Health Capital Group White Paper

Blood Pressure: Plasma Economics and Policy After the Inflation Reduction Act

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Neal Masia, Ph.D.

CEO, Health Capital Group

Adjunct Professor of Economics and Management, Columbia University

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Executive Summary

- Plasma-derived therapies (PDTs) provide enormous societal benefits to patients with life-threatening conditions, with demand continuing to grow globally at approximately 8% annually.
- The United States is the leading source of supply for all PDTs, contributing 70% of the global supply. Blood and related biologic products rank as the 9th largest export category in the United States.
- The manufacturing challenges are substantial. By way of example, each primary immunodeficiency (PID) patient requires approximately 15 infusions per year, with each infusion requiring hundreds of individual plasma collections.
- The Inflation Reduction Act (IRA) imposed annual limits on pharmaceutical price increases based on the Consumer Price Index (CPI). The IRA was intended to limit price growth for on-patent therapies with no generic competition, which typically exhibit high profit margins during their period of market exclusivity. Unlike typical biopharmaceutical and on-patent products that have cost of goods sold (COGS) averaging 14%, PDTs incur COGS of 57% and face branded competition.
- Plasma collection costs represent roughly 60% of COGS for PDTs (about one-third of total revenue) and have been volatile in recent years. This cost exposure creates significant economic vulnerabilities that are difficult to manage and compounded by the IRA's annual CPI price increase limitation. We compare the change in CPI to the changes in the true cost of plasma collection.
- The Plasma Collection Cost Index (PCCI), constructed specifically for this analysis, demonstrates that plasma collection costs grew at 5.5% annually from 2019–2024, significantly outpacing consumer price inflation (at 4.2% annually) over the same period.
- Donor payments are the largest component of the PCCI, accounting for 50% of the index, and have increased sharply in response to a variety of factors including the COVID-19 pandemic and strong labor market conditions. Median income for the bottom 20% of wage earners in the U.S.—

a good proxy for the level of donor payments that is required to attract donors—grew 6.7% annually from 2019–2024, much faster than for overall wage earners.

- A further 25–30% of the index is represented by the direct labor costs of employees. These employees have likewise benefited from these same income growth rates that have outstripped inflation.
- The U.S. is also the largest source of demand for the most prominent PDT, Immunoglobulin (Ig) therapy. Despite major plasma collection disruptions during COVID-19, U.S. Ig pricing and supply remained relatively stable from 2019–2023, with an annual growth rate in the PCCI of 5.4% as compared to Average Sales Price (ASP) per unit growing at 5.1% annually and 4.5% CPI growth. Medicare unit volume for Ig grew at 6.3% annually from 2019–2023, reflecting both demographic trends and expanded therapeutic applications.
- Higher demand for PDTs requires more donors and donations. Manufacturers must expand the pool of willing donors, necessitating higher fees per donation. Individual centers face capacity constraints, so manufacturers need to open new centers to meet demand. The lowest-cost and most productive sites are already occupied, so the cost of new centers is also rising. While PDT manufacturers continue to innovate and improve efficiency in manufacturing post-collection, the plasma collection costs that determine the bulk of COGS continue to rise faster than the inflation rate.
- Inflation Reduction Act (IRA) inflation penalties limit price increases to the CPI growth rate, creating automatic margin compression when the collection costs rise faster than inflation. With margins that are already considerably lower than most pharmaceuticals, the average gap of approximately 1.3 percentage points between CPI and PCCI threatens the long-term supply of PDTs by squeezing margins below the level needed for necessary new investment.

- Historically, manufacturers have made and sold several products from each donation: Ig and byproducts including albumin and clotting factors, which have helped to maintain margins. These byproducts are being replaced by a raft of innovative therapies. The changing patterns of demand for PDTs (other than Ig), due often to alternative therapies, is further squeezing margins, exacerbating the deleterious effects of the IRA.
- Despite these pressures on costs and margins, a large share of the economic benefit of the PDT value chain already accrues in the U.S. For example, plasma collection centers provide critical economic support to low-income communities, helping donors avoid $180–230 million annually in high-interest debt costs while increasing local economic activity by 7–10%.
- Policy interventions are essential to maintain adequate economic incentives for U.S. plasma supply, prevent dangerous shortages, and ensure continued innovation in this critical therapeutic area. The combination of rising input costs, IRA-imposed price constraints, and deteriorating byproduct economics creates an urgent need for policy solutions that recognize the unique production economics of plasma-derived therapies.

Introduction

Plasma-derived therapies (PDTs) represent a critical component of modern healthcare, providing life-saving treatments for patients with primary immunodeficiencies (PID), neurological disorders, hemophilia, and numerous other serious conditions. Unlike conventional pharmaceuticals, these therapies rely on a unique and complex production process that begins with human plasma donation and ends with highly sophisticated biological products that cannot be synthesized through traditional manufacturing methods.

The United States occupies a singular position in the global plasma economy, serving as both the main source of plasma supply and the largest single market for immunoglobulins (Ig). This dual role has historically ensured adequate supply for American patients while supporting a robust export market. However, recent policy changes, particularly the Medicare prescription drug pricing provisions in the Inflation Reduction Act (IRA), combined with fundamental shifts in the economics of plasma collection, threaten to undermine this balanced market structure.

This white paper examines the unique economics of plasma-derived therapies through the lens of the newly constructed Plasma Collection Cost Index (PCCI), analyzes the policy implications of current and proposed pricing mechanisms, and explores the broader economic and social dimensions of plasma collection in the United States. The analysis reveals a concerning trajectory: the price control measures in the IRA—combined with rising input costs, regulatory price constraints, and deteriorating economics for PDTs other than Ig—create risk to the already fragile long-term sustainability of U.S. Ig supply.

PDTs differ fundamentally from conventional pharmaceuticals in their production economics. The manufacturing process begins with the collection of source plasma from paid donors, a practice that occurs in the United States and a handful of other countries.[1] This plasma undergoes fractionation—a

[1] This is supplemented by plasma that is recovered from whole blood donations, termed recovered plasma, but source plasma predominates.

complex process that separates the various protein components—followed by purification, viral inactivation, and formulation into therapeutic products.

The cost structure for PDTs is dramatically different from typical biopharmaceutical products. While small-molecule drugs average cost of goods sold (COGS) of approximately 14%, plasma-derived therapies exhibit COGS of 57%.[2] Within this cost structure, plasma collection itself represents 60% of total COGS, one third of total costs, making it the largest cost driver, and payments for plasma donations in turn represent 60% of plasma collection costs.[3] A high proportion of variable costs link directly to labor market dynamics, creating unique economic exposure to macroeconomic conditions.

Global Supply and Demand Dynamics

The United States supplies approximately 70% of the world's plasma, a position that reflects a regulatory framework that allows payments for donation, and the sophisticated infrastructure for plasma collection and processing that manufacturers have created.[4] This supply base supports not only domestic consumption but also substantial exports, with blood and related biologic products ranking as the 9th largest export category for the United States.[5] Global demand for PDTs is forecast to grow at approximately 8% annually over the next decade, with Ig representing the largest segment at approximately 50% of the market and exhibiting the highest growth rate. The demand growth drivers in advanced economies are aging populations, improved diagnosis of primary immunodeficiencies, and

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[2] Grabowski, H. & Manning, R. (2018). *Key Economic and Value Considerations for Plasma Protein Therapies in the U.S. Market.* Bates White Economic Consulting, February 2018. Available at 6916f15a2768e436f49958dd_154_Plasma Protein Therapies paper.pdf

[3] Grabowski, H. & Manning, R. (2018). Key Economic and Value Considerations in the U.S. Market for Plasma Protein Therapies. Bates White Economic Consulting, February 2018, op. cit.

[4] Belmonte M, Albiero A, Callewaert F, Patris J, Whittal A. Understanding supply sustainability of plasma-derived medicinal products: Drivers and consequences of shortages. Vox Sang. 2025 Aug;120(8):754–764. doi:10.1111/vox.70052.

[5] U.S. Census Bureau, Foreign Trade Division, USA Trade Online database, HTS Subchapter 3002 (Human blood; animal blood prepared for therapeutic, prophylactic or diagnostic uses; antisera and other blood fractions and immunological products; vaccines, toxins, cultures of micro-organisms; cell cultures), 2023 annual exports of approximately $37 billion, or 1.8% of total U.S. goods exports. Available at https://usatrade.census.gov/; also accessible via the U.S. International Trade Commission DataWeb at https://dataweb.usitc.gov/.

expanding therapeutic applications including neurological and autoimmune conditions. In developing markets, increased health expenditure with economic growth is also a major factor.[6]

Diseconomies of Scale in Plasma Collection

Unlike conventional manufacturing processes that benefit from economies of scale, PDT production exhibits significant *diseconomies* of scale because plasma collection itself becomes more costly per liter as volume grows. That is, as demand for plasma increases, as it is doing, the cost per liter of collecting that plasma also increases. A few core factors work together to cause these increases in average cost. For example, economic growth has caused rising real incomes in the lower quintile of wage-earners, raising the reservation price of time spent donating even as economic growth brings increased demand for PDTs. The typical plasma donor has an annual income of approximately $20,000, placing them in the lowest 20% of the income distribution where wage growth has been particularly strong in recent years.[7] That wage growth means that fees paid to attract donors also must increase. Each additional PID patient requires approximately 15 infusions per year, and each infusion requires plasma collected from hundreds of individual donations.[8] The mathematics of supply are unforgiving: meeting growing demand requires a steady expansion of the donor base in the face of rising costs to attract and collect from potential donors. New plasma collection centers must be built in more costly locations (defined in terms of site costs, local regulations that affect costs, lower shares of willing donors, etc.) which in turn raises collection costs. In short, as demand increases, the required number of donors increases proportionately, but the compensation needed to attract additional donors rises as manufacturers compete to find more supply.

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[6] Jolles, S., et al. "Global immunoglobulin supply: steaming towards the iceberg?" Transfusion Medicine, 30(6), 396–410 (2020). PMC7752222.

[7] Dooley, J. & Gallagher, E. "Blood Money: Selling Plasma to Avoid High-Interest Loans." The Review of Financial Studies, 37(9), 2779–2816 (2024). https://doi.org/10.1093/rfs/hhae018

[8] Plasma Protein Therapeutics Association (PPTA), "The Need for Plasma," available at https://www.pptaglobal.org. PPTA reports that a single patient with primary immunodeficiency disease typically requires plasma from approximately 130 donations per year of treatment, reflecting both the frequency of immunoglobulin infusions and the pooled-donor manufacturing process used to produce each dose.

The Economics and Social Impact of Plasma Donation

The United States is one of the few high-income countries where manufacturers can pay donors for their time and effort.[9] The donor population is diverse but skewed toward low-income individuals for whom the donor fees represent meaningful supplemental income. According to recent survey data, 52% of donors describe themselves as working full time, 20% as unemployed (including full-time parents and those not looking for work), 15% as working part time, 2% as students, and 11% as other categories including military and the retired. The high retention rate—with 93% willing to donate again and 90% willing to refer friends and family—indicates general satisfaction with the donation experience. [10]

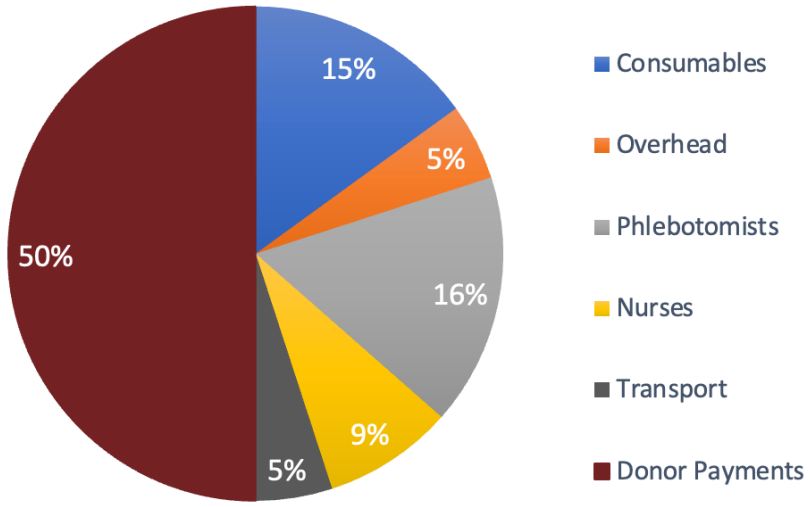
Measuring Input Cost Pressures: PCCI Methodology and Components

PDTs generally fall into the same regulatory and reimbursement framework as biopharmaceutical products but have a very different underlying cost structure. Pharmaceutical products usually exhibit relative low unit production costs and significant economies of scale. PDTs are different in that they rely on a particularly scarce resource: people willing to donate plasma. To accurately assess the cost pressures facing plasma collection operations, we have constructed a Plasma Collection Cost Index (PCCI) based on publicly available data from industry reports and government statistics. The PCCI weights the key input costs in plasma collection according to their relative share of production process costs and examines how historical changes in key input costs blend together.

[9] Payment rules for donations vary across jurisdictions. In some countries, donations are entirely voluntary. In others, limited payments to reimburse costs are allowed.

[10] CSL Limited, CSL Annual Report 2025, p. 35 (Donor profile, based on self-reported CSL Plasma mobile-app survey of U.S. donors, 1 July 2024 – 30 June 2025, n ≈ 1.8 million responses). Available at https://investors.csl.com/annualreport/2025/35/.

Figure 1. PCCI Component Weights

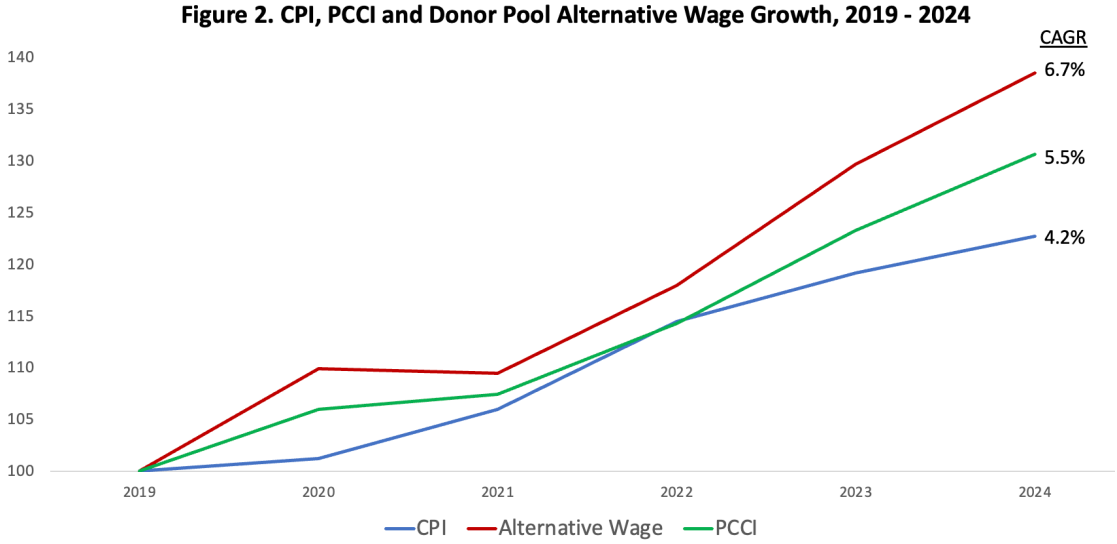


Source: Health Capital Group analysis based on publicly available industry cost reports and labor statistics.

As shown in Figure 1, donor payments represent 50% of the index, reflecting their dominant role in collection costs. Phlebotomists account for 16%, nurses 9%, overhead costs 5%, consumables 15%, and transportation 5%. This composition reflects the fundamentally labor-intensive nature of plasma collection and explains why the index is highly sensitive to labor market conditions. Fully 75% of plasma collection costs are driven by labor-market factors that have grown significantly faster than overall CPI in recent years.

Figure 2 presents the annual growth for CPI, the PCCI and the most important component of PCCI—the alternative wages available to the typical pool of plasma donors.

Figure 2. CPI, PCCI and Donor Pool Alternative Wage Growth, 2019 - 2024



Source: Health Capital Group analysis

Nominal wages for the bottom quintile of earners grew by 39% from 2019 to 2024—much faster than the 22% overall increase in prices over the same period.[11] This wage growth translates directly into higher donor fees. Industry data shows that typical per-donation payments increased from a range of $20–50 in 2019 to $45–100 by 2025, with premium markets and new donor promotions pushing compensation even higher.[12]

Over the period, the PCCI grew 1.3 percentage points faster than CPI annually. This differential compounded over the period to create substantial cost pressures. Economists would expect PDT prices to rise commensurately with input costs, but under the Inflation Reduction Act price growth is effectively

[11] Federal Reserve Bank of Atlanta, Wage Growth Tracker, based on microdata from the Bureau of Labor Statistics' Current Population Survey. Available at https://www.atlantafed.org/chcs/wage-growth-tracker. Cumulative nominal wage growth for the bottom quintile of earners exceeded 39% from 2019 through 2024, while CPI-U rose by approximately 22% over the same period (U.S. Bureau of Labor Statistics, Consumer Price Index for All Urban Consumers).

[12] For the 2019 range, see Dooley & Gallagher (2024), op. cit. (note 7); the working paper version documents typical per-collection payments of $30–$50 in 2019 (Dooley J, Gallagher E. Blood Money: The Financial Implications of Plasma Sales for Individuals and Non-Bank Lenders. FDIC Center for Financial Research Working Paper, 2022, available at https://www.fdic.gov/system/files/2024-08/gallagher-paper.pdf). For the 2025 range, see GoodRx Health, "How Much Can You Make Donating Plasma?" updated July 2025, available at https://www.goodrx.com/health-topic/finance/how-much-donating-plasma-pays (reporting per-donation payments of approximately $30–$100 or more as of June 2025); see also published donor compensation pages of major U.S. collectors (CSL Plasma, BioLife/Takeda, Octapharma, Grifols), accessed 2025.

capped at CPI. Going forward, with plasma collection representing roughly 60% of total COGS, a 1.3 percentage point gap between PCCI and CPI will inevitably reduce margin. This structural cost pressure operates independently of demand growth and cannot be mitigated through operational efficiency alone.

The U.S. market for Ig has demonstrated remarkable price stability and consistent growth in supply despite significant disruptions, particularly during the COVID-19 pandemic. To assess pricing trends, we conducted original analysis using Medicare Average Sales Price (ASP) data from the Centers for Medicare & Medicaid Services (CMS). We calculated a weighted average ASP for Ig products based on actual sales volumes within Medicare Part B, reflecting the true market-weighted price evolution rather than simple averages that might be skewed by low-volume products. Note that this is a measure that likely overstates overall prices because it does not include 340B discounts, which exert a significant, growing, downward impact on net price.[13]

From 2019 to 2023—before the IRA's rebate penalty began—our calculated weighted average Medicare ASP per unit increased by 22% cumulatively, only slightly exceeding the 19% cumulative increase in CPI-U over the same period and lower than the PCCI growth of 23.3%. This modest price growth occurred during a period of extraordinary supply chain stress, including pandemic-related collection disruptions, demonstrating the limited pricing flexibility available to manufacturers in the Medicare-dominated Ig market.

Figure 3. Comparison of Price Indices (2019–2023, Indexed to 2019=100)

Year	CPI-U	Weighted Avg ASP	PCCI
2019	100.0	100.0	100.0
2020	101.2	103.4	106.0
2021	108.2	111.7	107.4
2022	115.2	117.8	114.3

[13] Congressional Budget Office, Growth in the 340B Drug Pricing Program, CBO Publication No. 60661, September 2025. Available at https://www.cbo.gov/publication/61730. CBO documents 340B drug spending growth from $6.6 billion in 2010 to $43.9 billion in 2021 (19% per year), compared with roughly 4% per year for marketwide brand-name drug spending over the same period.

Year	CPI-U	Weighted Avg ASP	PCCI
2023	119.1	122.0	123.3
Cumulative Growth	**+19.1%**	**+22.0%**	**+23.3%**

Source: Health Capital Group analysis. Weighted Average ASP calculated from CMS Medicare Part B Average Sales Price data using actual sales volumes. CPI-U from Bureau of Labor Statistics. PCCI from Health Capital Group proprietary index.

This relative pricing stability, while beneficial for payers and patients in the short term, has meant that manufacturers have absorbed a significant portion of the cost increases documented in the PCCI through margin compression rather than price increases. This is a hallmark of a highly competitive market; the PDT market is closer in spirit to the market for generics, with multiple competitors keeping price growth in check.[14]

The Medicare prescription drug pricing provisions in the Inflation Reduction Act impose significant new constraints on price increases for drugs covered under Medicare Part B and Part D (where Ig and other PDTs are covered). Under the IRA, if a drug's price increase exceeds the rate of inflation, manufacturers must pay rebates to Medicare equal to the excess amount. Had the IRA inflation penalties been in place prior to 2023, the margins would have declined by almost 1% per year, largely driven by the increase in PCCI beyond the CPI rate.

Another unique feature of PDTs is that each liter of source plasma produces multiple products: Ig, albumin, clotting factors, and various other proteins. This joint production creates complex economics because the overall profitability of plasma collection depends on the aggregate revenue from all products, but the additional profitability from sales of the primary product driving collection volumes, Ig, depends only on the additional revenue from the additional Ig sales (net of the increasing plasma collection costs). Historically, relatively higher-margin Ig sales in the U.S. could be complemented by lower (but still

[14] Grabowski & Manning (2018), op. cit. (see discussion of fractionator market structure and brand competition). See also Farrugia A, Cassar J. Plasma-derived medicines: access and usage issues. Blood Transfus. 2012;10(3):273–278. doi:10.2450/2012.0118-11.

positive) margins on the byproducts sold in the U.S. and elsewhere. This allowed manufacturers to maintain collection volumes even when individual products faced pricing pressure.

Therapeutic innovation is disrupting this balance. Gene therapies for hemophilia are replacing recombinant clotting factor products. Novel albumin substitutes are being developed for critical care indications. Each innovation that displaces a plasma-derived product reduces the revenue-per-liter from plasma collection, even as Ig demand continues to grow. The reduction in demand for byproducts has led to the situation where the potential supply of byproducts from the plasma needed to meet Ig demand exceeds demand for those byproducts. Accordingly, manufacturers do not make every byproduct from every donation they collect.

The supply demand imbalance caused by flat or declining demand for the byproducts depresses prices in international markets. China accounts for a substantial portion of global albumin demand; competition there is intense, involving domestic and overseas suppliers, and is reflected in falling prices.[15] European markets for non-Ig products are similarly competitive. As a result, revenue from byproducts continues to decline, placing more economic pressure on Ig pricing to support the overall economics of plasma collection.

Imposing additional price controls on PDTs (such as via proposed most-favored-nation mechanisms) would compound these problems. Such policies would fail to account for the unique economics of plasma collection. The industry has maintained supply continuity despite somewhat lower returns, in expectation of future volume growth and the value of byproducts to maintain overall profitability. However, this strategy becomes increasingly untenable as the gap between input costs and permitted prices continues to widen.

[15] Belmonte M, et al. (2025), op. cit. (note 4), documents China's position as a major global albumin market and the entry of competing domestic and foreign suppliers. See also Mullin R, "Albumin made from rice could be game changing. But can the start-up that makes it survive?" Chemical & Engineering News, October 8, 2025.

Forcing U.S. prices down to international levels would further compress margins at precisely the time when input costs are rising faster than inflation. The net result of international price parity would likely be more intense competition for increasingly scarce plasma supply—a recipe for shortages in the U.S. Furthermore, price constraints on Ig in the U.S. market can no longer be offset by plasma byproducts which face declining demand, intense competition and falling prices.

Plasma Supply and the Economy

Plasma collection centers create significant economic activity in the communities where they operate. Donors typically live close to centers ensuring that economic benefits flow to local residents. Plasma collection comprises a distributed production process with thousands of donors across the country supported by local full-time employees (phlebotomists, nurses, technicians, and administrative staff) spread across hundreds of collection centers, primarily located in low-income communities.

Donor fees and employment in the centers in these communities are particularly valuable to the local economy. Research has shown that the presence of a plasma collection center increases foot traffic and economic activity for nearby businesses by 7–10%. Plasma donation can also serve as an important alternative to high-interest credit for low-income individuals. Detailed analysis of donation patterns around timing of bills and expenses suggests that donors use plasma compensation to avoid payday loans, overdraft fees, and other expensive forms of short-term credit. Conservative estimates indicate that plasma donation helps donors avoid between $180 million and $230 million annually in interest costs on high-cost debt. For individuals in the bottom quintile of the income distribution, where a single overdraft fee or payday loan can trigger a cascade of financial distress, this represents a meaningful improvement in financial stability.

“Buy now, pay later” has been among the fastest-growing segments of the credit market over the past decade, and the growth of such services has created a substitute for plasma donation for some individuals. Whether such credit schemes are good or bad for their targeted populations is a matter of

intense debate among economists and sociologists, but the growth in available credit explains part of the upward pressure on donor compensation: as alternative sources of short-term credit become more available and less stigmatized, the cost of attracting donors increases. A similar impact occurred during the peak of the COVID pandemic, when many potential donors received significant cash subsidies.

Plasma collection also creates high-value exports. The sophisticated fractionation and purification facilities that process collected plasma employ highly skilled workers and produce products that deliver substantial revenues from international markets. The entire supply chain, from collection center technician to fractionation facility biochemist, represents economic value creation that benefits from the scale and efficiency of the U.S. plasma system.

On the supply side, the United States has largely avoided severe Ig shortages due to its preeminent position in both supply and demand, even during the peak supply disruptions of COVID. On the other hand, international experience provides sobering evidence of what occurs when plasma economics deteriorate. Figure 4 documents a selection of IVIG shortage events that occurred between 2017 and 2022, illustrating both the causes and consequences of supply disruptions.

Figure 4: Sample Cases of Intravenous Immunoglobulin Shortages (2017–2022)

Year	Country	Primary Causes	Impact on Patients
2017	France	Expansion of approved indications, production restrictions	Treatment delays, dose reductions, and clinical deterioration for patients with CIDP, LSS, MMN, and myasthenia gravis
2018	United Kingdom	Demand higher than forecasted; low tender prices led manufacturers to allocate supply to higher-price markets	Treatment discontinuations and modifications for PID patients
2020	Portugal	Plasma collection reduced by approximately 50%; low tender prices	Government warnings to hospitals to reserve IVIG only for cases with no alternative treatment options
2020	Spain	COVID-19 pandemic disrupted supply chains	Treatment delays, dose reductions, and modifications
2021	France	Persistent supply constraints following pandemic disruptions	Exceptional temporary importation of products not normally available in French market for PID and SID patients

Year	Country	Primary Causes	Impact on Patients
2022	Poland	COVID-19 pandemic impacts; low tender prices	Treatment dose reductions, discontinuations, and modifications

Note: CIDP = chronic inflammatory demyelinating polyradiculoneuropathy; LSS = lumbar spinal stenosis; MMN = multifocal motor neuropathy; PID = primary immunodeficiencies; SID = secondary immunodeficiencies. Source: Adapted from "Understanding supply sustainability of plasma-derived medicinal products: Drivers and consequences of shortages," Vox Sanguinis (2025).

Shortages are characterized by common themes: low tender prices that fail to cover production costs, allocation of limited supplies to higher-price markets, and COVID-19 pandemic impacts on plasma collection.[16] The consequences for patients are severe, ranging from treatment delays and dose reductions to treatment discontinuation and, in the most serious cases, patient deaths.

The COVID-19 pandemic provided a natural experiment in plasma supply disruption. Plasma collections decreased by approximately 50% in some regions during peak pandemic periods as donors stayed home and collection centers reduced operations. Portugal, Spain, Poland, and other European countries experienced significant shortages, with government agencies issuing warnings to hospitals to reserve Ig only for cases with no alternative treatments. Notably, the United States largely maintained supply continuity during this period, demonstrating the value of the American plasma collection system's scale and economic resilience as well as a more market-driven price system compared to markets that experience shortages.[17] However, the pandemic did reveal vulnerabilities: collections declined significantly despite sharp increases in donor fees that prevented more serious shortages. The pandemic experience provides a preview of what could become chronic conditions if the economics of U.S. PDT supply continues to deteriorate. Shortages are not merely inconvenient—they harm patients in need.

[16] Belmonte M, Albiero A, Callewaert F, Patris J, Whittal A. Understanding supply sustainability of plasma-derived medicinal products: Drivers and consequences of shortages. Vox Sang. 2025 Aug;120(8):754-764. doi: 10.1111/vox.70052. Epub 2025 May 26. PMID: 40419326; PMCID: PMC12390372.

[17] Hartmann J, Klein HG. Supply and demand for plasma-derived medicinal products — A critical reassessment amid the COVID-19 pandemic. Transfusion. 2020 Nov;60(11):2748–2752. doi:10.1111/trf.16078. See also Bolcato M, Jommi C. Shortage of plasma-derived medicinal products: what is next? Front Pharmacol. 2024;15:1375891 (documenting an ~18% drop in U.S. plasma collection in 2020 without producing severe shortage).

Policy Implications

PDTs occupy a unique position in the pharmaceutical landscape, characterized by: (1) exceptionally high cost of goods sold driven by labor-intensive collection processes; (2) diseconomies of scale in production; (3) joint production economics where byproduct revenues are critical to overall profitability and are under pressure from competition; (4) supply constraints that cannot be rapidly alleviated; and (5) severe patient consequences from supply disruptions. Supply disruptions in particular are common in other areas where pricing reflects competition and is driven closer to production costs—e.g., antibiotics or sterile injectables.[18] These characteristics distinguish PDTs from conventional pharmaceuticals in ways that should inform policy design. Applying one-size-fits-all pricing policies developed for small molecule drugs or biologics with very different cost structures risks unintended consequences that would be costly and difficult to reverse.

The PCCI quantifies the prominent role that macroeconomic conditions and policy choices play in PDT production costs. A strong U.S. economy—which increases both product demand and employment opportunities for potential donors—paradoxically increases collection costs by raising the opportunity cost of donation time. The interplay between high-cost credit and plasma supply is a good example of the forces that are generally irrelevant for most drug manufacturing but have a large impact on the market for PDT supply.

The PCCI demonstrates that PDT input costs are growing significantly faster than general inflation due to strong labor markets and the concentrated demographics of plasma donors. The IRA's inflation penalties create unsustainable margin compression for PDTs. Without policy adjustments that recognize these unique economics, investment in increased capacity to meet growing U.S. demand is increasingly

[18] Conti RM, Frank RG. Federal policies to address persistent generic drug shortages. Brookings Institution, June 3, 2024. See also Woodcock J, Wosinska M. Economic and technological drivers of generic sterile injectable drug shortages. Clin Pharmacol Ther. 2013;93(2):170–176. doi:10.1038/clpt.2012.220; and Shafiq N, et al. Antimicrobial Shortages: A Global Issue Impacting Infectious Diseases. Clin Infect Dis. 2025;80(2):249–256.

uncertain. The United States supplies 70% of global plasma, and American patients depend on reliable access to immunoglobulin and other PDTs for life-threatening conditions. The cost of supply disruptions—measured in patient suffering, emergency interventions, and long-term health consequences—would far exceed the cost of maintaining pricing flexibility that reflects actual production economics. Policy levers exist to shore up the ongoing supply of PDTs in the U.S.:

1. IRA Inflation Penalty Exemption for Plasma Collection Costs

The IRA should either exempt PDTs from the inflation penalties, or have provision for higher-than-CPI price increases for these products where CPI is an inadequate metric of product cost changes. Price increases up to the PCCI rate (rather than CPI) could be exempt from rebate requirements for products with COGS structures dominated by plasma collection. This would prevent automatic margin compression and maintain economic incentives for capacity expansion.

2. MFN Exemption for PDTs

Proposals to link U.S. prices for PDTs to international reference prices would create strong disincentives for PDT supply expansion. International markets often treat PDTs as interchangeable commodities and employ aggressive procurement mechanisms that do not reflect production costs. Linking U.S. prices to these artificially depressed international levels would further compress margins and create the danger of shortages.

3. Maintain Market-Based Pricing for Primary Products

For PDTs, continued reliance on market-based pricing mechanisms (with appropriate safeguards against excessive pricing) and robust competition provides the most reliable path to adequate supply. The current ASP-based system, while imperfect, has largely maintained supply continuity and should be preserved. Additional price controls risk disrupting this equilibrium.

Conclusions

PDTs are a critical component of modern healthcare, providing life-saving treatments for hundreds of thousands of American patients with primary immunodeficiencies, neurological disorders, and other serious conditions. The United States occupies a unique and irreplaceable position in the global plasma ecosystem, supplying 70% of the world's plasma through a sophisticated system of donor fees and collection infrastructure.

The PCCI reveals that collection costs are continuing to grow at 1.3 percentage points faster than general inflation—driven by strong wage growth among the low-income donors who supply plasma. The IRA's inflation penalties prevent manufacturers from passing these cost increases through to prices, creating automatic margin compression. Simultaneously, innovation in adjacent therapeutic areas is displacing demand for plasma byproducts like clotting factors, reducing the revenue-per-liter from collected plasma even as immunoglobulin demand continues to grow. The joint production nature of plasma fractionation means that deteriorating byproduct economics directly impact the overall profitability of plasma collection.

International experience demonstrates that plasma shortages are not theoretical concerns. The documented shortage events in Europe and elsewhere between 2017 and 2022 illustrate the severe consequences for patients when plasma economics deteriorate: treatment delays, dose reductions, discontinuations, and even deaths. The COVID-19 pandemic provided a preview of supply vulnerability, with collections declining by 50% in some regions and only aggressive interventions preventing more serious disruptions.

The IRA and other automatic price control methods should recognize the unique economics of plasma-derived therapies. The high proportion of variable costs tied to labor markets, the diseconomies of scale in collection, the dependence on byproduct revenues, and the severe consequences of supply disruptions all argue for policy approaches tailored to PDT characteristics.

The PCCI provides an objective, data-driven tool for monitoring cost pressures and informing policy decisions. As policymakers consider additional measures to control healthcare costs, they must carefully weigh the unique characteristics of plasma-derived therapies and the critical importance of maintaining the economic incentives that ensure adequate U.S. plasma supply. Thoughtful, evidence-based policy that recognizes the distinctive economics of plasma collection is essential to protecting patient access to these life-saving therapies.