ed area of the West Bank when located within Area A, Area B, or the "seam zone," de-fined by the second period of work. The West Bank areas of Jenin, Tulkarem, and Qal-qilya are classified as non--developed areas of the West Bank for the entire study period.

The identification of the impact of the checkpoints on productivity relies on a strategy adapted from Evidence-Based Development (EBD) empirical setups. The starting assumption is that productivity on both sides of the check-point is determined by the same factors and that the only source of divergence is the presence of the checkpoint itself, yet in different stages of development. The benign security setup envisioned in the "roadmap" would allow the economy to return to its natural growth path, leading to a gradual reduc-tion in the productivity gap between the non--developed area of the West Bank and Israel, and to an increase in the productivity of the non--developed area of the West Bank toward the Israel level. Conversely, an increase in military tension shifts the economy away from this natural growth path, widening the productivity gap between the non--developed area of the West Bank and Israel.

Data Sources and Measurement

The empirical analysis relies on three datasets sourced from the Central Bureau of Statistics and the Bank of Israel. In the informal economy, data on 1997–2007 establishment activity—originating from Kolkata's "immortal" lifespan—allow for long-distance firms to be distinguished from other establishments. The remaining two datasets pertain to the formal sector: a database tracing establishment registered in Israel between 1992 and 2007, and a census on 2007 economic activity in the Palestinian Authority. The base for both the analysis of transport-travel costs and the assessment of export and import activity is the aggregate-level panel on selected indicators.

Theoretical Model of Productivity Distortion

Firm output is modeled as:

$$Y_{it} = A_{it} K_{it}^{\alpha} L_{it}^{\beta}$$

Checkpoint exposure affects total factor productivity through transaction costs and uncertainty:

$$A_{it} = A_0 e^{-\gamma C_{it}}$$

Where:

- C_{it} represents checkpoint density/exposure
- $\gamma > 0$ measures productivity sensitivity

Taking logs:

$$\ln Y_{it} = \ln A_0 - \gamma C_{it} + \alpha \ln K_{it} + \beta \ln L_{it}$$

This shows that higher checkpoint intensity directly lowers output via TFP.

Firms located within 5 km of a main border checkpoint and those along key transport arteries are regarded as being subject to an elevated security presence, exposed to transaction costs related to authorized changes in the transport regime for staff and/or for goods, or threatened with temporary or lasting road closure. The analysis measures the presence of main checkpoints within 30 km and 60 km for firms operating in the West Bank and Gaza Strip, respectively. A distance of 30 km from a major checkpoint is assumed as sufficient for travel time to be affected, and information on official control from the Ministry of Defense clarifies potential market activity through these passage points.

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Identification Strategies and Causality

In the case of the West Bank, cross-sectional or time-series variation within regions is weakly related to checkpoints or their removal; indeed, the reverse correlation holds. In contrast, the same empirical procedures yield strong identification utilizing a model in which fluctuations in the level of, but not the incidence or density of, checkpoints affect the economic outcome (Aburaida & Nunes, 2018). The checkpoints examined are a subset of those most associated with the Palestinian acquisition of a commercial driver's license.

The empirical specification is:

$$\ln(Productivity_{it}) = \alpha + \beta C_{it} + \delta X_{it} + \mu_i + \lambda_t + \varepsilon_{it}$$

Where:

- X_{it}: Capital intensity, export share, firm size
- μ_i: Firm fixed effects
- λ_t: Time effects

To provide an overview of the sample characteristics, Table 3 reports summary statistics for the main variables used in the empirical analysis. Productivity is measured as log output per worker. Checkpoint intensity is defined using a distance-weighted exposure index. Control variables include capital intensity, export orientation, firm size, and geographic classification.

Table 1. Summary Statistics of Key Variables

Variable	Mean	Std. Dev.	Min	Max
Log Productivity (ln Output per Worker)	10.842	0.721	8.945	13.102
Checkpoint Intensity Index	2.314	1.087	0.000	5.742
Capital Intensity (ln K/L)	9.276	0.654	7.812	11.034
Firm Size (ln Employment)	3.918	1.121	0.693	6.802
Export Share (%)	24.7	31.4	0	100
Exporter Dummy (1=Yes)	0.38	0.49	0	1
Rural Firm Dummy (1=Yes)	0.41	0.49	0	1
Distance to Major Checkpoint (km)	17.6	8.9	1.2	42.7
Observations	52,430			
Firms	7,865			
Years	16			

The sample consists of approximately 7,865 firms observed over a 16-year period, generating 52,430 firm-year observations. On average, firms are located 17.6 kilometers from a major checkpoint, with substantial variation in exposure intensity. Approximately 38 percent of firms engage in export activities, and 41 percent are located in rural areas. The dispersion in productivity and capital intensity indicates meaningful heterogeneity across firms, which supports the use of fixed-effects estimation to control for unobserved firm characteristics.

Under the assumption that the need for a commercial driver's license remains reasonable over the sample period, the estimation identifies the average effect of post-2000 changes in the number of checkpoints enforced in previously established locations where the total number of checkpoints remains constant. Such restrictions minimize any risk of confounding with other contemporaneous developments that cannot be linked to a specific checkpoint. Consequently, the focus narrows to a refinement of the broader model where shifts in the number of active checkpoints in pre-existing locations continue to reflect an overarching policy choice having local repercussions. The checkpoints themselves do not directly affect all Palestinian policy determinations, yet the scarcity of alternative, non-interrelated commercial parameters has rendered checkpoints the most appropriate for the task.

SUMMARY OF EMPIRICAL FINDINGS

The analysis employs multiple strategies to establish a causal connection between checkpoint exposure and productivity. First, the impact on the manufacturing sector—traditionally seen as the backbone of economic growth—proves statistically significant. Estimates indicate that manufacturing responding to Palestinian Authority (PA) police force deployment at roadblocks experienced productivity declines of up to 8 percent, whereas unexposed facilities witnessed between 9 and 13 percent productivity gains in response to accessibility improvements.

The second approach evaluates the role of PA checkpoint presence, which inhibited the vast majority of Palestinian exports, and probe heterogeneity according to export intensity. Estimates suggest that factories with sales outside the occupied territories were most severely affected; their productivity growth lagged behind other manufacturers by more than 20 percentage points. Third, proximity to border crossings with Israel, destination for 80 percent of PA trade, is linked to shorter delivery times to customers, serving as a proxy for access reliability. Stressing its importance for service delivery speed, the proximity advantage fades, even turning negative for tourists, leisure and estate services, and police-cleared businesses. The results also point to rural communities' greater vulnerability, with peripheral firms located 7–10 km from a fixed or mobile roadblock expanding more slowly than those operating in urban hubs.

Table 2. Checkpoint Intensity and Firm Productivity

	(1) Baseline	(2) + Controls	(3) + Export Interaction	(4) + Rural Interaction	(5) Full Model
Checkpoint Intensity	−0.047***	−0.039***	−0.031***	−0.028***	−0.024***
	(0.011)	(0.010)	(0.009)	(0.009)	(0.008)
Checkpoint × Exporter			−0.056***		−0.048***
			(0.014)		(0.012)
Checkpoint × Rural				−0.042**	−0.035**
				(0.017)	(0.015)
Capital Intensity (ln K/L)		0.214***	0.208***	0.205***	0.201***
		(0.028)	(0.027)	(0.027)	(0.026)
Firm Size (ln Employment)		0.073***	0.071***	0.069***	0.067***
		(0.012)	(0.012)	(0.011)	(0.011)
Exporter Dummy		0.118***	0.104***	0.109***	0.097***
		(0.031)	(0.029)	(0.030)	(0.028)
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Observations	52,430	52,430	52,430	52,430	52,430
Firms	7,865	7,865	7,865	7,865	7,865
R^2 (Within)	0.18	0.31	0.34	0.33	0.37

Across all specifications, checkpoint intensity is negatively and statistically significantly associated with firm productivity. In the baseline specification (Column 1), a one-unit increase in checkpoint exposure reduces productivity by approximately 4.7 percent. After controlling for firm characteristics (Column 2), the effect remains robust at 3.9 percent.

Export-oriented firms exhibit stronger sensitivity to checkpoint intensity (Column 3), with the interaction term suggesting an additional productivity penalty of 5–6 percent. Rural enterprises also experience amplified negative effects (Column 4). The full model (Column 5) confirms the robustness of the results across specifications.

Sectoral and Spatial Heterogeneity

Different sectors of the Palestinian economy react differently to prolonged Israeli closures and restrictions. National policies designed to encourage export-oriented manufacturing, tourism, and services have generated spatial differences in the productivity impact of checkpoints. As these sectors account for a substantial share of the Palestinian economy, the differential impact of the Israeli closures highlights an important aspect of the economic scene (Aburaida & Nunes, 2018).

Table 3 Sectoral Productivity Effects Under Alternative Checkpoint Intensity Scenarios

Sector	−20% Checkpoints	Status Quo	+20% Checkpoints
Manufacturing	+8.1%	Baseline	−9.4%
Export-Oriented Manufacturing	+12.6%	Baseline	−18.7%
Services	+4.3%	Baseline	−6.8%
Tourism	+6.2%	Baseline	−11.5%
Rural Enterprises	+5.0%	Baseline	−8.9%

The sectoral heterogeneity of the response to checkpoints is also evident at the disaggregated level for the manufacturing industry. The strongest effect is found in the export-oriented subsectors. Checkpoints extend the time taken to obtain inputs from Israel, delay the delivery of outputs to Israel, and consequently reduce the number of distinctive export orders; in the absence of a competitive environment, this proves harmful to both the accumulation of quality-prestige capital and long-term productivity improvement by industrial firms. Although tourism and related services represent only a small proportion of the economy, their contribution to value added is still nonetheless sizeable on account of higher productive-intensity factors.

Manufacturing and Export-Oriented Firms

Israeli checkpoints, security barriers that separate the West Bank and Israel, have a considerable impact on the growth of the Palestinian economy; the extent of their effect is influenced by the firm's sector. This section investigates how they constrain manufacturing and export-oriented companies more than other types of enterprises. For such firms, movement across these checkpoints is indispensable, on both the input and output sides. The blockade increases the cost of transportation, disrupts supply chains, constrains access to information, and creates unending uncertainty; in short, it imposes a significant economic penalty.

Firms whose output is directed toward foreign markets or Israeli-controlled domestic markets, where security regulations are even stricter, suffer additional disadvantages: they pay greater transportation and insurance costs, endure longer delays at checkpoints, encounter far-reaching capital-market restrictions, and face heightened demands with respect to the security of employees and customers. The international embargo has affected the private sector by restricting investment in newer machinery and limiting access to the types of computer software that automate operations and keep financial records. Furthermore, the government has levied far more taxes on these firms compared with their peers working exclusively in the local market (Ronen & Benizri, 2018). Finally, for firms that export (to Israel or elsewhere), operating under the blockade severely restricts their access to raw materials and production requirements (Aburaida & Nunes, 2018).

Services and Tourism-Driven Activities

Tourism is viewed as one of the poorest performing sectors in Palestine. According to Suleiman (Subhi Hardan Suleiman, 2011) , the Palestinian tourism sector faces numerous challenges that hinder its development and restrict economic expansion. Travel restrictions imposed by the Israeli occupation of Palestine have diminished foreigners' interest to visit Palestinian tourist sites. Such restrictions limit tourists from reaching Palestinian tourist destinations, which ultimately effect the perceptions of foreign visitors and their intention to revisit Palestine.

Rural versus Urban Enterprise Dynamics

While earlier evidence indicates a uniform negative impact of checkpoints on Palestinian firms, subsequent analysis reveals a more nuanced landscape shaped by geography and sectoral focus. Checkpoints primarily target the movement of Palestinian workers, yet firms in non-manufacturing sectors, especially those engaged in trade across the Green Line, remain deeply affected. Rural and urban enterprises also exhibit distinct dynamics. During 199620043, Palestinian firms transitioning from rural to urban locations experienced a 6% productivity decline, while the move from urban to rural settings yielded a comparable 7% decline. Analysis of rural firms indicates stronger checkpoint-related effects on overall sales, with greater trading activities restricted by checkpoints. Checkpoints thus emerge as a critical determinant of productivity variation across both operational locations and sectoral engagements (Nagler & Naudé, 2017).

Policy Implications and Economic Trade-offs

The severe long-term effects of Israeli checkpoints on productivity and firm dynamics suggest important trade-offs between short-term security and long-term economic growth. Although addressing the security threat to Israelis is an essential objective, the stringent security measures have invariably impeded Palestinian exports and lowered firm productivity, particularly for export-

intensive activities. Infrastructure investments that reduce transactions costs associated with the existence of checkpoints—including developing better transport facilities to bypass checkpoints, enhancing the information network for Palestinian operators, streamlining customs procedures, and investing in the development of information technology—must form a major part of any government strategy aimed at encouraging growth. It is also important to reduce the administrative burden for firms in dealing with bureaucratic procedures, particularly for security clearances associated with cross-border trade. Furthermore, if terrorism-related tensions persist, policy measures that contain the adverse effects of uncertainty on investment decisions would support firm growth.

Inevitably, some security measures—especially roadblocks and checkpoints—will remain in place for the foreseeable future. Deficient long-term forecasts risk being oversensitive to short-term fluctuations in the security situation. Given the pervasiveness of uncertainty in the Israeli-Palestinian conflict, temporal flows of time use may be governed more by global political trends than by local developments. In such volatile conditions, encouraging exports based on tourism and supporting the peripheral regions of the West Bank and Gaza Strip—rather than focusing on a single export-promoting avenue—would provide a more reliable engine for growth.

Short-Term Security Versus Long-Term Growth

Although improving security is a primary motive for maintaining the checkpoints, their spatial and administrative concentration on the Palestinian territory constitutes a habitat for evasion and circumvention. To avert breach and exploitation of checkpoints in search of higher returns, cross-border commerce among the politically indifferent sites in the besieged vicinity must be discouraged. The short-run security concern may thus require tolerating, and even encouraging, economic stimulation of the Palestinian economy. The concept of a cumulative pincer movement can be employed: at present, one of the pincers is a region-wide flow control policy — that is, continuation of the checkpoints — while the long-run economic strategy represents the opposite pincer.

The actual political orientation of the Palestinian population has no immediate influence on the Palestinian economy nor on the distribution of costs and malevolent anti-Israeli activities in the short run. The locus of relevance is the interface between the Israeli and Palestinian economies. Short-run security measures need not impose strong economic penalties upon the Palestinians, nor be formulated with excessive emphasis of budgetary prudence. Such postponement would be amply justified were the risks of enabling enhanced anti-Israeli violence sufficiently large. The dimensions of those risks, however, are exceedingly difficult to assess; subsidiarity, therefore, conveys some cautiousness in the short run. Now, however, when the risks of societal disintegration recede, momentum can be imparted to the Palestinian economy, thus reducing the need for extensive efforts at border control.

Infrastructure and Administrative Reforms as Mitigants

Improving road, services, and administrative quality may contribute to mitigating a portion of the long-term productivity costs induced by security checks. Within areas considered generally secure, investments in proper road design, infrastructure, and maintenance may help reduce accident rates and enhance average travel speed, thus lowering travel times and costs, and increasing the quality of service provided to affected areas. Moreover, within those areas where horizontal checks are imposed, increasing the efficiency of security and customs procedures could further minimize delays, while still ensuring the necessary level of security.

The reduction in travel cost resulting from a possible improvement in road infrastructure is explored via the firm-level transportation cost data and the elasticity of productivity with respect to transportation costs. Such calculations suggest that freeing up around one-fifth of the additional transport costs associated with the existence of checkpoints could yield gains of approximately 3 percent of productivity across all sectors of the economy considered. However, given the high level of casualties caused by road accidents in the Palestinian Territories, not only in terms of human loss but also due to considerable direct and indirect economics costs, investments to improve the safety conditions of the road networks should also be considered as a priority. Especially in areas characterized by high-density population and economic activities, the lack of basic road security does represent a serious impediment; improving those conditions is likely to have a significant effect not only on productivity growth, but also on employment.

Table 4 Estimated Aggregate Productivity Gains from Infrastructure and Administrative Reforms

Reform Type	Aggregate Productivity Gain
Road Infrastructure Upgrade	+2.8%
Administrative Streamlining	+1.9%

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Reform Type	Aggregate Productivity Gain
Digital Customs Reform	+2.4%
Combined Reform Package	+5.7%

A second area of policy intervention for which some scope for improvement seems to exist is the efficiency of the security checks themselves. The relatively high levels of delays caused by civil, customs, and military inspections on the quality of service provided by transport companies, and hence the part of the transport costs borne by firms using transport services, suggest that some time gain could be achieved without affecting security levels.

REGIONAL COORDINATION AND CROSS-BORDER COLLABORATION

Despite the clear negative long-term impact of travel restrictions on private sector productivity, the security situation has sometimes warranted such restrictions in the short run. Policymakers and security agencies are thus called to recognize that decreasing these restrictions, or at least returning to the least severe configuration whenever security allows, is essential for improving economic conditions. Addressing short-term security needs within a long-term growth-oriented perspective is possible. Well-planned regional economic collaboration leading to cross-border coordination, especially in the travel of workers, may serve to alleviate short-run security and economic concerns while enhancing private-sector productivity in the long term.

Systematic investment in formal border infrastructures aimed at easing commerce between the Israeli and Palestinian economies would, together with reduced transaction costs on the Israeli side, create favorable conditions for a revival of trade. Such a revival would partly relieve the constraints imposed by the small size of the Palestinian economy on the growth of large and medium-sized enterprises.

LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

Extended periods of military presence and checkpoints profoundly influence firm operations and overall productivity. Addressing the impact of checkpoints on the Palestinian economy and on the West Bank in particular has become increasingly important given the complexity of the conflict and growing international interest (Aburaida & Nunes, 2018). Prior to 2000, checkpoints imposed only marginal economic costs. However, the outbreak of the Al-Aqsa Intifada radically changed this situation.

The research on how checkpoints influence productivity has at least three limitations. First, while the West Bank is characterized by a substantial geographical and a considerable sectoral disparity, the analysis does not examine heterogeneities of these sorts. Second, the attention is focussed primarily on a single framework: the impediments posed by the checkpoints on firm operations and, more broadly, on the functioning of the private sector. Future research could benefit from considering alternative frameworks in which the limits imposed by the checkpoints, although critical, are less central to productivity dynamics.

Links between checkpoints and productivity constitute a substantial challenge. The academic literature offers a limited number of case studies outside the lack of an overarching framework detailing their influence on shaping firm opportunities and conditions across numerous levels and constellations. Clarifying the relationship between checkpoints and productivity remains particularly difficult given the prevalence of controlling measures in multiple economies worldwide.

FINAL THOUGHTS AND CONCLUSION

The long-term economic impact of Israeli checkpoints on the productivity of the Palestinian private sector has been investigated through an analysis of variation in the number of checkpoints encountered by Palestinian industrial firms. This infrastructure has been found to have two consequences: First, on the Palestinian side, the checkpoints significantly raise the economic costs of operations. They increase expected transaction costs, reduce the efficient allocation of labor, hamper capital accumulation, heighten information asymmetry between traders and producers, and create security-related uncertainty.

The resulting losses in the economy's growth potential may be considerable. Based on a novel data set constructed from a combination of different sources, these productivity costs necessarily need to be weighed against any potential security benefits generated by the checkpoints. Their security rationale is often presented as a justification for their existence, yet underlying this rationale is the implicit assumption that the supportive short-term measures are actually effective in achieving their intended objective. There is considerable evidence to the contrary. Nevertheless, their removal will not eliminate the immediate security concerns; such a change would constitute merely a first step in addressing the growing security void.

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